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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 second year as President for the District and I am presently serving my second three year term on the Board of Managers, representing Red Lake County. The year 2005 started quietly with a relatively uneventful spring thaw. In the month of May, there were rainfalls in excess of 4" to the eastern two thirds of the Red Lake Watershed District followed by another rainfall in June which averaged 7". These rainfalls caused some very intense moments for the District as the western one third of the Watershed District was all cropped and had not received the rains that the eastern portion of the District witnessed. Although there were some very unfortunate crop losses in the areas where the rain fell, the District managed to assist the western farming communities with flood control by implementing the operating plans on various flood control projects in the upstream areas. The water levels that were witnessed on all the Flood Damage Reduction projects throughout the District are shown later in this document.

In year 2005, two new Board members were appointed by their respective counties to replace the positions once held by Lowell Smeby and LeRoy Ose. Leland Coe from Tenstrike, MN was appointed by Beltrami County to replace Lowell Smeby who chose not to seek re-appointment after his three year term expired. Arnold Stanley, Grygla, was appointed to a three year term by the Marshall County Commissioners to replace LeRoy Ose.

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 briefly mention is the fact that we continue to move forward with the development of our Ten Year Comprehensive Plan. The development of this plan has been very time consuming for our committees as well as our staff. I would like to let you know that we are nearing the final phases of the completion of the plan. The District will mail out several versions of the plan for public comment in February or March of 2006 with completion occurring in mid to late summer of 2006. To gather more information about this plan I invite you to refer to our website ([www.redlakewatershed.org](http://www.redlakewatershed.org)).

Our 2005 Annual Audit is included in this report in an abbreviated form. A complete copy of the 2005 Annual Audit may be obtained at the District office at 102 Main Avenue North, Thief River Falls.

Once again, it was a pleasure to serve as President of the Board in 2005.

Sincerely,

Orville Knott, President  
Red Lake Watershed District

## Board of Managers – 2005



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

**Arnold Stanley**



Arnold Stanley was appointed to the RLWD Board of Managers for a 3-year term. Arnold will represent Marshall County from 2005-2008.

**Lee Coe**



Lee Coe was appointed to the RLWD Board of Managers for a 3-year term. Lee will represent Beltrami County from 2005-2008.

## Staff – 2005



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

## Office

The Red Lake Watershed District  
Office is located at:  
102 Main Avenue North  
Thief River Falls, MN 56701  
Office Hours:  
Monday – Friday, 8:00 a.m. – 4:30 p.m.  
Phone: 218-681-5800  
Fax: 218-681-5839  
Website: [redlakewatershed.org](http://redlakewatershed.org)  
E-Mail: [rlwaters@wiktel.com](mailto:rlwaters@wiktel.com)



## Meetings

The Board of Managers held twelve regularly scheduled board meetings in 2005. These regular meetings are held the 2<sup>nd</sup> and 4<sup>th</sup> Thursday of each month at the District office at 9:00 a.m. Notice of these meetings is mailed to the Advisory Committees, county auditors, county commissioners, and SWCD/NRCS offices. Minutes from boards meetings are available by visiting our website at [www.redlakewatershed.org/minutes](http://www.redlakewatershed.org/minutes). The 2005 General Fund Budget hearing was held on September 8, 2004. Notice for the General Fund Budget hearing was published in at least one newspaper in each of the 10 counties within the watershed district.

## 2005 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  
Robert Torkelson, Lost River Area  
Dave Rodahl, Thief River Area  
Ron Edevold, Pine Lake Area  
Daniel Johnson, Red Lake River Area  
John Florhaug, Upper Red Lake Area  
Joel Rohde, Red Lake Band of Chippewa Indians

## 2005 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

### 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 2005, the members of the Overall Advisory and the Subwatershed Advisory Committees were contacted to reorganize the committees and bring them together to discuss issues related to Red Lake Watershed District activities. Several members wished to have their name removed from the committees. Two meetings were held with all members invited. The first meeting was held February 24 with 12 members in attendance. At this meeting, it was the consensus of the group to appoint Eugene (Jeep) Mattson as the chair of the Advisory Committee. Staff members from the Red Lake Watershed District gave presentations on projects within the District, followed by questions from the Advisory Committee members. The second meeting was held on April 7, with 10 members present. Discussion was held on the cleaning of a ditch system versus an improvement petition, ditches downstream of the Moose River Impoundment, RLWD Mission statement, and the funding mechanisms of the Red Lake Watershed District.

## History of the Red Lake Watershed District

The Red Lake Watershed District covers an area of 5,990 square miles in northwestern Minnesota and includes all of Red Lake County, most of Pennington County, and parts of Mahnommen, 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.

## **2005 DISTRICT PROJECTS**

### **Red Lake Watershed District Ditch #10 (RLWD Project #161)**

In July of 2003, the Board received a petition for the establishment of a new drainage ditch in River and Gervais Townships in Red Lake County, Minnesota. The petition requested that the ditch would be approximately 3 ¾ miles of open channel. Subsequent to receiving the petition, the Board adopted a resolution that, upon the approval of the bond, the petition received was to be designated as RLWD Ditch #10. Also, an Engineer was appointed and directed to make the preliminary survey, and prepare the necessary plans and reports as required by law. In August of 2003, the required bond was received.

In 2004, at their regularly scheduled Board meeting held on February 26<sup>th</sup>, 2004, the project engineers presented the Preliminary Engineers Report to the Board of Managers. At that meeting, the Board decided that upon the filing of the Preliminary Engineers Report, a public hearing would be set in accordance with Minnesota Statutes 103D and 103E.

The preliminary hearing for this project was held on March 25, 2004 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 RLWD office and available for public viewing). Following the closing of the hearing, the Board passed by unanimous vote they deem the Preliminary Engineers report practical and feasible, to appoint three viewers, and direct the Engineer to prepare a detailed study and final report.

On December 9, 2004 at the RLWD Board room, the final hearing was held concerning the Final Engineers Report and Viewers Report. After lengthy testimony and questions, the hearing was adjourned until December 23, 2004. On December 23, the hearing was reconvened and after testimony and questions from the public was entertained, the hearing was closed. After the completion of the hearing, a motion was made and passed by unanimous vote that the Board request Legal Counsel prepare the Detailed Findings and Order by the Drainage Authority of the RLWD for the establishment of this ditch system at their next meeting in January of 2005.

On January 27, 2005 at the Red Lake Watershed District Board room, Legal Counsel presented the Detailed Findings and Order by the Drainage Authority of the RLWD for the establishment of the project. On March 24, 2005 eleven bids were opened for the construction of this project, Olson Construction TRF, Inc. was the low bid in the amount of \$145,810.10. Due to the delay in receiving a U.S. Army Corps of Engineers permit, construction on this project was delayed until late July, 2005. Construction was completed in late September 2005 with the final payment hearing for Olson Construction TRF, Inc. held on October 13, 2005. With the inclusion of change orders, the construction costs for this project totaled \$160,201.94.

## Red Lake Watershed District Ditch #10 Construction



**Location and excavation for rock chute at outlet of ditch.**



**Grouted rock chute at outlet.**



**Ditch excavation.**



## Seeger Dam (RLWD Project #50)

Seeger Dam is located approximately two miles west of the city of Red Lake Falls, in Section 29 of Red Lake Falls Township, Red Lake County. Emergency repairs were necessary because a slope failure occurred on the downstream slope of the earthen embankment. The top of the dike is a township road used for bus/mail routes and road closure was necessary for safety concerns.

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.

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 recompacted 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.



Slope Failure



Structure Opening



Excavation for Pool Drawdown



Drawdown

## 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 Legislators 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%. It is the hopes of the District that the construction of one or two of these Impoundments will start in the summer of 2006.

### **Ten Year Comprehensive Plan (RLWD Project #149)**

The Red Lake Watershed District last updated their TenYear Comprehensive Plan in 1988. Due to delays at the State and local levels, the District started the process of updating their 10 Year Comprehensive Plan in 2003. This plan, under Minnesota law, must be updated every 10 years. The adoption of this Plan sets forth a long range planning process, which will assess the current water related actives of the District to set forth a proposed management plan.

A Technical Advisory Committee (TAC) and a Citizens Advisory Committee (CAC) were organized as part of this process. These committees consist of local, state and federal agencies and citizens within the District. The committees have assisted the District in defining plan priorities, collect issues and concerns, and aid in the writing of this plan. The first meeting of the committee was held in 2003 and the committees have met periodically to discuss various water management issues and provide input to the Board of Managers for development of the 10 Year Comprehensive Plan.

Funding is through the State of Minnesota, Flood Damage Reduction Project; Red River Watershed Management Board; and the RLWD.

It is the hopes of the District that the planning process will be completed in the summer of 2006.

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

In 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 a 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.

In August 11, 2005, Pribula Engineering presented the Preliminary Engineer's Report. After the Engineer presented his report, followed by discussion between the Board and landowners, the petitioners requested that an additional two miles be added 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.

It is expected that the Viewers Report will be completed by April of 2006 and if approved a final hearing date will be set. Construction on this project could occur in late August of 2006.

### **Louisville/Parnell Impoundment (RLWD Project #121)**

In the spring of 2005, a small leak was noticed along the south embankment of the impoundment. Upon further review, the Board of Managers instructed HDR Engineering, Inc. to design a plan to reconstruct the berm and report back to the Board with a proposal. In May 2005, the Board approved to move ahead with the repair of the berm by seeking quotes and submitting Part I and Part II wetland application permits that would be required for this repair.

Due to the wet conditions and the delay in permitting, construction did not get completed in 2005. Construction on this project is expected to be completed by June of 2006.

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

The Red Lake Watershed District Ditch Inventory and Mapping project began in November of 2005 and continues as a "work in progress". The project requires that each facility or improvement under the Red Lake Watershed District's jurisdiction be identified and that various attributes of each facility are recorded in a geodatabase and linked to a map of the facility. The primary software platforms for these tasks are Microsoft Access 2003, ArcView 3.2 and ArcView 9.1.

The completed project will consist of a geodatabase (map-linked database) that documents each individual ditch in terms of its spatial and quantitative attributes. A District staff worker delineates the benefited area based on a viewer's report and identifies eroded reaches and culvert locations for each ditch based on existing documents and ground observation. The errors and ambiguities encountered in this stage of the process must be identified and, if possible, resolved. Engineering drawings and other available documents provide such design attributes as channel elevation, culvert elevation, base width, embankment slope, and survey station measurements. These data items are recorded in the geodatabase and linked to the corresponding features on the map.

As each step of this project is completed, a set of written procedures is being developed that will enable the replication of the task. This is an investment in time that will provide a dividend for staff workers who are not frequent users of ArcView or Access and for future staffers who must expand or update this project.

Once the data is entered and a map set is completed, a custom interface will be developed to allow nearly anyone, regardless of experience with ArcView, enter data, conduct searches, and perform basic mapping tasks.

### **Progress to Date:**

Approximately 50% of the District channels and benefited areas have been identified and delineated. The remainders contain problems that must be resolved.

The structure and content of the geodatabase has been defined, the fields standardized, and the map parameters optimized. A data dictionary has been developed in spreadsheet form that defines and explains each aspect of the database.

The procedures document is approximately 75% complete. Remaining work includes proofreading and editing to reflect procedural changes.

Three RLWD ditch systems have been delineated, routed, and calibrated to station measurements. This means that distance measurements on the map at each point along the ditch correspond to the same distance measurements indicated on the survey drawing.

The majority of time expended so far has been for learning how to complete each step and documenting the process as it is developed. Each subsequent ditch delineation will require much less time than these first few.

No progress has been made to date on the custom interface. This task requires specialized programming skills and must be completed by Houston Engineering consultants.

### **Farmstead Ring Dikes (RLWD Project #129)**

Since 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 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.
- Side slopes 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.

## Farmstead Ring Dikes (RLWD Project #129) Funding

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 97 requests have been received for the Ring Dike Program; 59 have been completed, 4 are pending and 34 have declined to participate. The program will continue into 2006.



Richard Stengl ring dike construction. Located in Section 30, Tabor Township, Polk County



Ken Cwikla ring dike construction, located in Section 32, Thief Lake Township, Marshall County.

**Farmstead Ring Dikes (RLWD Project #129)**



Ken Grundhaus ring dike construction, located in Section 18, Agder Township, Marshall County.



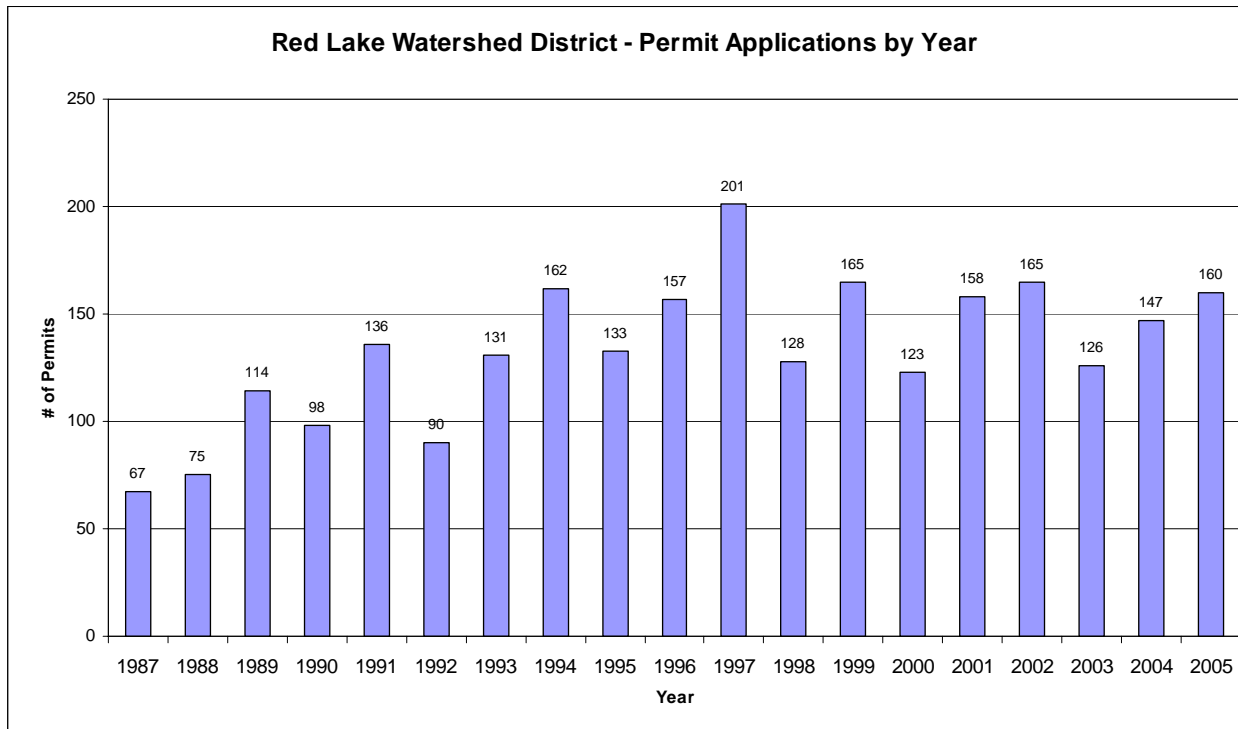
## Permits (RLWD Project #90)

The District received 160 permit applications in 2005. The work consisted of culvert installations, ditch cleanings, and road and bridge projects. Of the permits received five were denied, no action taken on six, and three were withdrawn.

The numbers listed below indicate the permits received and how they are categorized within our rules for permitting:

- 97 culvert/bridge replacements
- 7 road projects
- 42 drainage
- 2 utilities
- 3 other

The following graph is a recording of the number of yearly permit applications from 1987 to 2005.



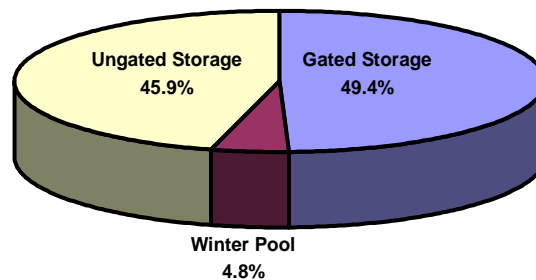
# IMPOUNDMENTS

## Flood Control Impoundments

The 2005 Spring runoff event was not a major problem in the basin. By the first week of April, the snow was gone and runoff was basically over. The most damaging floods were during the summer growing season when large precipitation events occurred in May and June.

The summer runoff events accelerated the Districts efforts in the operation of our flood control facilities both gated and non-gated. Some projects 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.

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. 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.



Routine inspections are performed to evaluate the condition of the embankment and control structures. Maintenance performed in 2005 included debris removal, removal of beaver debris, nuisance beaver, vegetation control, and graveling. The pictures, graphs, and descriptions on the following pages illustrate the gated control structures, elevations for the pools and design criteria for the various storage facilities.

