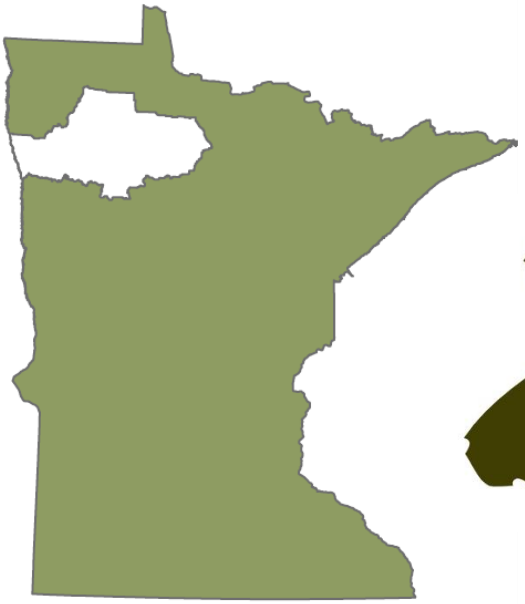
RED LAKE WATERSHED DISTRICT



2018

ANNUAL REPORT

Table of Contents

Letter from the President

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

Another year has passed and those of us who deal in water resource issues never really know what to expect from one year to the next. For those who enjoy winter activities, the winter of 2017 and 2018 did not provide a lot of winter excitement. Winter was generally mild with above average temperature for most part with below average precipitation. Spring planting conditions for farmers started out a little slow in month of April along with some untimely rains in May which slowed down the planting season for early grains. June did not help either as in the first 11 days of the month, we had nearly 3 inches of rain with total rainfalls in June reaching 3.78 inches. Just when we were buckled in for an abnormally wet year, July, August and September managed to produce only 5.78 inches of rain with October topping out at 3.56 inches.

In 2018, two members of the Red Lake Watershed Board of Managers were re-appointed by their respective counties to serve three-year terms. Gene Tiedemann, rural Euclid, was reappointed by the Polk County Board of Commissioners and Les Torgerson, rural Leonard, was appointed by the Clearwater County Board of Commissioners. I am very pleased these two fine gentlemen agreed to serve your communities once again and the entire Board of Managers look forward in serving the folks of northwestern Minnesota to the best of our ability.

The Watershed District office is located at 1000 Pennington Avenue South, Thief River Falls, MN. Feel free to stop in and have a cup of coffee, but if you do not have time, please go to our website http://www.redlakewatershed.org and take a virtual tour of our facility, as well as get updates of projects throughout the year.

Our 2018 Annual Audit is included in this report in an abbreviated form. A complete copy of the Annual Audit may be obtained at the District office at 1000 Pennington Avenue South, Thief River Falls, as well as on our website www.redlakewatershed.org .

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

Once again, it was a pleasure to serve as President of the Board in 2019.

Sincerely,

Dale M. Nelson, President

Board of Managers – 2018

Front Row *(left to right)*: Terry Sorenson, Treasurer; Dale M. Nelson, President; and Gene Tiedemann, Vice President. **Second Row** *(left to right)*: Brian Dwight, Les Torgerson; LeRoy Ose, Secretary; and Allan Page. Gene Tiedemann, representing West Polk County and Les Torgerson, representing Clearwater County, were re-appointed by their respective counties to serve an additional 3-year term for the years 2018-2020.

Staff – 2018

Left to right: Myron Jesme, Administrator; Arlene Novak, Accounting Officer/Office & Admin. Spec. Prin.; Christina Slowinski, Ditch Inspector/Technician II; Corey Hanson, Water Quality Coordinator; Ashley Hitt, Natural Resources Technician; Loren Sanderson, Engineering Specialist; and Tammy Audette, Office Manager.
Not Pictured: Brady Stanley

Red Lake Watershed District Office

1000 Pennington Avenue South
Thief River Falls, MN 56701
Office Hours: Mon.-Fri. 8:00 a.m.– 4:30 p.m.
Phone: 218-681-5800 Fax: 218-681-5839
Website: redlakewatershed.org
E-Mail: RLWD@redlakewatershed.org

Meetings

The Board of Managers held twenty-three regularly scheduled board meetings in 2018. These regular meetings are normally held the 2nd and 4th Thursday of each month at the District office at 9:00 a.m. Two additional meetings were held to allow the Board to participate in the RLWD Advisory Committee meeting and a Red River Watershed Management Board meeting. Notice of these meetings are mailed or e-mailed to the Advisory Committees, county auditors, county commissioners, and SWCD/NRCS offices and by request. The agenda and minutes from board meetings are available by visiting our website at www.redlakewatershed.org/minutes.