## 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.

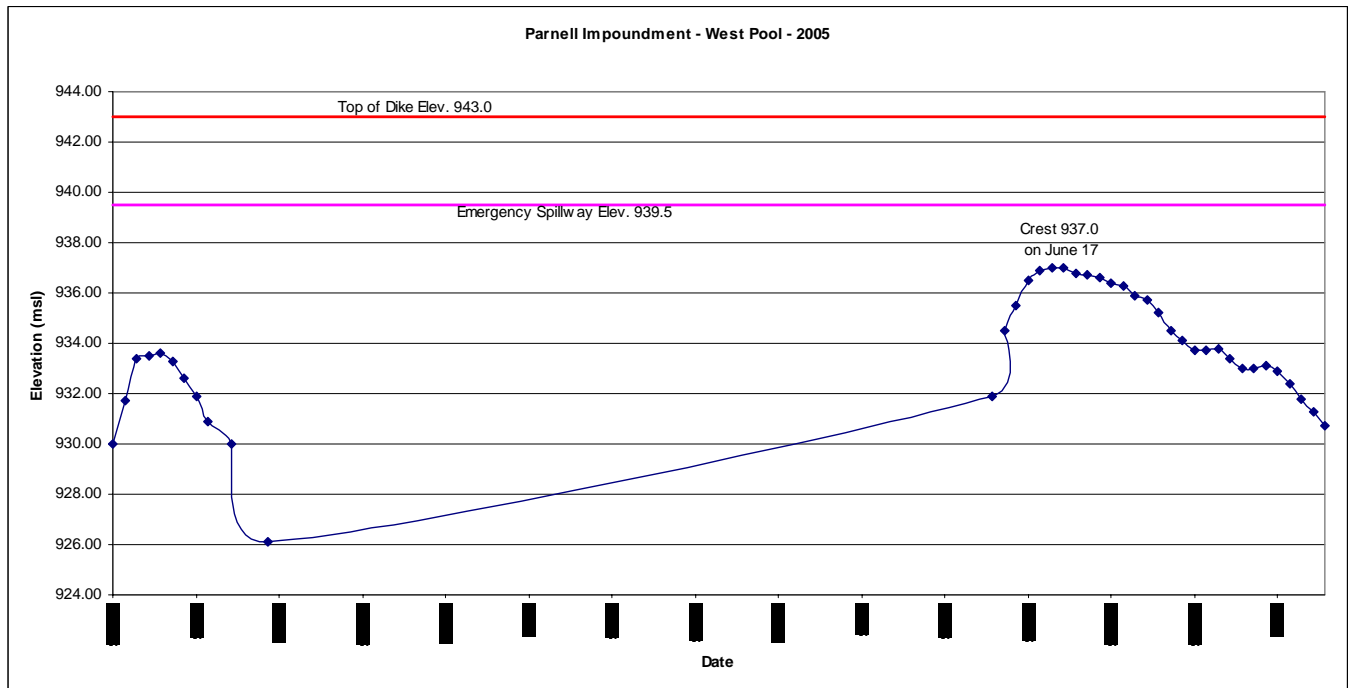
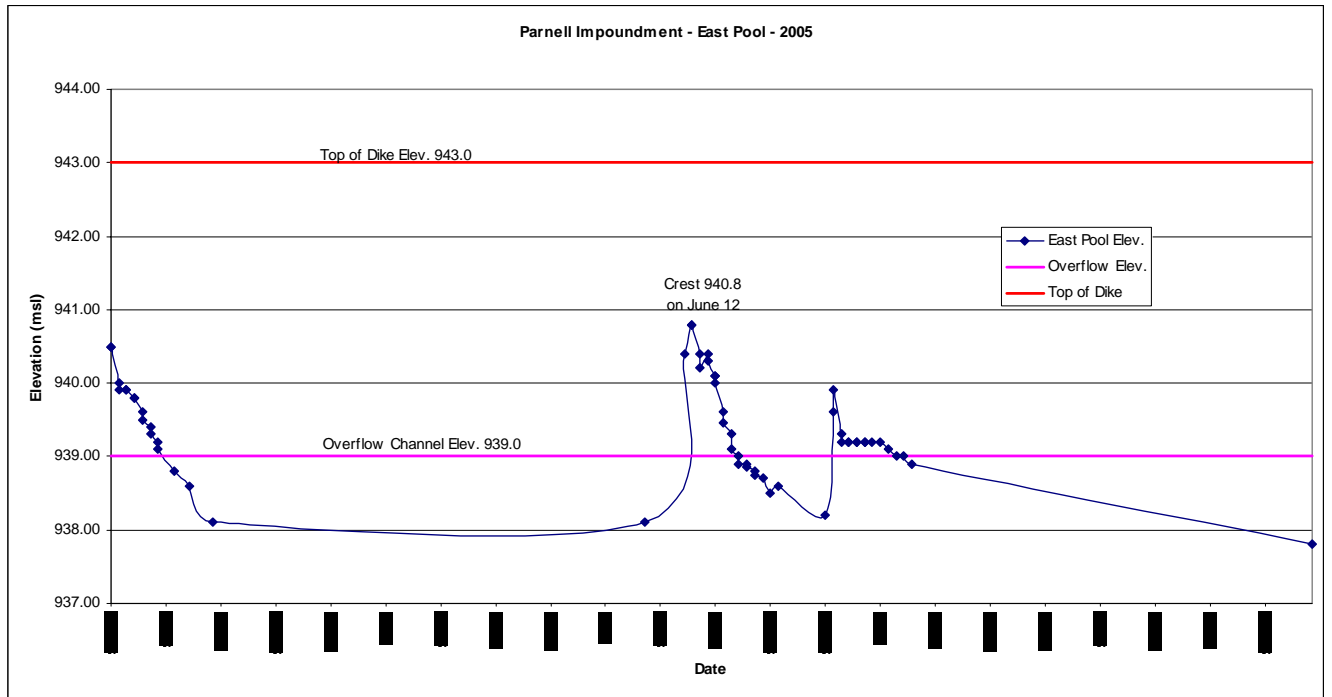
### **FUNCTIONAL DESIGN DATA:**

	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





## Pine Lake (RLWD Project #35)

In August of 1980 the Clearwater County Board of Commissioners petitioned the Red Lake Watershed District for an improvement of the Pine Lake outlet located in Pine Lake Township, Clearwater County near the City of Gonvick. In the fall of 1981 a sheet pile dam with two adjustable stoplog bays was constructed approximately 800' north of the lake on the Lost River. The Pine Lake watershed area upstream of the dam is approximately 45 square miles. Normal operations include adjustment of stoplogs, if necessary, depending on runoff conditions and elevations of the lake. A lake elevation gage was installed inside the Sportsmans Lodge to monitor lake levels. The Gonvick Lions have volunteered hundreds of hours and have been and continue to be pioneers of progress for the aeration program.



**Sheet Piling Weir with 2 adjustable stoplog bays**



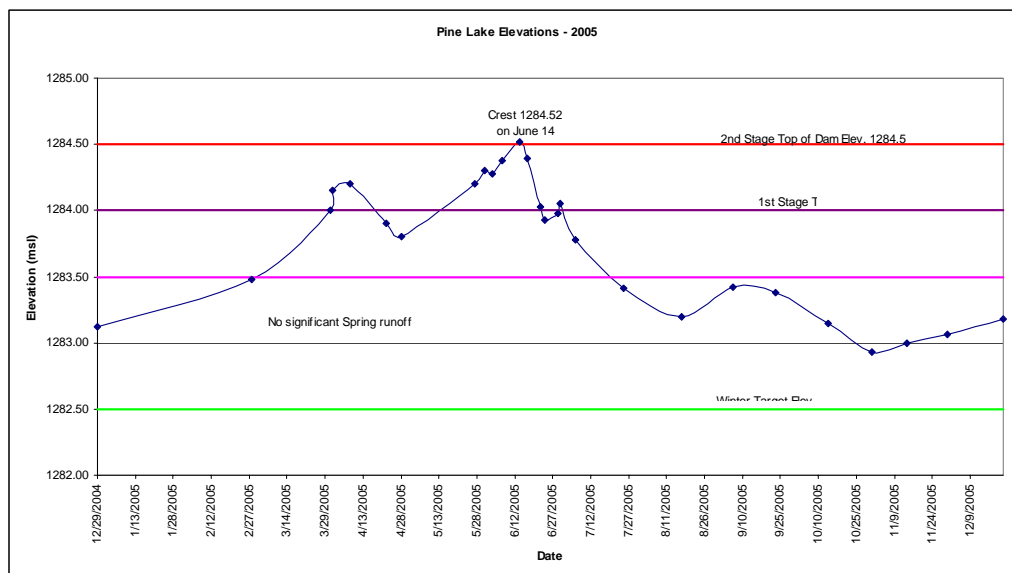
**Removing stoplogs to manage lake level**



**Subsurface aeration bubbler system**



**Air compressor house for bubbler system**



## 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

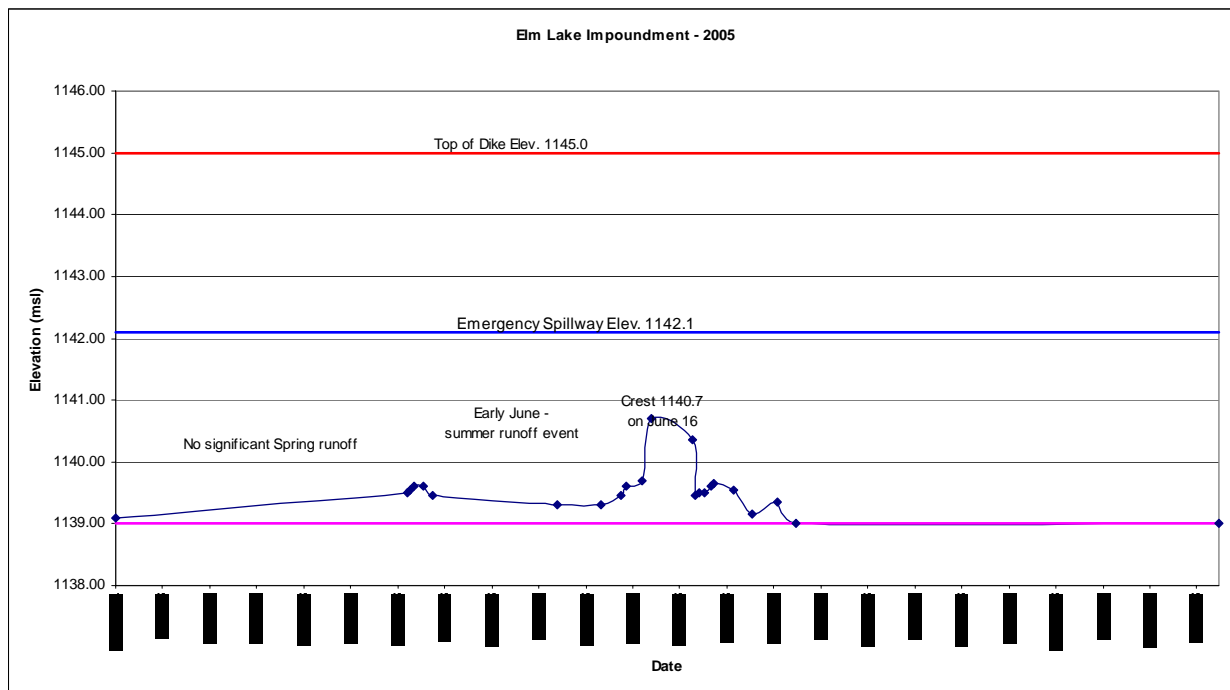
Drainage Area – 63.0 sq. mi.

**COST:** Approximately - \$2 million

**OPERATIONAL:** 1991



**Stoplog Outlet Structure**



## Lost River Impoundment (RLWD Project #17)

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

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

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

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

### **FUNCTIONAL DESIGN DATA**

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

Drainage Area – 53.0 sq. mi.

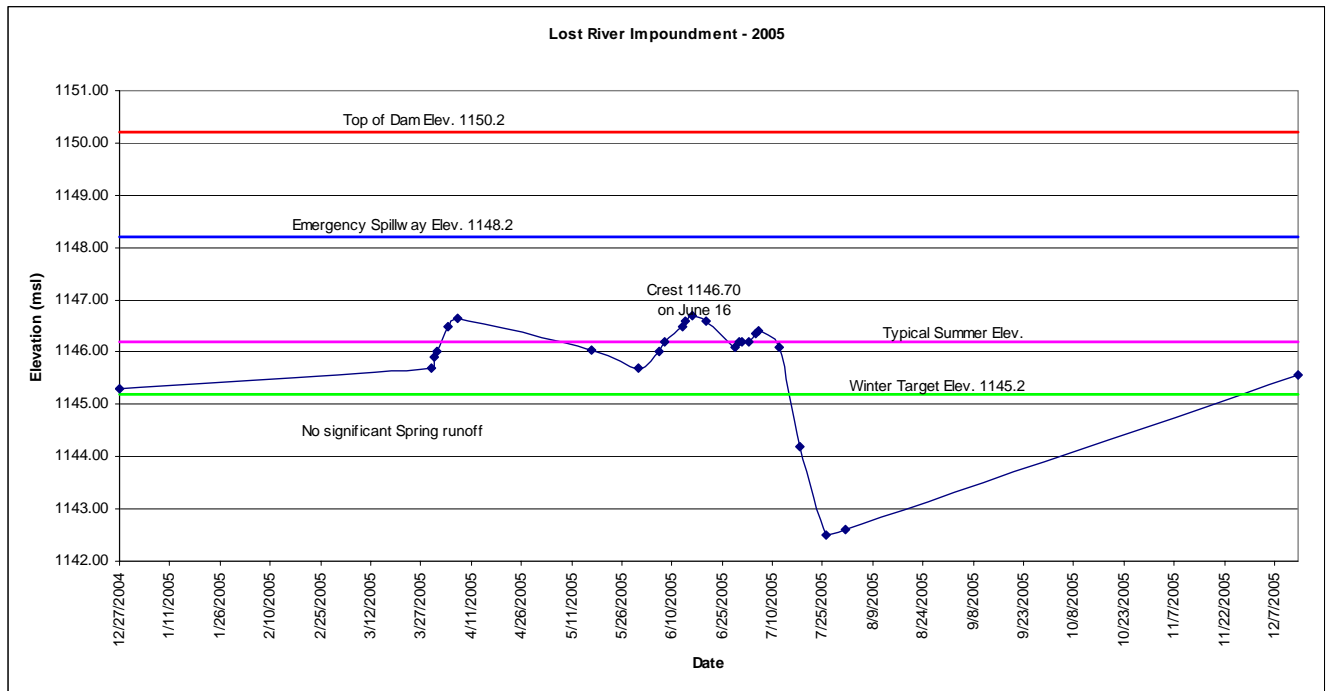
**COST:** To modify approximately - \$109,000

**OPERATIONAL:** 1978





**Lost River Impoundment Outlet Structure**



## 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**

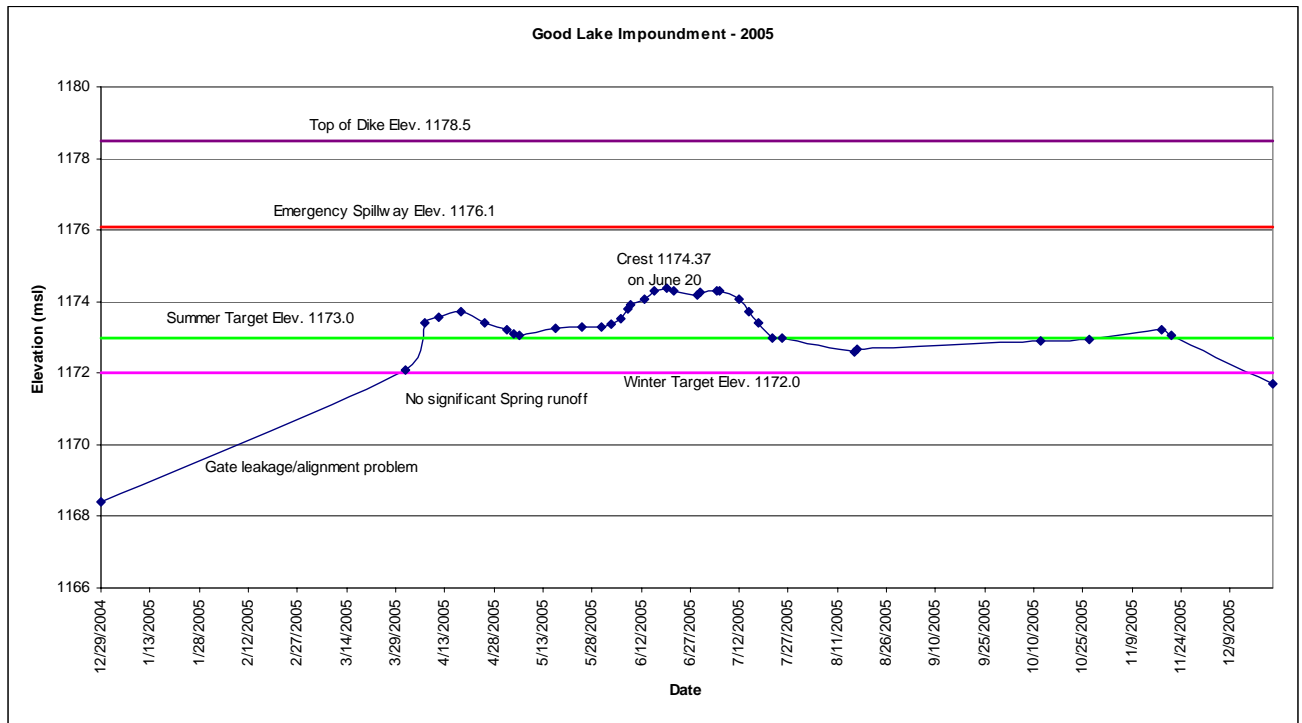
	Elev. (ft. – msl)	Storage (ac. – ft.)
Top of Dam	1178.5	27,500
Flood Pool (Emer. Splwy.)	1176.1	13,100
Norm. Summer Pool	1173.0	3,250
Norm. Winter Pool	1172.0	1,800
Drainage Area – 73 sq. mi.		

**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**



## Moose River Impoundment (RLWD Project #13)

**GENERAL:** The project, which is a two pool design, 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.

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

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

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

**OPERATIONAL:** 1988

### **FUNCTIONAL DESIGN DATA:**

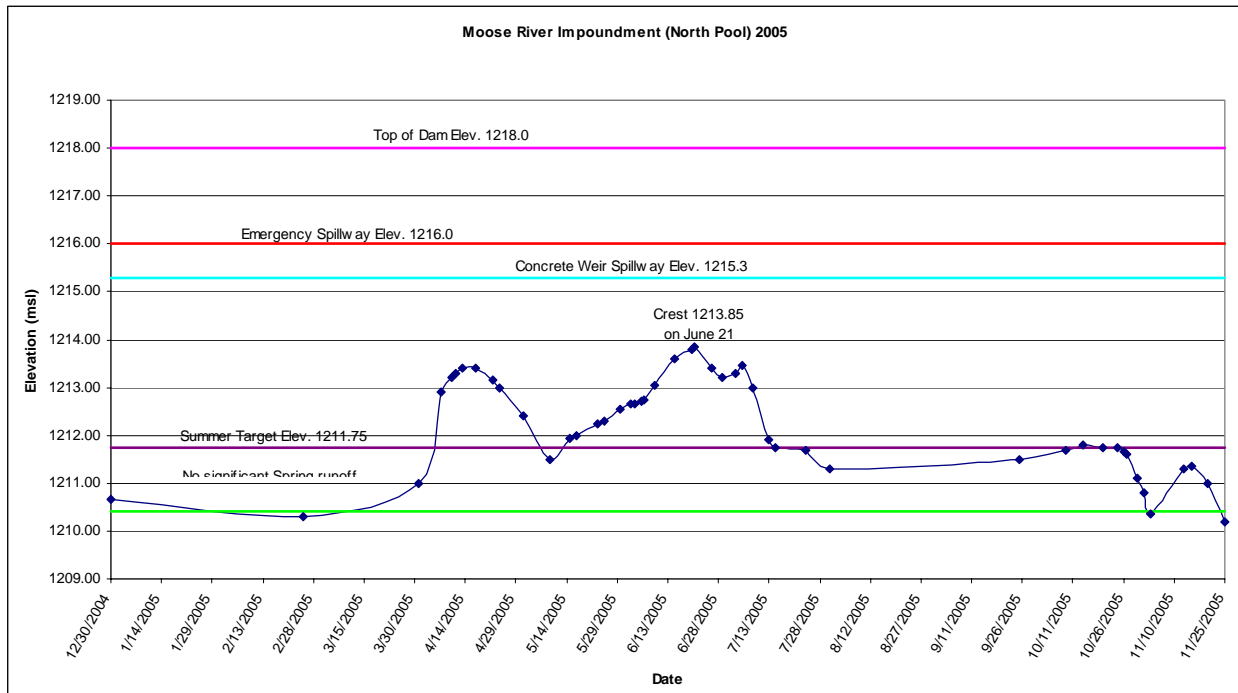
	<b>North Pool</b>	<b>South Pool</b>	<b>Total</b>
Top of Dam Elev. (ft.-msl)	1218.0	1220.0	
Freeboard Flood Elev. (ft.-msl)	1217.2	1219.3	
Freeboard Flood Storage (ac.ft)	16,250	38,250	54,500
Emer. Spillway Elev. (ft.-msl)	1216.0	1218.0	
Emer. Spillway Storage (ac.ft.)	12,000	24,250	36,250
Gated Pool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

## 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**

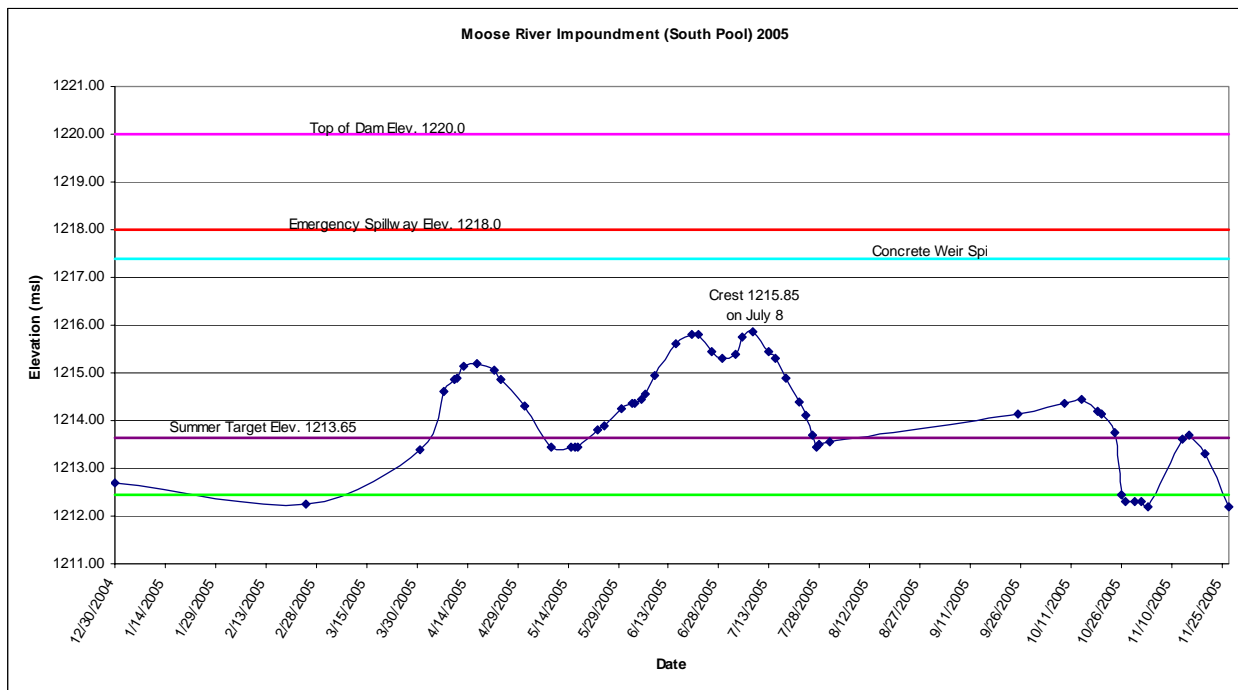


## Moose River Impoundment – South Pool

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



## 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**



**Browns Creek - Upstream tributary to Schirrick Dam**

# **Water Quality Report**

In 2005, the RLWD water quality staff continued the ongoing water quality projects of long-term stream and lake monitoring, public education, River Watch, stream gauging, and other smaller projects (monitoring success of past projects, advisory committees, and website updates). The RLWD was involved with several special water quality related projects as well. These included the Red Lake Watershed Farm to Stream Tile Drainage Study, investigation of the possibility of restoring the former trout stream reach of Ruffy Brook, monitoring for the Red River Basin Buffer Initiative, and participation in the 2005 statewide water quality assessment.

## **Long-Term Stream Monitoring Program**

The RLWD continued its long-term monitoring program in 2005. Thirty-two long-term monitoring sites were sampled at least four times in 2005. More frequent monitoring was done at certain sites for the Maple Lake area monitoring, Ruffy Brook monitoring, and the Red River Basin Buffer Initiative (Silver Creek).



Two new monitoring sites within the Silver Creek watershed were added to the Red River Basin Buffer Initiative monitoring project. The new sites are located on Clear Brook and in the upper part of the Silver Creek watershed. Stream classification surveys will be conducted in 2006 to compare a disturbed reach of Silver Creek to a reach that has a good riparian buffer. The rest of these studies are discussed in detail elsewhere within this report.

During the 2005 state water quality assessment, it was learned that, although the minimum data requirement for fecal coliform samples is ten samples (all RLWD long-term sites meet this requirement), the MPCA desires to see 5 samples for each calendar month from June through August from the most recent 10 years (the five data points don't necessarily have to be from the same year). Starting in the summer of 2005, the RLWD is collecting supplemental fecal coliform samples for the months of June through August (mostly June and August because sampling had normally been conducted in July every year). The goal of this sampling is to meet data requirements for the 2007 statewide water quality assessment. The supplemental samples will be divided between 2005 and 2006 to minimize the effect upon either year's water quality monitoring budget.

A comprehensive water quality monitoring report similar to the one created in 2004 is scheduled for 2006. It will be based on water quality monitoring data collected through 2005.



RLWD water quality staff has continued to investigate the turbidity, dissolved oxygen, and hydrogen sulfide problems on the Thief River. The RLWD has helped increase the awareness of the problems on the river through cooperation with the Marshall County Water Resources Advisory Committee (WRAC), Agassiz National Wildlife Refuge, and others. An investigation into how impoundments are run, affect



water quality, and affect flood storage is being conducted by the Marshall County WRAC and the Minnesota Pollution Control Agency. A summary reference document will be available in 2006.

### **Lake Water Quality Monitoring Program**

In 2005, the RLWD monitored three lakes within the district. These were Cameron Lake, Clearwater Lake, and Maple Lake. The RLWD collects samples for total phosphorus analysis, samples for chlorophyll-a analysis, Secchi disk readings, and Dissolved Oxygen/Temperature profiles at each lake. These measurements are used to calculate a trophic state index (TSI) score for the lake. A lake with a high TSI score has high phosphorus concentrations, more algae problems, and a lower suitability for recreation.

TSI scores are calculated based upon transparency readings (Secchi disk), total phosphorus concentrations, and chlorophyll-a (phytoplankton, or algae present in the water sample) concentrations. High TSI scores indicate high levels of nutrients (particularly phosphorus), high levels of algae, and lower transparency.

Maple Lake is being intensively monitored as part of a partnership between the RLWD and the Maple Lake District. This monitoring program is described in more detail in the following section.

Cameron Lake was still eutrophic (excess nutrients) in 2005 (TSI = 64.7). Water quality was significantly worse than in 2004 (TSI = 59.86) but slightly better than 2003 (TSI = 65.42).

Clearwater Lake experienced water quality in 2005 that was the worst since 1997. There was heavy rainfall and large amounts of runoff in May and early June of 2005 in the watershed of Clearwater Lake. Also, high turbidity levels were observed in late April and late May in the Clearwater River near the inlet to the lake. These high turbidity levels were 21.5 NTU and 24.4 NTU, respectively and exceeded the state standard of 10 NTU for trout streams. Without a doubt, Clearwater Lake would have been negatively impacted by this large influx of sediment and nutrients.

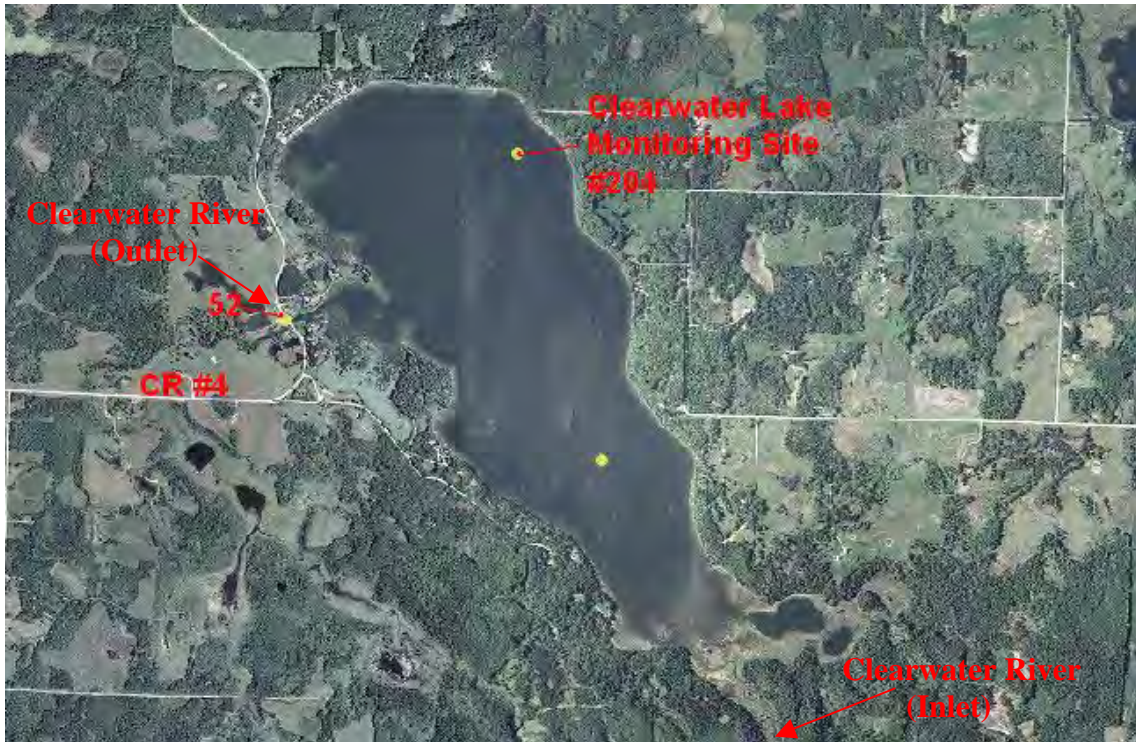
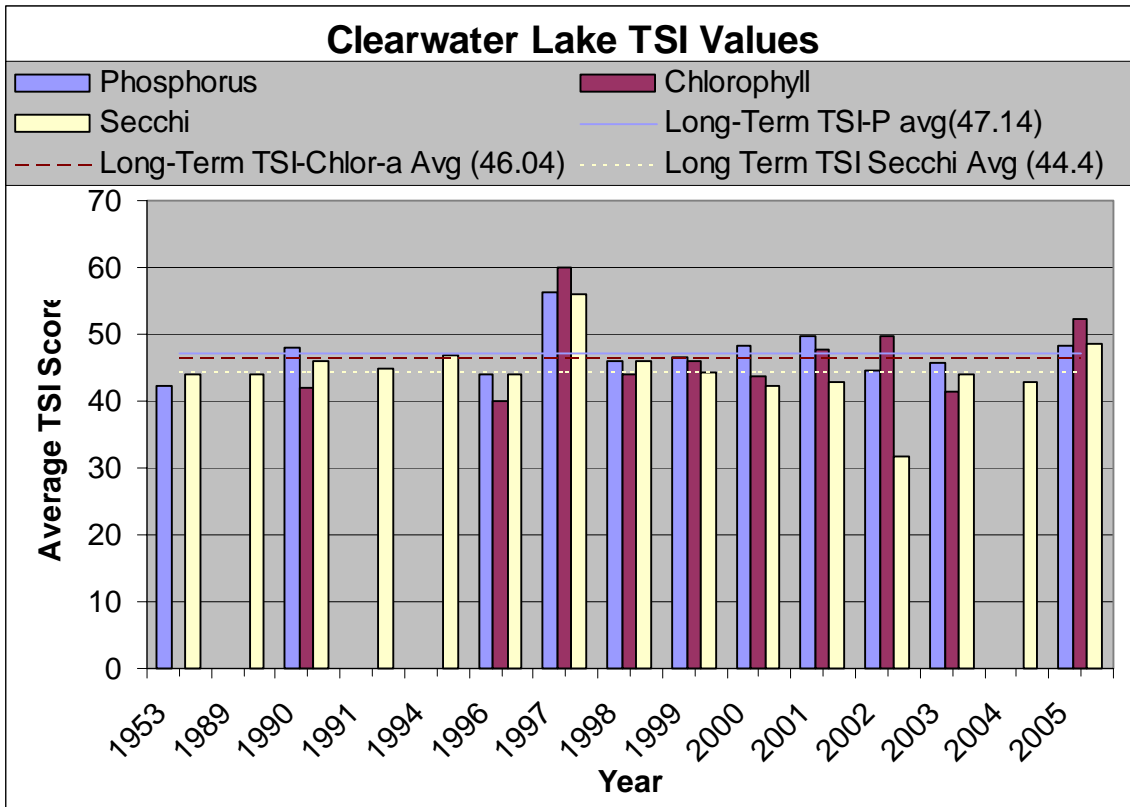


Figure 1. Clearwater Lake Monitoring Site



## 2005 Maple Lake Water Quality Monitoring

In 2005, the Maple Lake District and the Red Lake Watershed District continued their partnership in conducting water quality monitoring within and around Maple Lake. The monitoring effort continued to focus upon three sites within the lake itself as well as the inlets and outlet of the lake. An extra site was added this year on Judicial Ditch 73 to determine the quality of water within the ditch at the (conceptual diversion) point where it turns south prior to flowing into Rydell National Wildlife Refuge.

During heavy rainfall events, sediment and organic matter is flushed from the Rydell NWR wetlands and into Maple Lake. This results in a brown plume that extends from the JD73 inlet into the lake. If, hypothetically, water was somehow diverted around Rydell National Wildlife Refuge the flushing of sediment and nutrients from the Rydell NWR wetlands could be minimized. The USFWS and Maple Lake District suggested looking into this option. The new JD73 monitoring site would be the most logical starting point for this diversion. The USFWS would like to reduce flow from Tamarack Lake and prevent fish passage from Maple Lake to Tamarack Lake in an effort to boost waterfowl production within the refuge. Sediment and nutrient concentrations from the JD73 monitoring site and site #53-I (JD-73 inlet to Maple Lake) will be compared to see if the water in JD73 is clean enough to have a positive effect upon water quality within the lake if it is diverted around Rydell NWR.

There were times when water quality within JD 73 was slightly better than the water quality at the Maple Lake inlet and times when it was slightly worse. So the sampling results are inconclusive so far. Since notable sediment and nutrient loading from the Maple Lake inlet occurs after a significant rain, sampling should be targeted to occur after storm events. Not



enough storm event sampling was conducted in 2005. One heavy rain (around 2 inches) occurred on August 26, 2005. Samples were collected on August 31 and showed a significant increase in total suspended solids and turbidity from the JD73 monitoring site to the 53-I inlet site, but the JD73 site had a higher total phosphorus and orthophosphorus concentrations.