The 2018 General Fund budget was set at $164,135. The Board voted at the July 27, 2017 Board meeting, to not levy the counties in 2018, instead using the reserves in the General Fund. The 2018 General Fund Budget hearing was held on August 24, 2018. Notice for the General Fund Budget hearing was published in at least one newspaper in each of the 10 counties within the District.

2018 Overall Advisory Committee

John A. Nelson, Walker Brook Area
Lloyd Wiseth, Marshall/Beltrami SWCD
Emmitt Weidenborner, Upper Red Lake Area
John Ungerecht, Upper Red Lake Area
John Gunvalson, Clearwater River Area
Steve Holte, Thief River Area
Dan Schmitz, Black River Area
Roger Love, Grand Marais Area
Dave Rodahl, Thief River Area
Shane Bowe, Red Lake Band of Chippewa Indians

2018 Subwatershed Advisory Committee Members

Black River
*Dan Schmitz, RLF
Curt Beyer, RLF
Greg Dyrdal, TRF

Moose River
Wayne Larson, Middle River
Elroy Aune, Gatzke

Upper Red Lake Area
*Emmitt Weidneborner, Kelliher
*John Ungerecht, Northome
Wayne Skoe, Northome

Thief River Area
*Dave Rodahl, TRF
Trent Stanley, Grygla
*Steve Holte, Grygla
Jim Sparby, Grygla

Clearwater River Area
Steve Linder, Oklee
*John Gunvalson, Gonvick

Lost River Area
Gary Mathis, Gonvick

Pine Lake Area
Dave Dalager, Gonvick

Red Lake River Area
Keith Driscoll, EGF

Hill River Area
Jake Martell, Oklee

Walker Brook Area
*John A. Nelson, Clearbrook

Grand Marais/Red Area
Jeep Mattson, EGF

Burnham Creek Area
Mary Ann Simmons, Crookston

Poplar River Area

Clearwater Lake Area

*Overall Advisory Committee Members

Members of the Overall Advisory and the Subwatershed Advisory Committees met on March 19, 2018. Twelve advisory members, along with District Board members and staff were in attendance. Staff members from the District gave presentations on projects within the District and answered questions from the Advisory Committee members.

History of the Red Lake Watershed District

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

A governmental unit known as the Red Lake Drainage and Conservancy District preceded the 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 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 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, and again in 2015 to be entitled “Permit and Drainage Rules of the Red Lake Watershed District.”

In 1977, the 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 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.

2018 District Projects

Petition to Establish Red Lake Watershed District No. 16 (RLWD Project No. 177)

On July 27, 2017, at the RLWD regularly scheduled Board meeting, a petition to establish a new drainage system project in Polk County was presented to the RLWD Board of Managers. Upon review of the petition and receipt of the bond, the RLWD Board of Managers, by order, appointed Pribula Engineering to make a preliminary survey.

On April 26, 2018, a preliminary hearing was held for the project. Upon completion of the hearing, the Board of Managers issued the order to proceed. The Board of Managers appointed viewers and directed the engineer to complete a detailed survey report. Due to delays in the permitting process, the final hearing was delayed until the spring of 2019 to complete the U.S. Army Corps of Engineers cultural review of the project area.

Petition for the Improvement to Polk County Ditch No. 39 (RLWD Project No. 179)

On October 26, 2017, at the RLWD regularly scheduled Board meeting, a petition was received for the improvement to Polk County Ditch #39. Upon review of the petition and receipt of the bond, the RLWD Board of Managers, by order, appointed Pribula Engineering to complete a preliminary survey. Due to delays in engineering, this project never proceeded to the preliminary hearing phase. It is the hope of the District that the preliminary and final hearing will be held the spring and summer of 2019.

Four-Legged Lake Watershed (RLWD Project No. 102A)

Four-Legged Lake located in northwestern Minnesota within Clearwater County. The chain of lakes is part of the RLWD Judicial Ditch #5 system which was established in 1921. Over the years, most recently in 1999, the downstream basin's outlet culvert had been raised without Drainage Authority permission or legal actions. The results of the raising of the culvert from its historical elevation has caused increased concerns of flooding to major county roadways and properties of upstream landowners.