This year's lake monitoring found water quality that was better than usual in the early summer. This clean water made the lake more attractive to swimmers than it has been in recent years. However, toward the middle of the summer, trophic state index scores (TSI scores) and amounts of algae began to rise.

## Maple Lake Monitoring Sites

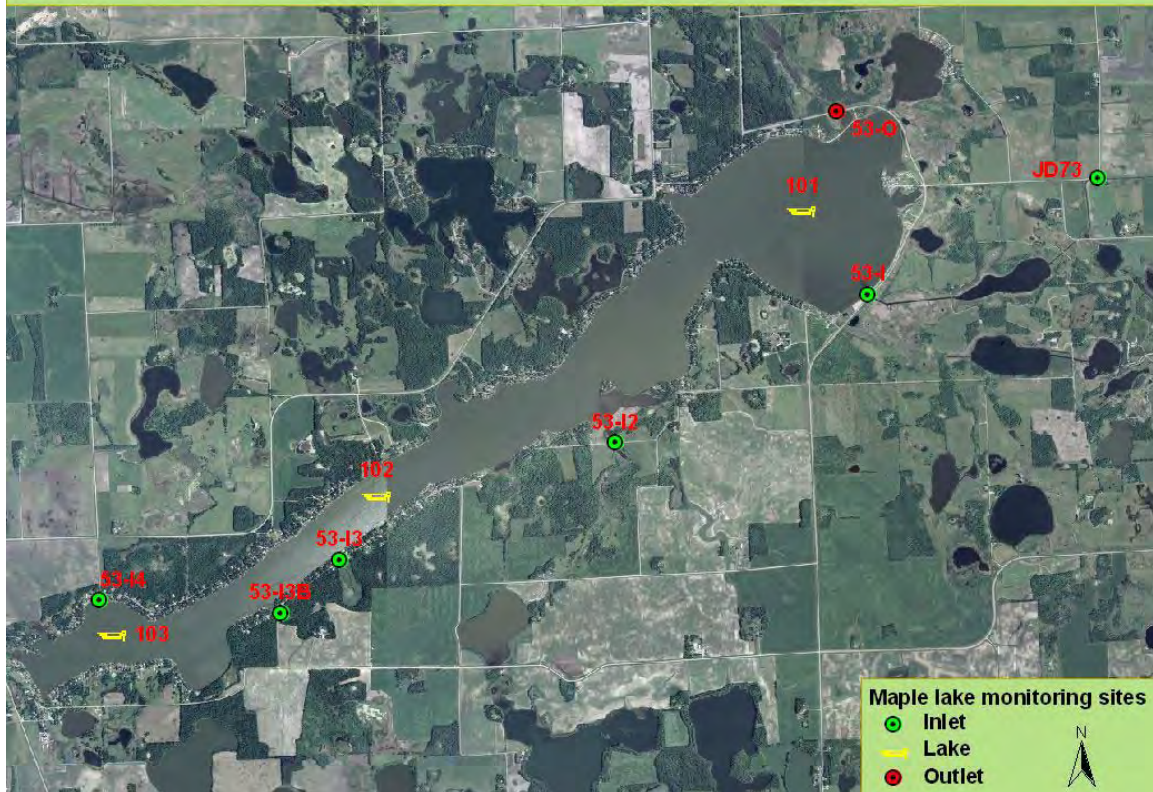
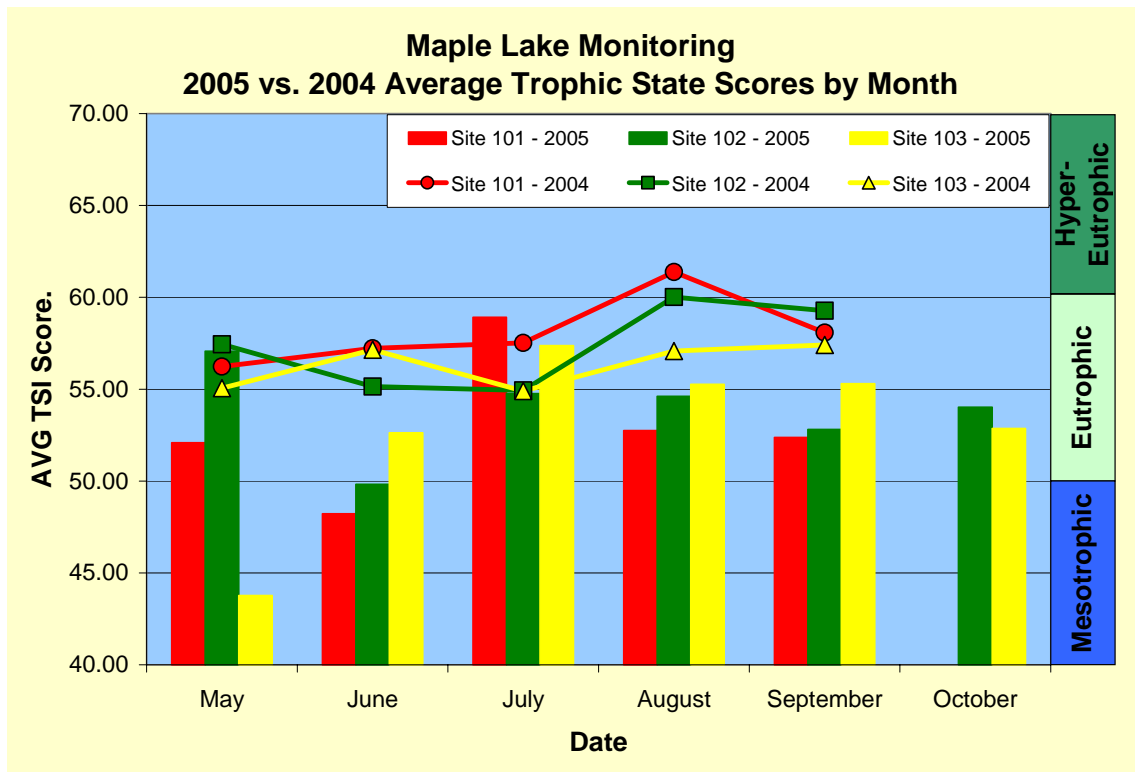


Figure 2. Maple Lake Area 2005 Monitoring Sites

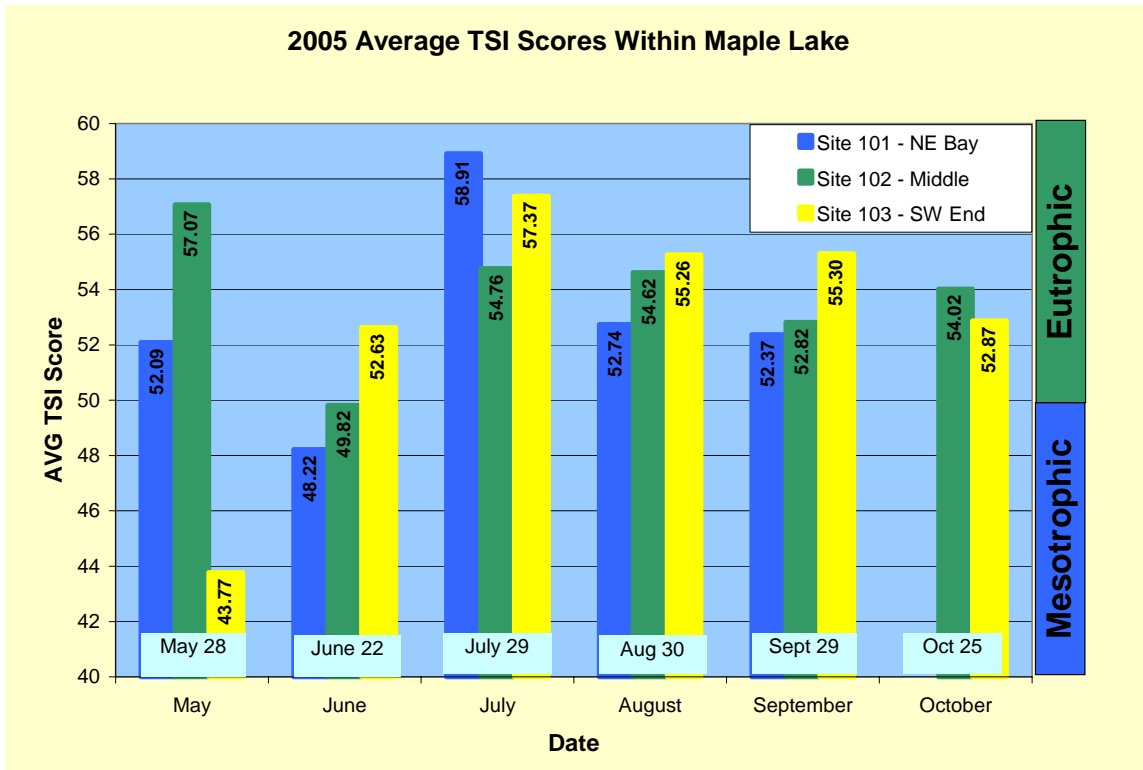
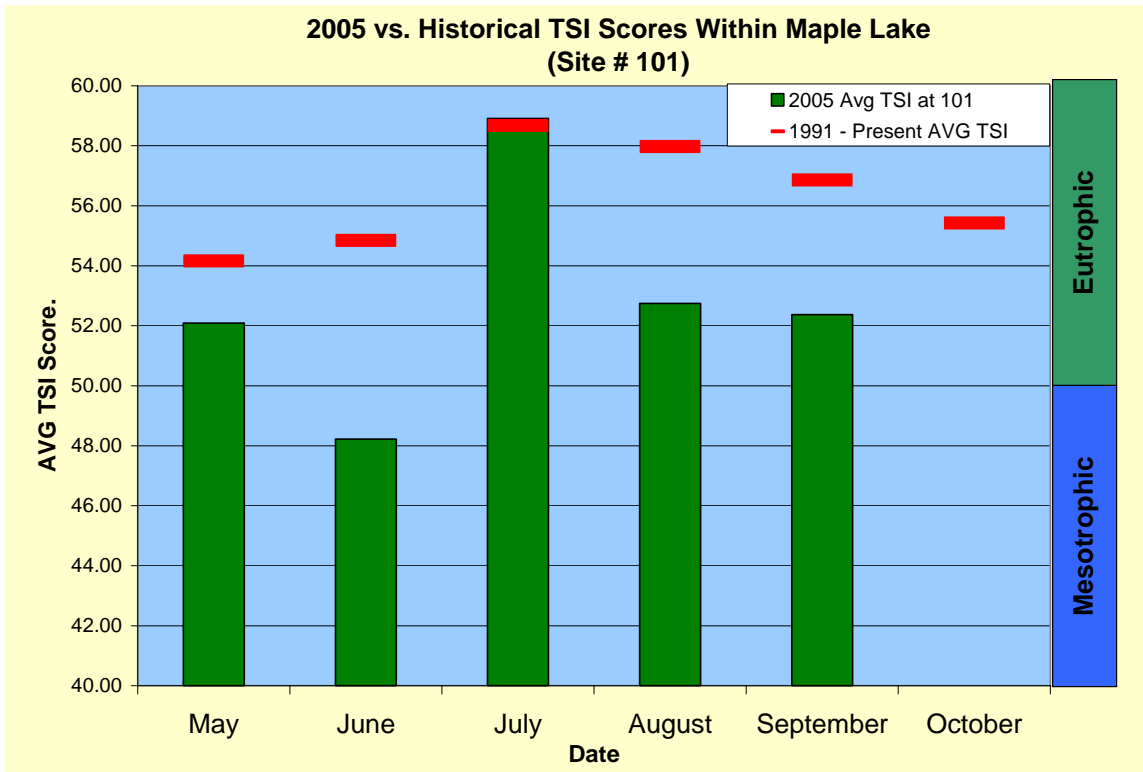
The lake was eutrophic (excess nutrients – cloudy water) throughout the 2004 sampling, but actually improved down to the upper mesotrophic range (moderate levels of nutrients – fairly clear water) in June of 2005. Although the TSI level spiked to 58.91 in July, the summer average TSI score significantly improved from 2004 (58.09) to 2005 (52.87).

Even though it was much worse than other months in 2005, July's water quality was in line with the average July TSI score from all the years the lake has been monitored.



A spike in Maple Lake TSI scores that occurred July 2005 could have been caused by warmer overall temperatures of late summer. An increase (as observed by a local resident) in recreational use of the lake (jet skis, speedboats) could also have had an effect upon the water quality in the lake. This is because much of the lake is shallow enough for bottom sediment to be disturbed by the wakes of watercraft.

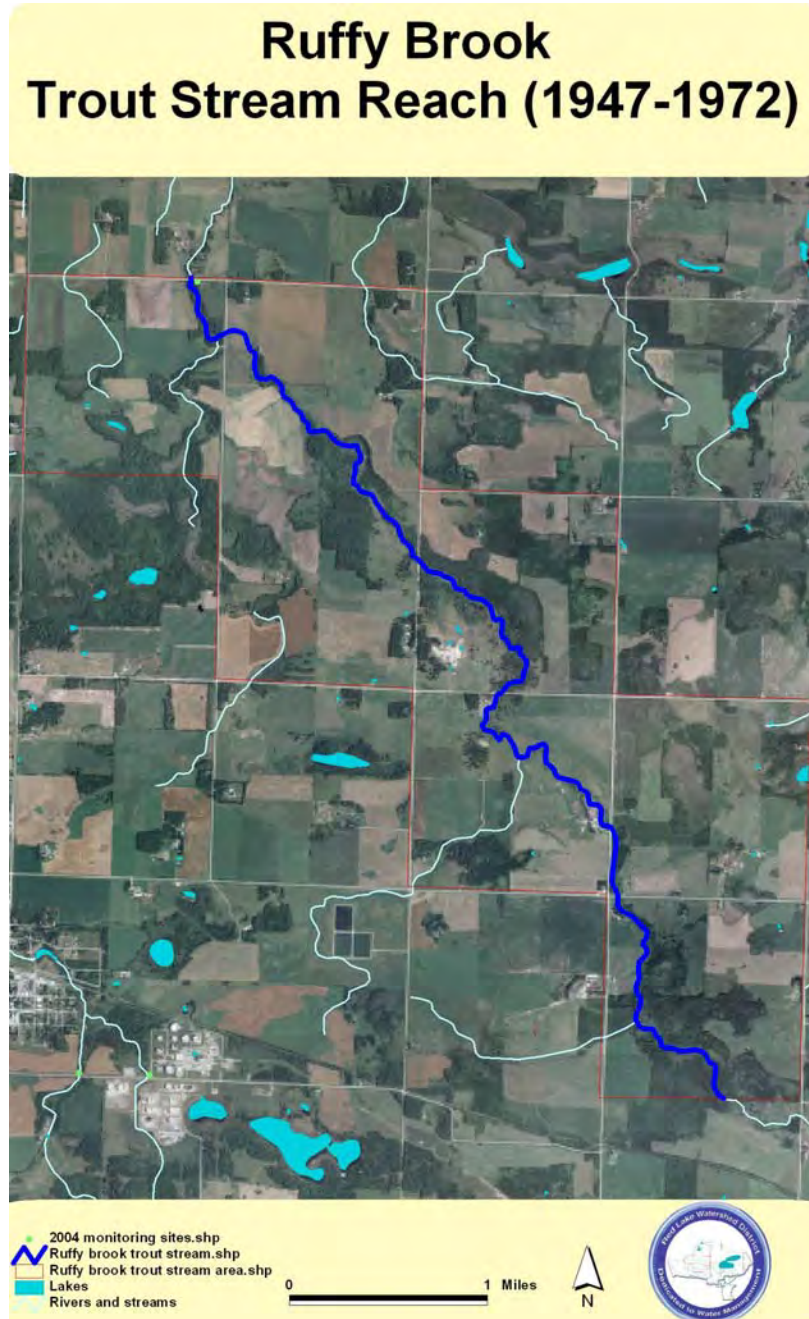
A 1994 U.S. Army Corps of Engineers Study found that silt substrates could be put into suspension by boat traffic down to a depth of 6 feet. Another study, *Power Boats on Shallow Lakes: a Brief Summary of Literature and Experience on Lake Mohegan* by O. Wright et al, shows that water and sediment can be stirred-up by boat engines as deep as 18 feet with a 100 horsepower motor and up to 15 feet with a 50 horsepower motor. According to the MN DNR Lake Map for Maple Lake, 14 feet is the maximum depth in the lake, with the exception of a couple holes that reach 18 feet. So, an increase in recreational use, independent of storms or runoff events, would seemingly have a direct impact upon water quality within Maple Lake by increasing the amount of sediment that is stirred-up from the bottom of the lake and creating a situation of internal nutrient loading. Monitoring results from the main inlet and outlet of Maple Lake support this theory. More suspended sediment was leaving the lake in July than entering the lake. Further evidence of a link between water quality and recreational use is the fact that, during the July sampling run, TSI scores were higher at the sites that are nearest to the lake's two public accesses when compared to the site in the middle of the lake.



## Ruffy Brook Monitoring

### Location

Ruffy Brook is a tributary of the Clearwater River in Clearwater County that begins in Dudley Township, near Leonard. The brook then flows north through Holst, Leon, and Greenwood Townships before entering the Clearwater River. The former trout stream reach is located in Leon Township.



**Figure 3. Map of Former Ruffy Brook Trout Stream Reach**

## History of Ruffy Brook



**Did you know there were brook trout in Ruffy Brook? This picture was taken in 1925 of Ernest and Judy Engebretson with six brook trout. Look for more about Ruffy Brook trout in future issues.**

According to a report from Roy Johannes, Area Fisheries Supervisor in 1992, “the first records available from Ruffy Brook are from 1947. The stream is 20 miles in length and at that time, 5 miles of the river were considered fair to good trout waters.” Brook trout were captured in the stream in 1947, at which time the trout stream reach of Ruffy Brook was designated. Brown trout were stocked until 1962. Removal of timber and increased cultivation of land occurred, leading to erosion, sedimentation, and a reduction of the ability of the stream to support trout.

A 1967 reconnaissance led to the stream being declared “no longer being able to support trout.” The stream was removed from the designated trout stream list in 1972. The February 9, 1972 Commissioner’s Order Request states the reconnaissance results, poor water quality for trout, and no attempt to limit access to hogs and cattle as the reasons for delisting the reach.

At the Sections 23 and 26 crossing (County Road 4), timber cutting in the stream was observed above and below the crossing in 1967 and it was also noted as a pastured area. Today, the upstream side has very few trees along the stream. In addition to providing bank stabilization and habitat, trees provide another benefit that is very important for keeping trout streams cool – shade. Vic Thompson, the landowner on the upstream side of the crossing, has been trying to restore the reach on his land. It is no longer pastured and has a good grass buffer. The downstream side of the County Road 4 crossing is reasonably buffered and wooded. There is a residence on the East side of the stream. There is a small buffer with trees between the yard and the stream.

State land along Ruffy Brook was sold to private landowners in 1970. According to old letters from the DNR and county officials, there was some concern that this sale would negatively affect spawning habitat and fish populations upstream, especially if the land was to be developed into rice paddies (which it was). Prior to the sale of the land, a letter from Roger Lehmann, Area Game Manager for the DNR, advised then County Land Commissioner Roger Kanton to take another look at some of the 40’s that were being reclassified for sale as agricultural land because they were adjacent to the trout stream portion of Ruffy Brook.



## Background for the Ruffy Brook Restoration Project

The MN DNR has made recommendations for the restoration of Ruffy Brook as long ago as 1967, but there are still improvements that need to be made so that the stream can be restored.

In late 2004, the Red Lake Watershed District and Minnesota Department of Natural Resources were contacted about the possibility of restoring Ruffy Brook to a trout stream. Vic Thompson (Clearbrook) was the landowner who initiated the contact. Vernon Johnson, a RLWD Board Manager from Clearwater County, brought the idea to RLWD staff and the RLWD Board of Managers. Bill Evarts from the DNR was contacted and involved with the project. The Ruffy Brook watershed was toured by Vic Thompson (landowner), Bill Evarts (MN DNR), Doug Thompson (Clearwater SWCD), Myron Jesme (RLWD Administrator), and Vernon Johnson (RLWD Board Manager) in the fall of 2004. After the RLWD decided to commence with preliminary monitoring, three In-Situ continuously monitoring multiparameter sondes were purchased in December 2004 (one shown below). They will be used for this project as long as necessary and then can be applied to future dissolved oxygen TMDL studies.



### Initial Monitoring Plan

The main concerns of this project are dissolved oxygen, temperature, and water level. These directly affect the ability of trout to survive in the stream. These parameters can vary from day-to-day, and even hour-to-hour. Since it is not possible for water quality staff or volunteer monitors to monitor the stream 24 hours a day, 7 days a week, the purchase of continuous stage, dissolved oxygen, and temperature monitoring probes was necessary for this project.

Probes will be installed at the upstream end, middle, and the downstream end of the trout stream reach of Ruffy Brook. These probes will continuously record water level, dissolved oxygen, and temperature levels throughout the entire open water season at hourly intervals. Data will be downloaded from these probes bi-weekly. Water level readings from the probes will be correlated with readings collected from a staff gauge or measure-down readings from a benchmark on a bridge or culvert. Every time a monitoring site is visited, field measurements will be collected with the RLWD's Eureka Manta multiprobe, a transparency reading will be taken, a turbidity reading will be taken, and stage will be recorded.

### Long-Term Monitoring Plan

Continuous monitoring will continue, at least, through the 2006 monitoring season. After these two years of monitoring, we should have enough water temperature and dissolved oxygen data to draw conclusions about the condition of the stream. Stream classification



surveys will be conducted on a disturbed site (pastured), undisturbed site (reference), and a site that is currently pastured but is being put into CRP. Pre-project stream classification surveys will need to be conducted to determine whether or not Ruffy Brook can be restored.

## **Outcomes**

This study will determine the extent of degradation in water quality within Ruffy Brook. We know what water temperatures and dissolved oxygen levels that trout will tolerate. By comparing monitoring results to these levels, we can get a better idea of how much restoration work will be necessary to sufficiently improve water quality within Ruffy Brook. The installation of riparian buffer strips should be encouraged. These can be installed as a cost-share program with landowners and easements can be funded by Conservation Reserve Program and Environmental Quality Incentives Program contracts. The Clearwater Soil and Water Conservation District have been successful at getting these buffers installed within the Silver Creek watershed (and some nearby watersheds) as part of the Red River Basin Buffer Initiative.

Likely, as stated in the 1967 reconnaissance report, many improvement projects will need to be done. “This would include erosion control (with fencing), fish shelters, channel cleanup and planting shade trees.”

A February 1, 1967 letter from William Joy, Regional Fisheries Manager, states: “It is possible to improve these waters and restore trout stocking. Trees could be planted along the stream to create shade and cover, livestock could be fenced out in certain areas, low head dams could be constructed, deflectors and shelters could be installed. Before any of this work could be done, it will be necessary to secure proper easements from the landowners along the stream. This would make it possible for the State to spend money for the purpose of stream improvement.”

## **2005 Monitoring**

Continuous monitoring was conducted at three sites along the former trout stream reach of Ruffy Brook. All sites were located within Leon Township of Clearwater County. The downstream site was located at the Sections 5/8 road crossing. The middle site was located at the Sections 15/16 crossing. The upstream site was located at the Clearwater County Road #4 (Sections 23/26) crossing.

Flow measurements were taken when possible so that a rating curve can eventually be created for each of the monitoring sites. The In-Situ probes measured water level and this was correlated to stage to get a continuous stage record. Probes were set to take a measurement once every 15 minutes.

There were some problems with sedimentation of the probes. When the probes became covered with sediment, the dissolved oxygen levels recorded dropped significantly. These readings were deleted from the continuous record.

As for results, there were several days in the summer where temperatures were above the lethal limit for trout at all of the sites. The suitability of dissolved oxygen levels decreased from upstream to downstream.



Stream classification survey work was completed at the Bonik (pastured) site in early November. Conflicts with deer hunting prevented the completion of work at other sites.

2005 Ruffy Brook Temperature Monitoring				
Percentages of Readings Below Specified Temperatures				
Site	Position in Reach	<15 Deg C	<21 Deg C	<23.8 Deg C
Sections 5/8	Downstream End	50.80%	85.71%	92.40%
Sections 15/16	Middle	43.45%	85.23%	95.51%
Sections 23/26	Near Upstream End	47.09%	83.80%	95.23%

2005 Dissolved Oxygen Monitoring			
	Sections 5-8	Sections 15-16	Sections 23-26
Percentage of Readings >7 mg.L	53.86%	85.18%	62.49%
Percentage of Readings >5 mg.L	98.14%	98.89%	99.92%

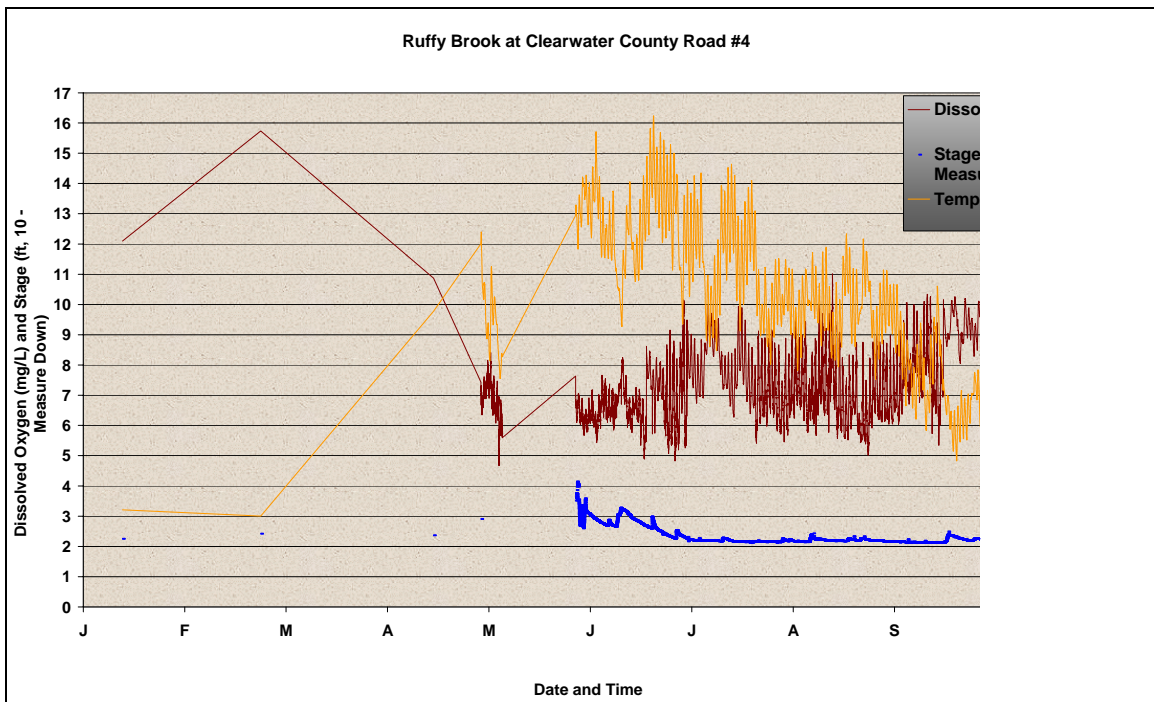


Figure 4. 2005 Monitoring at CR #4 (Upstream Site)

**Continuous Monitoring At Ruffy Brook  
Clearwater County, Leon Township, Sections 15/16 Crossing - S.G. #155**

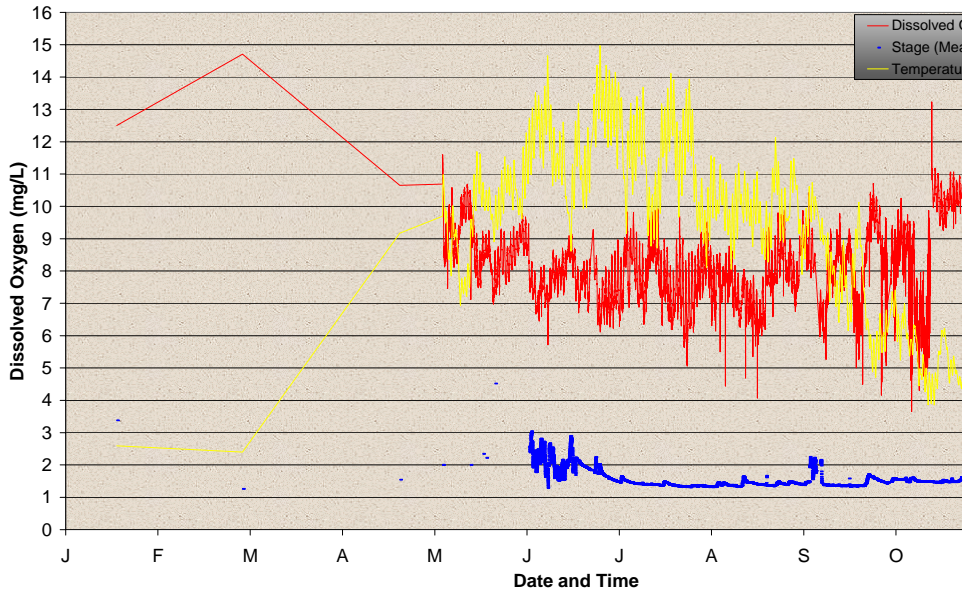


Figure 5. 2005 Monitoring at the Section 15-16 Crossing (Middle of Reach)

**2005 Continuous Monitoring at Ruffy Brook Site #797**

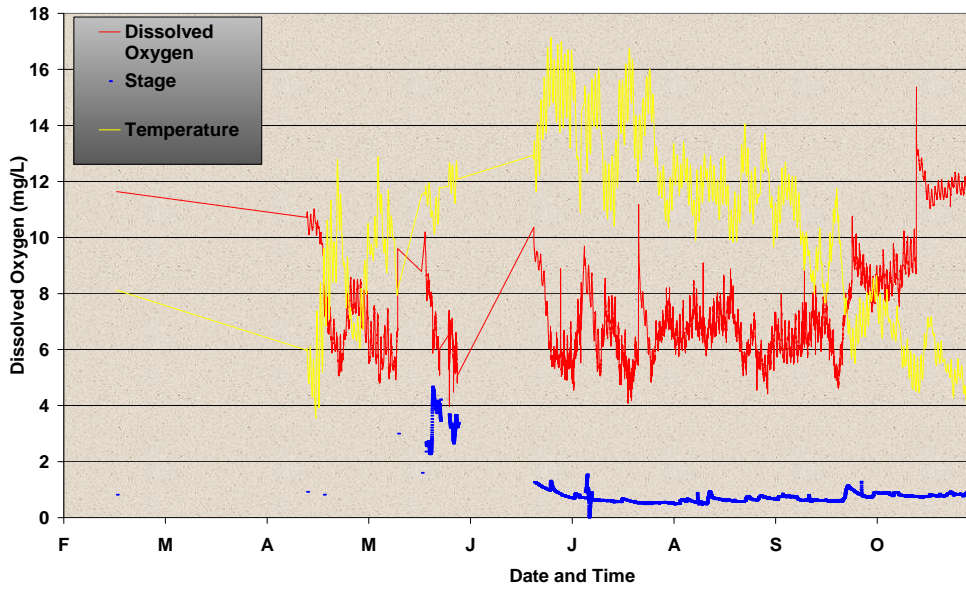


Figure 6. 2005 Monitoring at Stream Gage # 797 (Downstream Site & Sect. 5/8 Crossing)

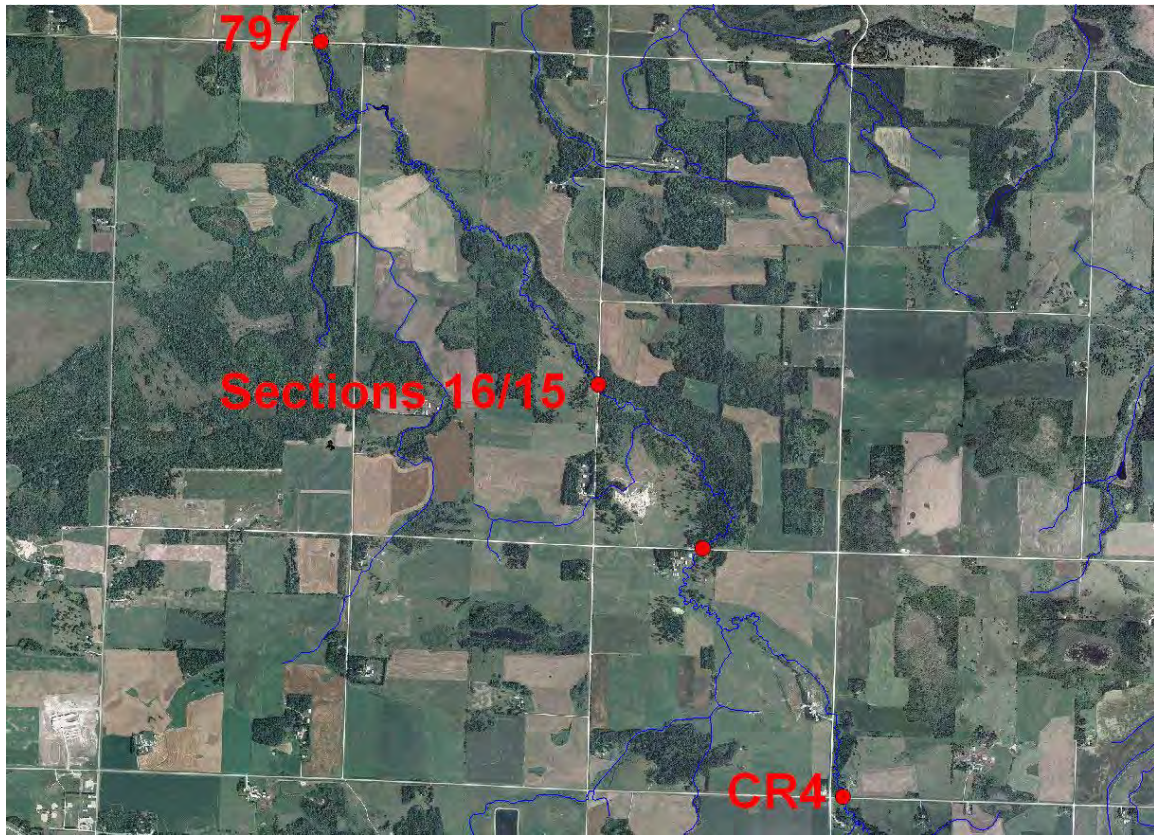


Figure 7. Ruffy Brook Monitoring Sites.

### **2006 Monitoring**

More stream gauging needs to be conducted during high flows to get better rating curves. Stilling wells should be mounted higher (6-10 inches) within the water column than they were in 2005 to avoid sedimentation around the sensors on the multi-parameter probes. Stream classification survey work will need to be completed at the reference site and the site downstream of the Section 15/16 crossing that will be used, hopefully, as a before-and-after site.