On January 4, 2011 a public informational meeting was held in Leonard, Minnesota, with Clearwater County commissioners and engineer, township officials, and local landowners to get a feel of how the public wanted to proceed to remedy this flooding situation. It was determined that most landowners were not opposed to the lake being re-established but that a proper elevation should be set on the lakes to assure future flooding would not occur to the public roadways and upstream landowners in the event of large runoff events. As a result of the meeting and due to the fact that the only ditch records available was an original viewers report and an old blue line set of plans dating back to early 1920's, it was determined by the RLWD Board of Managers that updated information had to be developed to better identify the alternatives as we move forward.

On May 8, 2014 and again May 14, 2015 informational landowner meetings were held, and it was determined that a petition for abandonment of the legal drainage system should be presented to the RLWD Board of Managers in conjunction with the Managers developing a Flood Damage Reduction Project (FDR) that would serve State, County, and local interests.

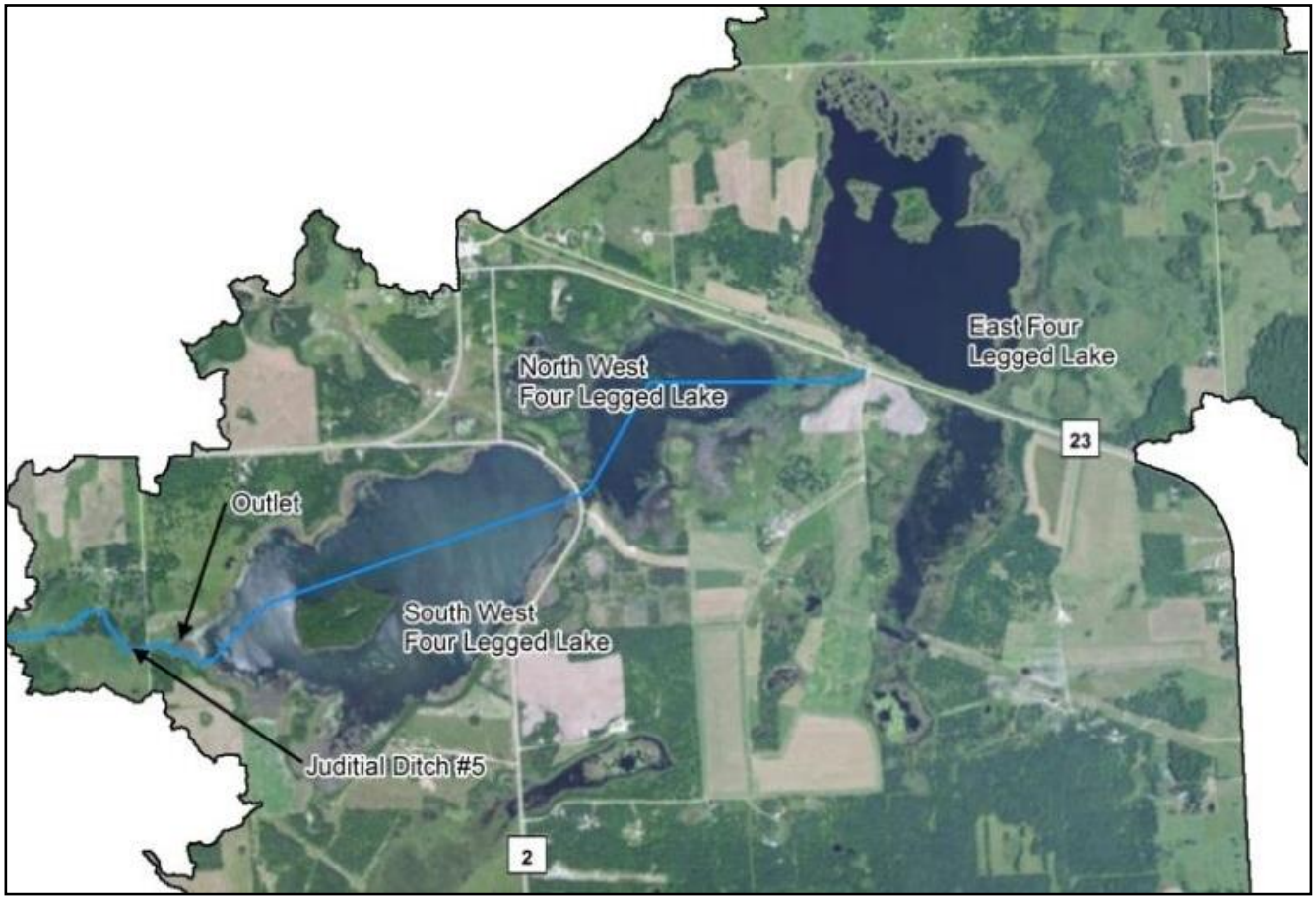
On July 23, 2015 a public hearing was held for the abandonment of the legal drainage system. After considerable discussion and testimony, the Board of Managers elected to table the proceedings until more information could be made available to the public.