### **Red Lake Watershed Farm to Stream Tile Drainage Study, (RLWD Proj. #165)**

The RLWD began work on the Northwest Minnesota Foundation (NMF) and Red River Watershed Management Board (RRWMB) funded tile drainage study in 2005 along with its partners that include the Marshall-Beltrami County SWCD, Red Lake Nation Department of Natural Resources, HDR Engineering Inc., and all the farmers whose fields are part of the study. The purpose of this study is to document water quality in drainage from different fields and different drainage techniques within the Red River of the North watershed. The study was initially intended to focus upon wild rice paddy drainage, but was expanded to include conventional agriculture due to interest from landowners and other organizations. Additionally, the study will give us a better understanding of how tile drainage will affect peak runoff and total runoff volume. Tile drainage within the Red River watershed is expected to have a lesser impact upon water quality as well as a greater flood storage benefit than tile drainage in southern Minnesota because surface inlets are generally not used in the Red River Basin.

The first task involved site selection. Some preliminary work was done during the winter, but sites couldn't be fully assessed until thaw. For conventional (dry-land) agriculture, sites were selected in Red Lake County where both tile drainage and surface drainage can be measured (quantity and quality) and compared. In Marshall County, sites were chosen so that water quality comparisons could be made among gravity tile outlets at different depths, pumped tile outlets, surface drainage, and a non-impacted site. Red Lake Nation wild rice paddies were also monitored for the study. Three wild rice paddy sites were monitored. These were a paddy that is completely drained with surface drainage, a site that has tile drainage within the paddy that flows into internal surface drainage ditches, and a paddy that is drained with a main line tile drainage system that exits the paddy through the main line tile into a grassed waterway without traveling through internal ditches.



Once sites were selected, water quality (total suspended solids, total phosphorus, orthophosphorus, nitrates, turbidity, and total nitrogen), flow, weather, and crop-related data were collected for the study. Field sites were monitored on a bi-weekly basis or more frequently. Wild rice paddy sites were monitored intensively during the pre-harvest drawdown period.

Preliminary results from all tile drained sites show that tile water has very low turbidity. In fact, readings have been  $<1$  NTU and are sometimes only a few hundredths of a NTU greater than distilled water readings. Tile drainage also has minimal phosphorus and total suspended solids concentrations. Nitrates, however, are high in tile water from conventional agriculture. Concentrations have ranged from the mid-teens to over 40 mg/L. On the few occasions that field measurements were collected with a multi-parameter sonde (Bachand field only), the tile water had good levels of dissolved oxygen but had high conductivity readings. The conductivity readings were either close to or greater than 1,000  $\mu\text{S}/\text{cm}$ . Main line tile drainage water from wild rice paddies has all the positive water quality characteristics of conventional agriculture tile drainage and has low nitrate concentrations.

Surface drainage was sampled in order to make comparisons with tile drainage. Conventional agriculture surface drainage definitely had higher turbidity, total phosphorus, total Kjeldahl nitrogen, and total suspended solids than tile drainage. Some of the turbidity readings from surface drainage were extreme (681 NTU). Surface drainage did have lower nitrate concentrations than tile drainage.

Wild rice paddy monitoring shows that installation of main line tile can have a significant positive impact upon water quality within the Clearwater River during the drawdown period of late July through August. There is a dramatic difference in water quality when water from a main-line-tile drained wild rice paddy is compared to the paddies with internal surface drainage. There also are benefits to the wild rice farmer that come from the installation of main line tile and elimination of the need for internal surface drainage.



Continuous records of flow will be collected from the surface and tile drainage sites in Red Lake County along with some of the wild rice paddy sites. Surface flow at both the tile drained and surface drained field will be measured with h-flumes and HOBO water level loggers. Flow from tile drainage will be measured with a v-notch weir within a water control structure and a HOBO water level logger.

In 2006, flow and water quality monitoring will begin right away as spring runoff begins. A report for the project, along with educational materials, will be developed in the fall of 2006.



Figure 8. H-Flume Flow Measurement Structure at the Yaggie 2 Site

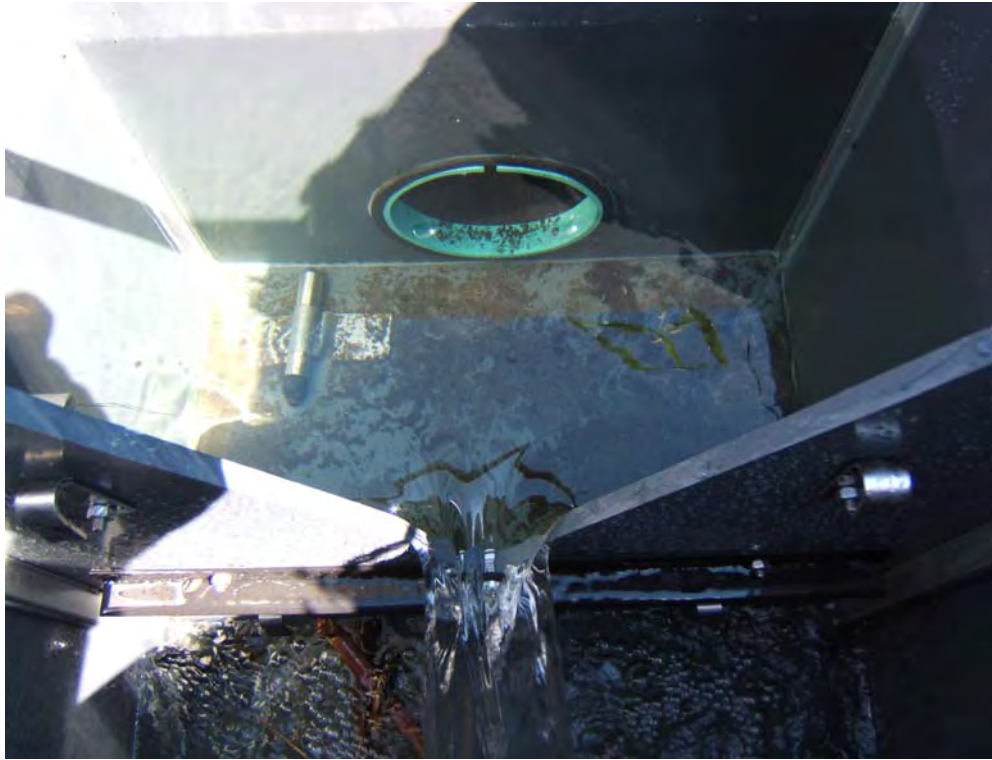


Figure 9. Water Control Structure for measuring flow from Bachand Tile Drainage

## New Equipment



In 2005, the Red Lake Watershed District purchased a new Eureka Manta multi-parameter sonde for collecting dissolved oxygen, temperature, conductivity, pH, and turbidity measurements in the field. Along with the sonde, the RLWD purchased a Eureka Amphibian hand-pad that consists of a Compaq Ipaq PDA that is encased in a waterproof rugged case. Having a PDA-based handpad for a sonde allows us to store data digitally (on compact-flash memory) while in the field. This eliminates the need to bring field data sheets out of the vehicle (data is still written down upon returning to the vehicle as a QA/QC precaution), thus reducing the risk of damage

or loss of data sheets. This hand-pad also has compact-flash GPS receiver that can be used with ArcPad (the PDA version of the ArcView GIS mapping software). The RLWD has been using a YSI 600QS system for River Watch monitoring that is on loan from the Red River Watershed Management Board. The RLWD's Hydrolab Datasonde 4 is getting old and has had to be repaired several times recently. Once the Hydrolab is restored to a working, reliable condition, the YSI sonde can be returned to the RRWMB and/or be used by a River Watch school (likely Win-E-Mac). The RLWD also used In-Situ TROLL 9000 logging multi-parameter sondes for continuous monitoring in Ruffy Brook. These sondes worked well; see the Ruffy Brook article for more details. The RLWD has also made an upgrade in its continuous stage measurement technology with the





purchase of Onset HOBO water level loggers. These water level loggers use a pressure transducer to record water depth at designated intervals, have internal data logging, and also have internal 5-yr batteries. They eliminate the need for external data loggers, data cables, and batteries. So, they prevent loss of data from damaged cables, dead batteries, and flooded data loggers.

## **Red River Watershed Water Quality Reporting Handbook**

The Red River Watershed Assessment Protocol project, which was partially funded by a Minnesota Board of Water and Soil Resources Challenge Grant, included the creation of the RLWD website, development of the *Standard Operating Procedures for Water Quality Monitoring in the Red River Watershed*, and the production of biannual comprehensive water quality reports. There were several other parts to this project that were only completed to a draft stage by the end of the grant period. These were a River Watch Quality Assurance Project Plan (QAPP), Red Lake Watershed District Water Quality Monitoring QAPP, and a handbook detailing all of the statistical methods that were used to create the water quality reports. Work was continued on the statistical methods manual and the scope of the manual was expanded to make it



universally applicable to surface water monitoring programs (not just the RLWD program). In December of 2005, the Red River Watershed Water Quality Reporting Handbook was completed after a year of review by the Minnesota Pollution Control Agency and the Red River Basin Monitoring Advisory Committee. This handbook documents nearly all methods used for planning monitoring projects, analyzing data, and reporting results. It combines methods from many different manuals, provides step-by-step instructions for analysis using Microsoft Excel and FLUX software, and offers tips for data management and reporting. Many copies have been distributed already and are available at the RLWD office free-of-charge. A webpage has also been created for downloading the handbook:

<http://www.redlakewatershed.org/WQDataHandbook.html>.

## **TMDLs and Impaired Waters**

In 2005, the Minnesota Pollution Control Agency conducted a statewide water quality assessment. This was the first time that RLWD long-term monitoring program data (some sites have data from the mid 1980's through the present) was used in a statewide assessment process. Previously, there were some watersheds (Thief River, Grand Marais Creek) that hadn't been assessed at all because the MPCA did not have any data from these areas. Because of the RLWD (and Red River Basin Monitoring Network) data that has been provided to the MPCA, there will be several new reaches of rivers and streams that will be included on the MPCA 303(d) List of Impaired Waters. The MPCA will also begin using River Watch data for statewide assessments beginning in 2007.

Newly Listed Impaired Reaches in the RLWD			
River/Stream	Reach	Impairment(s)	Scheduled Study
Moose River	Headwaters to Thief Lake	Low Dissolved Oxygen	2013-2016
Thief River	Thief Lake to Agassiz Pool	Un-ionized Ammonia	2013-2016
Thief River	Agassiz Pool to Red Lake River	Turbidity, Low Dissolved Oxygen	2013-2016
Clearwater River	Headwaters to T148 R36W S36 E line	Low Dissolved Oxygen	2013-2016
Silver Creek	Headwaters to Anderson Lake	Fecal Coliform	2006-2009
Lost River	S line of T148 R38W S17 to Pine Lake	Low Dissolved Oxygen	2013-2016
Poplar River Diversion	Unnamed Ditch to Badger Lake	Low Dissolved Oxygen	2013-2016
Badger-Mitchell Lake Channel		Low Dissolved Oxygen	2013-2016
Unnamed Creek	Eighteen Lake to Bee Lake	Low Dissolved Oxygen	2013-2016
Clearwater River	Lower Badger Creek to Red Lake River	Turbidity	2006-2009
Grand Marais Creek	Headwaters to County Ditch 2	Turbidity, Low Dissolved Oxygen	2011-2014
Grand Marais Creek	County Ditch 2 to Red River	Turbidity	2006-2009

## Water Quality Database

Each monitoring site has a spreadsheet workbook associated with it. One worksheet in the workbook contains all the water quality data on record and other worksheets contain various charts and calculations associated with the site analysis. After new data is captured in the field, it is entered directly into the spreadsheet and entered a second time in the website database to make it available to the general public. In both instances there are no validity checks in place other than manual proofreading, and no standard spelling or data typing.

In order to eliminate redundant data entry and to introduce validity checks, the District is adopting the practice of using the online database as a primary storage location and importing it into a spreadsheet for analysis. The database, Access 2000, accommodates a specific data entry form with drop-down lists and on-screen data definitions to expedite data entry and improve data accuracy.

## River Watch 2005

### Purpose and Scope of the River Watch Program

The River Watch Program is a volunteer water quality monitoring program that is growing in importance as a source of water quality data in the Red River Basin. The program began in Minnesota in 1995 in response to a need for reliable water quality information and has since grown to include schools in North Dakota and Manitoba. In recent years, the Red Lake Watershed District has offered substantial financial and technical support to the River Watch Program and has added two more schools in 2005 for a total of nine groups. These groups gather water quality data on a regular basis at predetermined sites in exchange for a variety of educational experiences and an opportunity to participate in real-world environmental monitoring and data analysis. Some groups use River Watch as part of an environmental science curriculum or as a supplement to other programs such as Envirothon or the Science Fair.

The Red Lake Watershed District provides reimbursement for a substitute teacher and basic transportation expenses. The District also provides access to equipment, staff guidance, and the assurance that rigorous quality standards are applied to the monitoring process. In exchange, the District receives valid water quality data and a wider audience for its public education efforts.

RLWD staff provided guidance for eight school groups and teachers: Grygla, Clearbrook-Gonvick, Red Lake County Central, Red Lake Falls, Win-E-Mac, Fosston, Bagley, and Fisher. The groups typically do a monthly monitoring trip during ice-off conditions. Red Lake County Central has also taken field measurements during ice-on conditions by auguring through the ice at each site and performing field measurements on flowing water. Each group made at least four monitoring trips during the 2005-2006 school year with the exception of the Bagley group, who entered the program later in the year. But even with a minimum of data, the Bagley students made an excellent effort in presenting their work at the River Watch Forum.

### Water Quality Measurements

All water quality measurements were made using similar equipment and the same methods. Students monitored conductivity, pH, water temperature and dissolved oxygen with the YSI Sonde. They measured turbidity directly with a Hach 2100P turbidimeter, and indirectly with a transparency tube. They measured channel stage and depth with a flexible measuring tape from a predefined reference point. They recorded all results on a standardized data form provided by the Red River Basin Water Management Board.

Schools in the Red Lake River Watershed have expressed an interest in conducting macro-invertebrate studies and expanding their site count. The Red River Basin Water Management Board continues to offer training and support for regular monitoring and for data analysis and quality control. The annual River Watch Forum gives student groups the opportunity to present their data and receive recognition for their work.

### Data Reviews

RLWD Staff held a data review session for each school that participated in the 2006 Forum. Review sessions included a general review of the purpose of River Watch and a site specific

review of the 2005 data. Sessions also included display and presentation criteria, MPCA benchmarks, and assistance with graphs and statistical computations.

### Looking Forward to 2006

Experience from the previous two years of River Watch activity has resulted in a list of objectives for 2006:

- 1) The District will encourage students to be more self-sufficient with data entry and analysis.
- 2) Integrate data review with general discussion on monthly monitoring trips.
- 3) Review and re-emphasize the importance of quality control.
- 4) Provide statistical information to students on land use and land cover for each drainage area.
- 5) Take the time to study each monitoring site as part of a larger system by traveling further up and down the streams and studying aerial photos and land use maps.
- 6) Initiate a benthic macroinvertebrate study with the Fisher High School group.

## **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.

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.



**Swans in Wild Rice Paddy**

## Stream Flow Monitoring (RLWD Project #21)

With several runoff events, 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 continue to develop stage (gage height) and discharge (flow in cubic feet per second) rating curves at many locations. This data, in conjunction with records from other agencies, 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 streamflow**



**Automated river gage**



**Wire weight stream gage**



**Staff gage**

## Snow Surveys

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

The empty sampling tube is weighed to establish a “base weight”, and is then twisted down through the snowpack to the ground surface. Gradations on the side of the tube indicate the depth of the snowpack. The tube and snow core are weighed, and the snow “water content” 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.



Establish base weight of empty sampling tube



Obtaining snow depth and core sample



Establishing weight of snow sample to obtain water content

## Drainage System Maintenance

Inspection of the Districts drainage systems is an ongoing function for the staff of the Watershed District. Annual inspections are done to determine what type of maintenance work, if any, is to be performed to these ditch systems and projects.

The District had 80 miles of ditches sprayed for cattails this year. The District has been using a helicopter for the past few years because of limited access to ditches.



Following is a list, by county, of the ditches and or projects that where sprayed for cattails in part or in whole in 2005.

### Polk County

- Polk Co. Ditch Improvement, RLWD Project 119  
Spraying was done for cattails in Section, 25, Roomer Township; Sections 30 and 31 Andover Township; Section 1, 2, and 12, Vineland Township; and Sections 5, 6, 7, 8, and 9 of Hammond Township.
- Kenneth Johnson Petition, RLWD Project 117  
Spraying was done for cattails in Sections, 4 and 5, Russia Township. There was also one side inlet pipe that was extended with turf establishment completed late in the fall.
- Polk County Ditch 33, RLWD Project 135  
Spraying was done in Sections, 13, 14, 15 and 16, Fisher Township; and Section 18, Lowell Township.
- Burnham Creek, RLWD Project 43B  
Spraying for cattails was done in Sections, 2, 11, 13, and 14, Russia Township; and Section 31, Kertsonville, Township.
- Polk County. Ditch 107, RLWD Project 53  
Spraying was done for cattails in Sections 14 and 23, Bygland Township.



- Parnell Impoundment, RLWD Project 81  
The outlet ditch and other ditches that were in and around Parnell Impoundment were sprayed for a total of 9.36 miles. Spraying of cattails was done in Sections 3, 4, 5, and 6, Parnell Township.
- Louisville / Parnell Impoundment, RLWD Project 121  
The outlet ditch and the ditches in and around Louisville/Parnell Impoundment were sprayed for a total of 4.15 miles. Spraying for cattails was done in Sections 13 and 14, Parnell Township; and Section 18, Louisville Township.
- Jensen Petition, RLWD Project 106  
A total of 1.73 miles was sprayed for cattails on this project. Spraying was done in Sections 29 and 32, Tilden Township.
- Lost River, RLWD Project 4  
A small area of the Lost River was sprayed that amounted to a tenth of a mile. The spraying was done in Section 36, Johnson Township for willows.
- Ditch # 8, RLWD Project 36  
Spraying for cattails was done in Sections 22, 23 and 24, Johnson Township for a total of 2.26 miles.