On February 10, 2016 the District entered into an agreement with the Natural Resource Conservation District (NRCS) to complete a comprehensive watershed plan using the Regional Conservation Partnership Program (RCPP). This program encourages partners to join in efforts with producers to increase the restoration and

sustainable use of soil, water, wildlife and related natural resources on regional or watershed scales. The District proceeded with the RCPP process through 2017 and hope to complete the required step process late spring/early summer 2018. It is the hope of the District that upon completion of the comprehensive plan, we will have a clearer vision as to what projects can be completed in this watershed to assure all our goals in the report are addressed.

On June 14, 2018, the hearing for abandonment of Judicial #5 was continued. Upon testimony from the audience and recommendations by the engineer hired to review the project, the RLWD Board of Managers denied the petition for abandonment.

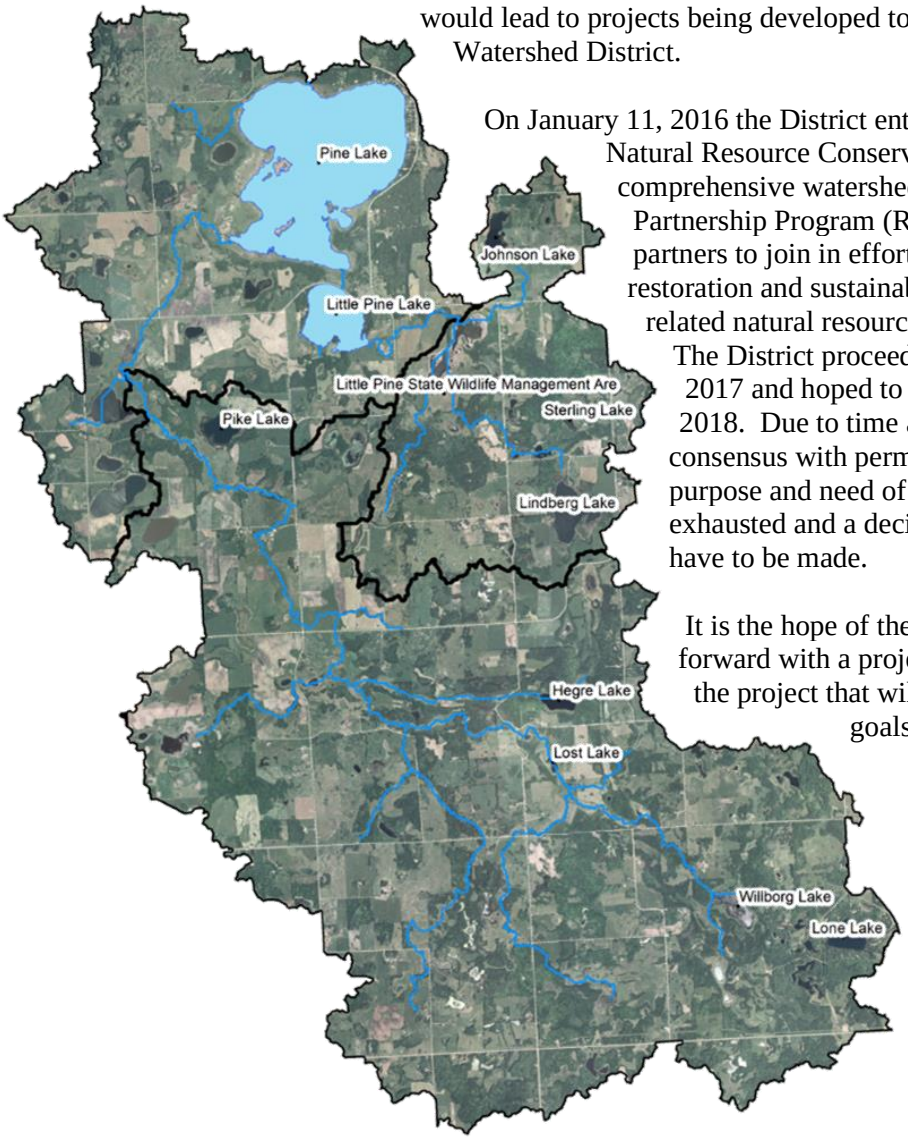
Late 2018, the RLWD Board of Managers decided to forego the remaining cost share on the RCPP agreement with the NRCS due to issues with the 103G designation by the DNR. It seemed because of the rules set forth under 103G, a permit required for the proposed Flood Damage Reduction Project which would require a fluctuation of water levels on the public waters would not be agreed to by the number of landowners adjacent to the public waters. The District is presently working with the NRCS in closing this agreement.