## **Red Lake County**

- Ditch # 1, RLWD Project 5  
A total of 2.02 miles of cattails were sprayed in Sections 26 and 35, Equality Township, and Section 2, Chester Township.
- Ditch # 3, RLWD Project 7  
Cattail spraying was done in Sections 28, 34, 35, and 36, River Township.
- Project 20, RLWD Ditch # 7  
Cattails spaying was done in Sections 19, 20, 21, 22, 23, 24, 30 and 31, Equality Township; and Sections 16, 17, and 20, Johnson Township.
- Ditch # 1 Lateral C, RLWD Project 115  
Spraying was done for cattails in Section 1, Chester Township, Polk County; and Section 25 and 36, Equality Township, Red Lake County.

## **Beltrami County**

- Ditch # 9, RLWD Project 39  
Spraying was done for cattails in Section 35, Benville Township.

- Good Lake Project, RLWD Project 67  
Spraying was done for 3.73 miles for cattails and willow on the upper end of the Good Lake Impoundment inlet ditch, T154N, R38W, Beltrami County.

## Clearwater County

- Judicial Ditch # 2 Branch B & C, RLWD Project 49  
Spraying for grass and cattails was completed in Sections 25, 26 and 36, Winsor Township; Section 1 of Pine Lake Township; and Section 30, Greenwood Township. This ditch also had some beavers and beaver dams removed.



- Winsor / Hangaard RLWD Project 113  
Cattails and grass spraying was done in Sections 3, 7, 8, 9, 10, 14, and 15, Winsor Township. There was some question as to the adequacy of the outlet of this ditch. A survey was done starting at the Lost River and proceeded upstream for one mile. When finished, the survey showed that the ditch was at or below grade. There were no obstructions found and the apparent problem was high water in the Lost River at the time of the complaint.
- Judicial Ditch 72, RLWD Project 41  
Spraying of cattails was performed in Section 31, Hangaard Township.

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

The Red Lake Watershed District at present has jurisdiction of approximately 271 miles of legal drainage systems throughout the Watershed. The list of all the systems is shown below.

<u>Ditch #</u>	<u>County</u>	<u>Length (mi.)</u>
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
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
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>
<b>Total Miles of Ditches</b>		<b>271.42</b>

## Lost River Maintenance (RLWD Project #4)

A large concrete structure located in Section 1, Chester Township, Polk County, and part of the Lost River system, was being severely undermined by water running down RLWD Project 115. This problem was not found until very late in November of 2004. Due to cold temperatures, construction to repair this structure would have to wait until after spring runoff of the following year.

Olson Construction TRF, Inc. was hired in the spring of 2005 to core-out in front of the structure to a depth of about four feet. Concrete was then poured under the existing structure. A wall was poured and connected to the face of the old structure, then back filled with clay. Rock rip-rap was replaced in the bottom of the ditch and all areas of disturbed ground were seeded to grass.

## State Ditch 83 Maintenance, (RLWD Project #14)

There were six sites on State Ditch 83 that had maintenance performed in the summer and fall of 2005. All sites were located between County Road 7 (Agassiz Bridge) and County Road 12 (range line road). These sites were located by inspecting the river by canoeing during low flow periods. Sites that were targeted were areas of large sediment deposits were restricting water flows and causing erosion to the opposite side of the ditch bank.

Wright Construction of Thief River Falls was hired to perform this work when the water was low and the weather conditions looked favorable. They had only been working a short time when rain made the river rise and work had to be stopped until low water was again seen in the fall.

The work was comprised of tree removal in channel, removal of some sediment from the ditch channel bottom, pulling the ditch bank back to the original width of the ditch channel up and downstream of the restricted area, blending and sloping of the ditch banks, and leveling and seeding of the spoil.

More areas will be looked at in the future with maintenance being performed as conditions allow.

During the winter of 2005, the Sentence to Serve program was again utilized to remove any brush and trees that have fallen into State Ditch 83.



**Silt Removed, Marshall County Road #7  
Section 32 East Valley Township**



**Looking South, Marshall County Road #7  
Section 32 East Valley Township**

## **Polk County #63 Renovation (RLWD Project #134)**

Andover Township pursued a grant from the State of Minnesota for funds to upgrade one of their township roads. This road runs along the north side of Polk County Ditch #63, (RLWD Project 134) and is also the main entrance to a grain elevator.

The upgrade involved widening of the road, blacktopping, removing 3 rail road trestles, removing the entrance to a grain elevator, and reshaping of Polk County Ditch 63. A new 73" x 45" x 330' RCP-A now spans the area that used to have 3 railroad trestles and the elevator entrance that was a hydraulic nightmare for water to pass through.

Together with the help of the Minnesota State Grant, Polk County Highway Department, Red Lake Watershed District, the railroad, and Andover Township, the water now flows through this area unobstructed and should make the drainage upstream of this area more adequate.

## **Boundary Change**

In October of 2005 the Red Lake Watershed District received a petition from Clearwater County for the removal of lands located in Copley, Shevlin, and Moose Creek Townships. After several field observations from RLWD staff, it was determined that there were various lands in this area that indeed did flow into the Mississippi River watershed.

The Minnesota Board of Water and Soils Resources will continue with the statutory process of this petition of removal of lands in 2006.

## **Projections for 2006**

The activities of the District are expected to continue in 2006 much as they did in 2005. It is expected that construction will start on Euclid East Impoundment and Brandt Impoundment. Repairs to Seeger Dam and Louisville Parnell Impoundment will be completed. The District will also continue with the ring dike agreements, ditch maintenance and complete the statutory obligations for the petition of improvement to Polk County Ditch #40.

In September of 2005, a public hearing was held concerning the proposed 2006 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 2006. The General Fund levy was set at \$163,500.

# 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, 2005. 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 \$2,667,394 (Net assets). Of this amount, \$1,832,658 (unrestricted net assets) may be used to meet the government's ongoing designations and fiscal policies.
- The Districts total net assets increased by \$254,602.
- As of the close of the current fiscal year, Red Lake Watershed District's governmental funds reported combined ending fund balance was \$1,971,712. 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 \$ 224,136 of which all was unrestricted.
- The District had debt outstanding of \$139,054 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, increases or decreases 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 the full audit 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 management purposes. A budgetary comparison statement has been provided for this fund.

The basic government fund financial statements can be found on pages 11 through 13 of the full audit 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 the full audit 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 Red Lake Watershed District, assets exceeded liabilities by \$2,667,394 by the close of the most recent fiscal year, which is an increase of \$254,602 over the prior year. Less than 1% increase over the prior year.

A portion of Red Lake Watershed District’s net assets (\$834,736 or 31.3 percent) reflects its investment in capital assets less any related debt to acquire those assets that is 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**

	2005	2004
<b>ASSETS</b>		
Total current assets	\$ 1,971,712	\$ 2,440,983
Net capital assets	834,736	141,764
<b>TOTAL ASSETS</b>	<b>\$ 2,806,448</b>	<b>\$ 2,582,747</b>
<b>LIABILITIES</b>		
Note payable	\$ 139,054	\$ 169,955
<b>NET ASSETS</b>	<b>\$ 2,667,394</b>	<b>\$ 2,412,792</b>

At the end of 2005 and 2004, the Red Lake Watershed District is able to report positive balances in net assets.

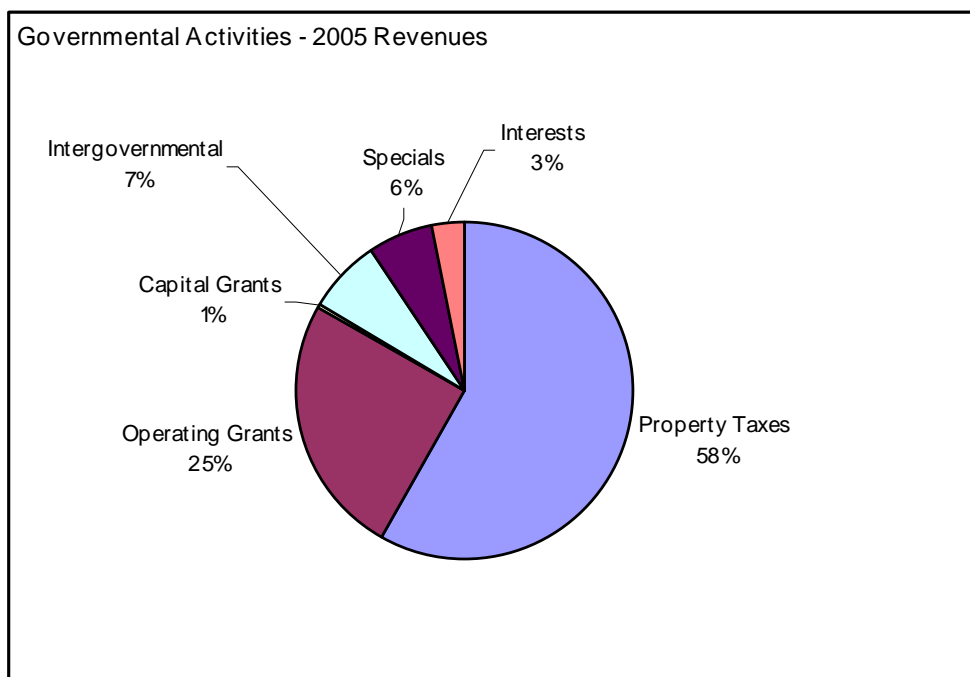


**RED LAKE WATERSHED DISTRICT'S CHANGE IN NET ASSETS  
– MODIFIED CASH BASIS**

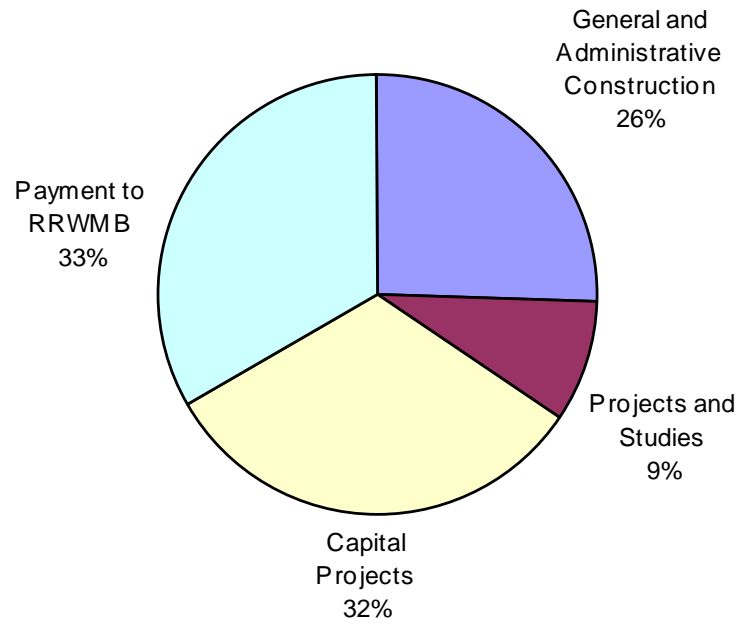
Governmental activities resulted in an increase of Red Lake Watershed District's net assets \$18,259. The details of the increase are as follows:

	2005	2004
<b>REVENUES</b>		
Special assessments and charges for services	\$ 136,121	\$ 74,893
Operating grants	525,591	411,206
Capital grants	12,512	-
General revenues:		
Property taxes	1,227,992	1,157,200
Other intergovernmental	144,088	133,848
Interest	64,569	48,633
<b>TOTAL REVENUES</b>	<b>2,110,873</b>	<b>1,825,780</b>
<b>EXPENSES</b>		
General and administration construction	102,667	492,204
Ongoing projects and studies	202,614	89,468
Capital projects	931,108	645,471
Payments to RRWMB	619,882	580,378
<b>TOTAL EXPENSES</b>	<b>1,856,271</b>	<b>1,807,521</b>
<b>CHANGE IN NET ASSETS</b>	<b>\$ 254,602</b>	<b>\$ 18,259</b>

Below are specific graphs which provide comparisons of the governmental activities revenues and expenditures:



Governmental Activities - 2005 Expenses



## **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 \$1,971,712. The total fund balance can be attributed to 1) General Fund, \$224,136; 2) Administrative Construction, \$2,035,110; as well as Special Revenue Projects with deficit fund balance of (\$287,534).

The general fund increased by \$40,343 in 2005, 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, 2005.

### **Capital Asset and Debt Administration**

**Capital assets.** Red Lake Watershed District's investment in capital assets for its governmental activities as of December 31, 2005, amounts to \$834,736 (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)**

	2005			2004	
	Cost	Accumulated Depreciation	Cost Less Accumulated Depreciation	Cost Less Accumulated Depreciation	
Building and improvements	\$ 129,560	\$ 68,016	\$ 61,544	\$ 62,115	
Engineering equipment	305,549	203,661	101,888	65,523	
Office equipment	43,487	33,020	10,467	14,126	
Construction in progress	660,837	-	660,837	-	
Total	<u>\$ 1,139,433</u>	<u>\$ 304,697</u>	<u>\$ 834,736</u>	<u>\$ 141,764</u>	

**Long-term debt.** The District has \$139,054 in long-term debt arising from modified cash basis transactions compared to \$169,995 at December 31, 2005.

**Other Items of Interest.** In the fiscal years 2006 and 2007 the Red Lake Watershed District will have considerable construction costs incurred for the implementation of a Flood Damage Reduction Project. 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 \$5.2 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.

Seeger Dam and the Louisville-Parnell Impoundment are scheduled to be repaired in the summer of 2006 at an estimated cost of \$80,000. The funds for these repairs will be solely borne from the Red Lake Watershed District's Capital Projects Fund.

Land acquisition and a proposal to construct a new watershed district office will be progressing in the year 2006.

**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, 102 Main Avenue North, P.O. Box 803, Thief River Falls, Minnesota 56701

RED LAKE WATERSHED DISTRICT  
THIEF RIVER FALLS, MINNESOTA  
STATEMENT OF NET ASSETS - MODIFIED CASH BASIS  
DECEMBER 31, 2005

9

ASSETS	
<u>Current Assets:</u>	
Petty cash	\$       100
Pooled cash and investments	1,971,612
Total Current Assets	<u>1,971,712</u>
<u>Capital Assets:</u>	
Property and equipment	1,139,433
Less: accumulated depreciation	<u>(304,697)</u>
Net Capital Assets	<u>834,736</u>
TOTAL ASSETS	<u>2,806,448</u>
LIABILITIES	
Current portion of loan payable	<u>30,901</u>
State loan payable, net of current portion	<u>108,153</u>
TOTAL LIABILITIES	<u>139,054</u>
NET ASSETS	
Investment in capital assets, net of related debt	834,736
Unrestricted	<u>1,832,658</u>
TOTAL NET ASSETS	<u>\$ 2,667,394</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, 2005

	Expenses			Program Revenues			Net (Expenses) Revenues and Changes in Net Assets
FUNCTION/PROGRAMS	Direct	Allocated Salaries & Overhead	Total	Special Assessments and Charges for Services	Operating Grants and Contributions	Capital Grants and Contributions	Governmental Activities
General and administrative construction	\$ (475,059)	\$ 372,392	\$ (102,667)	\$ 9,375	\$ -	\$ -	\$ (93,292)
Ongoing projects and studies	(164,411)	(38,203)	(202,614)	109,242	2,400	12,512	(78,460)
Capital projects	(596,919)	(334,189)	(931,108)	17,504	523,191	-	(390,413)
Payments to RRWMB	(619,882)	-	(619,882)	-	-	-	(619,882)
Interest and fees	(17,679)	-	(17,679)	-	-	-	(17,679)
Total Governmental Activities	\$ (1,873,950)	\$ -	\$ (1,873,950)	\$ 136,121	\$ 525,591	\$ 12,512	\$ (1,199,726)
General Revenues:							
Property taxes							1,227,992
Intergovernmental, (not restricted to specific programs)							144,088
State MV and disparity reduction credits							82,248
Interest earnings							1,454,328
Total General Revenue							254,602
Changes in Net Assets							2,412,792
Net Assets - Beginning							\$ 2,667,394
Net Assets - Ending							

See accompanying notes to the basic financial statements.

RED LAKE WATERSHED DISTRICT  
THIEF RIVER FALLS, MINNESOTA  
BALANCE SHEET - MODIFIED CASH BASIS  
GOVERNMENTAL FUNDS  
DECEMBER 31, 2005

11

	<u>General</u>	<u>Special Revenue Fund</u>	<u>Capital Project Fund</u>	<u>Total</u>
<b>ASSETS</b>				
Petty cash	\$ 100	\$ -	\$ -	\$ 100
Pooled cash and investments	184,830	-	1,786,782	1,971,612
Due from other funds	39,206	-	-	39,206
<b>TOTAL ASSETS</b>	<b><u>\$ 224,136</u></b>	<b><u>\$ -</u></b>	<b><u>\$ 1,786,782</u></b>	<b><u>\$ 2,010,918</u></b>
<b>LIABILITIES</b>				
Due to other funds	\$ -	\$ 39,206	\$ -	\$ 39,206
<b>TOTAL LIABILITIES</b>	<b><u>-</u></b>	<b><u>39,206</u></b>	<b><u>-</u></b>	<b><u>39,206</u></b>
<b>FUND BALANCE</b>				
Unrestricted	<u>224,136</u>	<u>(39,206)</u>	<u>1,786,782</u>	<u>1,971,712</u>
<b>TOTAL LIABILITIES AND FUND BALANCE</b>	<b><u>\$ 224,136</u></b>	<b><u>\$ -</u></b>	<b><u>\$ 1,786,782</u></b>	<b><u>\$ 2,010,918</u></b>

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

Total fund balance per Balance Sheet, from above \$ 1,971,712

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	1,139,433
Accumulated depreciation	(304,697)

Some liabilities, including long-term notes payable, are not due and payable in the current period and therefore are not reported in the funds. (139,054)

Total Net Assets **\$ 2,667,394**

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, 2005

12

	<u>General</u>	<u>Special Revenue Fund</u>	<u>Capital Project Fund</u>	<u>Total</u>
<b>REVENUES</b>				
Property taxes	\$ 155,600	\$ -	\$ 1,072,392	\$ 1,227,992
Intergovernmental				
Federal flow through State	-	-	35,176	35,176
State	-	14,912	492,623	507,535
Local	-	-	139,480	139,480
Special assessments	-	103,517	-	103,517
Miscellaneous	9,375	5,725	17,504	32,604
Allocated interest	10,706	7,493	64,049	82,248
Total Revenues	<u>175,681</u>	<u>131,647</u>	<u>1,821,224</u>	<u>2,128,552</u>
<b>EXPENDITURES</b>				
General and administrative construction	134,803	-	-	134,803
Ongoing projects and studies	-	377,383	-	377,383
Capital projects	-	-	1,417,175	1,417,175
Payments to RRWMB	-	-	619,882	619,882
Loan principal payments	-	-	30,901	30,901
Allocated interest	5,726	3,974	7,979	17,679
Total Expenditures	<u>140,529</u>	<u>381,357</u>	<u>2,075,937</u>	<u>2,597,823</u>
Revenues Over (Under) Expenditures	35,152	(249,710)	(254,713)	(469,271)
<b>OTHER FINANCING SOURCES (USES)</b>				
Transfers in	386,931	-	404,048	790,979
Transfers out	(381,740)	-	(409,239)	(790,979)
Net Other Sources (Uses)	<u>5,191</u>	<u>-</u>	<u>(5,191)</u>	<u>-</u>
Revenues & Other Sources Over (Under) Expenditures & Other Uses	40,343	(249,710)	(259,904)	(469,271)
Fund Balance (Deficit), January 1	<u>183,793</u>	<u>210,504</u>	<u>2,046,686</u>	<u>2,440,983</u>
Fund Balance (Deficit), December 31	<u>\$ 224,136</u>	<u>\$ (39,206)</u>	<u>\$ 1,786,782</u>	<u>\$ 1,971,712</u>

See accompanying notes to the basic financial statements.

RED LAKE WATERSHED DISTRICT  
THIEF RIVER FALLS, MINNESOTA  
RECONCILIATION OF CHANGE IN FUND BALANCES OF GOVERNMENTAL FUNDS  
TO THE STATEMENT OF ACTIVITIES

13

Net Change in Fund Balances - Total Governmental Funds	\$ (469,271)
<p>Governmental funds report capital outlay as expenditures, while governmental activities report depreciation expense allocating those expenditures over the life of the asset:</p>	
Capital additions	724,775
Depreciation expense	(31,803)
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	30,901
Change in Net Assets - Governmental Activities	\$ 254,602

See accompanying notes to the basic financial statements.



**RED LAKE WATERSHED DISTRICT  
THIEF RIVER FALLS, MINNESOTA  
SCHEDULE OF CHANGES IN FUND BALANCES - MODIFIED CASH BASIS  
FOR THE YEAR ENDED DECEMBER 31, 2005**

	Fund Balance (Deficit) January 1	Revenues				Expenditures			Transfers		Fund Balance (Deficit) December 31
		Assessments and Other Charges for Services	Operating / Capital Grants and Contributions	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Salary & Overhead Allocation	In (Out)		
<b>GENERAL FUND</b>	\$ 183,793	\$ 9,375	\$ -	\$ 10,706	\$ 155,600	\$ 507,195	\$ 5,726	\$ (372,392)	\$ 5,191	\$ 224,136	
<b>SPECIAL REVENUE FUND JOBS:</b>											
Branch A & I, J.D. #2	2,374	3,558	-	129	-	-	-	131	-	5,930	
Burnham Creek channel	4,757	12,721	-	279	-	540	-	403	-	16,814	
Clearwater County ditch #1	895	-	-	23	-	-	-	-	-	918	
Clearwater County joint ditch #1	(193)	-	-	-	-	-	-	5	-	(198)	
Clearwater County joint ditch #4	1,565	89	-	29	-	-	-	574	-	1,109	
Clearwater County joint ditch #5	1,027	293	-	34	-	-	-	-	-	1,354	
Clearwater River project	22,567	510	-	606	-	370	-	167	-	23,916	
Clearwater/Wild Rice River	2,161	12,098	-	218	-	-	-	2,758	-	11,349	
Clifford Arvason ditch	1,843	2,009	-	77	-	-	-	-	-	3,929	
Equality RLWD ditch #1, lat C	343	2,835	-	58	-	641	-	213	-	2,382	
J.D. ditch #72	1,017	5,023	-	85	-	1,777	-	144	-	4,203	
Jensen petition	1,682	4,850	-	132	-	398	-	45	-	6,221	
K. Johnson petition	2,991	3,616	-	115	-	2,656	-	574	-	3,492	
Krostue petition	(572)	1,534	-	4	-	306	-	85	-	575	
Lost River project	16,321	12,279	-	530	-	4,524	-	-	-	24,606	
Main J.D. #2 and branch B & C	368	1,122	-	3	-	838	-	2,391	-	(1,736)	
Pine Lake maintenance	(3,732)	5,064	-	-	-	85	-	4,444	-	(3,294)	
Polk Cnty ditch #19 petition	(10,293)	-	-	-	-	450	-	280	-	(11,088)	
Polk Cnty ditch #33 improvement	5,871	2,179	-	181	-	980	-	65	-	7,177	
Polk Cnty ditch #63 improvement	2,938	2,012	-	-	-	48,160	-	75	-	(44,163)	
Polk Cnty ditch #'s 104, 61, 47, 94	2,219	8,309	-	165	-	3,377	-	96	-	7,221	
Red Lake River project	56,935	-	-	1,492	-	-	-	-	-	58,427	
RLWD ditch #1	19,053	-	-	494	-	639	-	138	-	18,770	
RLWD ditch #3	9,554	7,861	-	334	-	573	-	42	-	17,134	
RLWD ditch #7	4,694	12,653	-	271	-	2,753	-	63	-	14,802	
RLWD Ditch #9	3,108	673	-	86	-	275	-	106	-	3,486	
RLWD Ditch #10	(27,634)	725	14,912	-	-	199,979	-	3,106	-	(233,791)	
RLWD Ditch #11	-	5,000	-	-	-	23,237	-	87	-	(19,833)	
Scott Baatz petition	2,124	1,254	-	63	-	-	-	32	-	3,409	
State ditch #83	98,307	649	-	2,045	-	44,032	-	2,912	-	54,057	
Thief River Falls drainage ditch	1,471	326	-	40	-	-	-	-	-	1,837	
Tynsid Township erosion	(9,039)	-	-	-	-	-	-	239	-	(9,361)	
Winsor/Haugard/Clearwater County petition	(4,618)	-	-	-	-	2,590	-	148	-	(8,860)	
<b>Total Special Revenue</b>	<b>210,504</b>	<b>109,242</b>	<b>14,912</b>	<b>7,493</b>	<b>-</b>	<b>339,180</b>	<b>3,974</b>	<b>38,203</b>	<b>-</b>	<b>(39,206)</b>	

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

	Fund Balance (Deficit) January 1	Revenues				Expenditures			Transfers		Fund Balance (Deficit) December 31
		Assessments and Other Charges for Services	Operating / Capital Grants and Contributions	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Allocated Salary & Overhead	In (Out)		
<b>CAPITAL PROJECT FUND JOBS:</b>											
Administrative construction	1,737,475	-	167,372	53,232	1,072,392	619,882	1,854	-	(373,620)	2,035,115	
Badger Creek / Poplar River	6,281	-	-	165	-	-	-	-	1,328	6,446	
Bagley urban runoff	-	-	-	-	-	1,325	3	-	(4,777)	-	
Blair - Beyer Dam	4,655	-	-	122	-	-	-	-	240	-	
Beaver Damage Control Project	-	-	-	-	-	-	-	-	239	-	
Bench Marks	-	-	-	-	-	-	-	-	3,616	-	
Black River project	-	-	-	-	-	-	-	-	228	-	
Burnham Creek	-	-	-	-	-	-	-	-	610	-	
BWSR pilot project	-	-	-	-	-	-	-	-	615	-	
BWSR flood storage pilot project	-	-	-	-	-	-	-	-	152	-	
Cameron Lake water quality monitoring	-	-	-	-	-	27	4	149	316	-	
Clearwater conservation	-	-	-	-	-	4,612	121	285	4,733	-	
Clearwater Lake Water Quality	-	-	-	-	-	-	-	-	212	-	
Clearwater nonpoint	-	-	-	-	-	30,901	337	210	31,238	-	
Clearwater public education	-	-	-	-	-	9,257	265	13,685	23,207	-	
Clearwater River - habitat	-	-	-	-	-	-	-	-	55	-	
Clearwater River TMDLS	679	-	2,087	-	-	3,440	70	180	925	1	
Clearwater stream water	-	-	-	-	-	-	-	-	126	-	
Culvert Sizing	-	-	-	-	-	-	147	9,659	9,806	-	
Elm Lake	-	-	-	-	-	-	9	632	641	-	
Emergency maintenance	86,556	-	-	2,269	-	-	-	-	-	88,825	
Erosion control P/T/S	-	-	-	-	-	5,000	12	65	5,077	-	
Farm to stream water quality	3,772	-	7,682	-	-	7,753	10	11,657	-	(7,966)	
Flood control studies	-	-	-	-	-	-	8	336	344	-	
G.I.S.	-	-	-	-	-	996	393	22,291	23,680	-	
Glacial ridge	(2,484)	-	327,000	1,185	-	307,070	-	2,320	-	16,311	
Greenwood Township 27	-	-	13,450	144	-	-	-	315	(13,279)	-	
Grand Marais - Brandt	-	-	-	-	-	495,942	-	7,234	-	(503,176)	
Grand Marais - Euclid East	-	-	-	-	-	33,448	-	8,348	-	(41,796)	
Hydrologic analysis	-	-	-	-	-	-	144	9,593	9,737	-	
Land Use Practices	-	-	-	-	-	-	3	292	295	-	
Lost River impoundment	-	-	-	-	-	-	14	884	898	-	
Louisville/Parnell project	-	-	-	-	-	6,054	136	2,280	8,470	-	
Maintenance dams	-	-	-	-	-	8,642	86	2,480	11,208	-	
Maple Lake / JD 73 water quality	-	-	-	-	-	100	31	2,399	2,530	-	
Maple Lake project	245,861	-	-	6,446	-	-	-	-	-	252,547	
Moose River project	-	-	-	-	-	12,191	279	9,140	21,610	-	
North Parnell storage site	-	-	-	-	-	-	3	149	152	-	
Grand Marais Creek Subwatershed	-	-	31,917	-	-	1,630	152	22,449	-	7,686	
Parnell impoundment	-	-	2,400	-	-	7,900	146	5,877	11,523	-	

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

	Fund Balance (Deficit) January 1	Revenues			Expenditures			Transfers		Fund Balance (Deficit) December 31
		Assessments and Other Charges for Services	Operating / Capital Grants and Contributions	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Allocated Salary & Overhead	In (Out)	
CAPITAL PROJECT FUND JOBS (continued)										
Permits	-	-	-	-	-	13,998	964	61,402	76,364	-
Red Lake Res./Good Lake	-	-	-	-	-	858	72	5,273	6,203	-
Red River buffer strip	-	-	-	-	-	994	21	1,425	2,439	(1)
Red River Corridor	-	-	-	-	-	119	-	956	1,075	-
Rocksbury section 20 erosion	-	-	-	-	-	-	2	166	168	-
Ring dike program -	-	-	-	-	-	-	-	-	-	-
General	-	-	945	-	-	384	-	876	315	-
Grundhaus	(1,860)	5,752	14,163	-	-	16,554	-	3,780	2,279	-
Cwikla	(3,117)	2,194	6,833	-	-	22,220	-	6,967	5,795	(17,482)
R. Stengl	(775)	5,806	38,814	-	-	46,615	-	4,251	6,358	(663)
Slominski	5	-	-	-	-	-	-	-	(5)	-
Halbert	(1,082)	1,112	(30)	-	-	-	-	-	-	-
Klawitter	(475)	46	-	-	-	-	-	-	429	-
RRWMB protocol grant	-	4,500	-	-	-	330	94	10,856	6,780	-
Stream gauging	-	-	-	-	-	16,925	503	27,870	45,298	-
Thief River watershed mediation	17,708	-	-	464	-	-	-	-	(18,172)	-
WS Ditch System Inventory & Mapping	-	-	12,500	27	-	-	-	8,775	-	3,752
Water Quality Statistical Analysis	-	-	-	(5)	-	-	-	300	305	-
Water Quality	-	-	-	-	-	23,091	1,009	53,762	77,862	-
10 year overall plan	(46,513)	-	40,000	-	-	35,511	1,043	9,750	-	(52,817)
Total Capital Projects	2,046,686	17,504	667,279	64,049	1,072,392	1,733,769	7,979	334,189	(5,191)	1,786,782
Total - All Funds	\$ 2,440,983	\$ 136,121	\$ 682,191	\$ 82,248	\$ 1,227,992	\$ 2,580,144	\$ 17,679	\$ -	\$ -	\$ 1,971,712

RED LAKE WATERSHED DISTRICT  
THIEF RIVER FALLS, MINNESOTA  
SCHEDULE OF DIRECT EXPENDITURES BY CLASSIFICATION - MODIFIED CASH BASIS  
GOVERNMENTAL FUNDS  
FOR THE YEAR ENDED DECEMBER 31, 2005 AND 2004

<u>DIRECT EXPENDITURES:</u>	<u>2005</u>	<u>2004</u>
Salaries -		
Inspection	\$ 20,811	\$ 21,875
Survey - preliminary	8,477	7,798
Survey - construction	4,014	3,243
Reducing field notes	245	348
Drafting	1,516	2,085
Engineering	34,253	35,965
Project administration	148,521	153,515
Field work -water programs	14,160	12,651
Other	18,271	32,260
Compensated absences	22,455	18,415
Payroll taxes and benefits	75,829	74,015
Manager's expenses	11,050	13,246
Travel, mileage, meetings and per diems	2,456	4,865
Audit	5,855	4,495
Legal	18,121	25,452
Appraisal and viewers	2,260	824
Other professional fees	59,023	60,199
Office supplies	12,896	13,938
Office equipment	-	1,827
Dues & subscriptions	2,250	2,296
Insurance and bonds	24,064	23,275
Rent	1,210	990
Repairs and maintenance	10,577	12,630
Utilities	6,275	5,708
Telephone	9,132	7,476
Advertising and publications	5,339	3,882
Truck expense	14,392	17,005
Red River Watershed Management Board	619,882	580,378
Cost share assistance	4,612	4,612
Land acquisition and easements	486,122	33,050
Construction	379,031	165,154
Engineering costs & fees	5,131	12,525
Engineering fees	155,380	334,039
Engineering equipment	52,021	19,110
Glacial Ridge	306,960	100,000
Other	6,652	(5,235)
Loan payments	30,901	30,901
	<u>30,901</u>	<u>30,901</u>
Total Expenditures	<u>\$ 2,580,144</u>	<u>\$ 1,834,812</u>

RED LAKE WATERSHED DISTRICT  
2005 GENERAL OPERATIONS BUDGET TO ACTUAL  
MODIFIED ACCRUAL BASIS  
FOR THE YEAR ENDED DECEMBER 31, 2005

	<b>2005 BUDGET</b>	<b>2005 Exp. 12-31-05</b>	<b>(over) under</b>
Manager's fees, salaries	19,000	10,868	8,132
Board of Manager's expense	17,000	9,593	7,407
Staff salaries	265,000	290,701	(25,701)
Payroll taxes	21,000	21,340	(340)
Employee benefits	63,000	50,697	12,303
Unemployment benefits		3,792	(3,792)
Travel and meetings(inc. mileage & exp.)	5,000	1,875	3,125
Legal	10,000	12,927	(2,927)
Audit	5,000	5,855	(855)
Office supplies	13,000	11,725	1,275
Office equipment	7,000	-	7,000
Engineering equipment	45,000	41,335	3,665
Engineering supplies	2,500	2,898	(398)
Rent	1,000	1,210	(210)
Telephone	10,000	8,392	1,608
Dues and subscriptions	3,000	2,250	750
Insurance and bonds	25,000	23,264	1,736
Repairs and maintenance	17,000	10,561	6,439
Utilities	7,500	6,275	1,225
Professional services (inc. Eng. Fees)	2,000	300	1,700
Advertising and publications	2,500	2,204	296
Interest	3,000	5,726	(2,726)
Vehicle expense and maintenance	9,000	14,392	(5,392)
<b>TOTAL</b>	<b>552,500</b>	<b>538,180</b>	<b>14,320</b>
Less Overhead	<u>397,500</u>	<u>397,651</u>	<u>(151)</u>
2005 GENERAL FUND LEVY	<u>155,000</u>	<u>140,529</u>	<u>14,471</u>