Pine Lake Watershed (RLWD Project No. 26)

In 2013, at the request of the Property Owners of Pine Lake Association (POOPLA), the Board of Managers hired HDR Engineering, Inc. to investigate the Pine Lake Watershed, to not only come up with solutions and alternatives that could assist in frequent flooding on Pine Lake, but also investigate the opportunities for distributed storage sites which may assist the District in our long range plan to reduce flooding to the Red River of the North by implementing the Red Lake Watershed 20% Reduction Strategy.

After various landowner meetings held in 2014 and 2015, it was apparent that there was interest in looking at areas upstream of Pine Lake to determine if any Flood Damage Reduction (FDR) projects could be developed. This interest lead the RLWD in applying for and being approved for a Natural Resource Conservation Service PL566 grant which will assist in a study which could lead to the possibility of engineering and design of Flood Damage Reduction (FDR) projects in the Pine Lake Watershed. It is the hopes of the District that the contracts will be signed and executed in early 2016, with a comprehensive study to be completed which would lead to projects being developed to reduce flood damages in the Red Lake Watershed District.



On January 11, 2016 the District entered into an agreement with the Natural Resource Conservation District to complete a comprehensive watershed plan using the Regional Conservation Partnership Program (RCPP). This program encourages partners to join in efforts with producers to increase the restoration and sustainable use of soil, water, wildlife and related natural resources on regional or watershed scales. The District proceeded with the RCPP process through 2017 and hoped to complete the required step process in 2018. Due to time and delays in being able to reach a consensus with permitting folks on how to forward with the purpose and need of the project, grant dollars have been exhausted and a decision on how to move forward will have to be made.

It is the hope of the District that in 2019, we can move forward with a project purpose and need to better define the project that will assist the public in reaching their goals.

Little Pine Lake (RLWD Project No. 26A)

As a result of the RCPP Project Work Team meetings for Pine Lake, it was identified that the Minnesota Department of Natural Resources may agree to store an additional 250 acre-feet of water on Little Pine Wildlife Management Area (WMA) to assist in reducing flood flows to Pine Lake during flood events. Upon further discussion with the RLWD Board of Managers, the District agreed to construct a new outlet structure on the WMA to allow better operation for regulating water surface elevations. The District and MnDNR entered into a Joint Powers Agreement as well as drafting an operating plan which gives the MnDNR the responsibility for all operation and maintenance of the water control structure. Quotes for the project were opened at the District office on June 14, 2019, with the low quote awarded to Red Lake Builders in the amount of $119, 220. Project construction was completed November 14, 2018.

Inlet end of new control structure. Dozer if finishing the embankment for seeding.

Outlet end and plunge pool of new structure.

Completed control structure

Erosion Control (RLWD Project No. 164)

This project program was established in 2004 and is used on a yearly basis to provide cost share funding for various erosion control projects usually initiated and developed by local Soil and Water Conservation Districts (SWCD). In 2018, there were 6 cost share funding requests by Clearwater County SWCD, Beltrami County SWCD, Marshall County SWCD, East Polk SWCD and West Polk SWCD. Total requests for project cost share totaled $109,696.97.

West Polk SWCD Grade Stabilization
Polk County Ditch 63 Improvement, RLWD Project No. 134

Black River Impoundment (RLWD Project No. 176)

November 10, 2016 the RLWD Board of Managers, by Board motion, initiated the Black River Impoundment Project.

On January 12, 2017 the Board appointed two members of their Board to sit on a Project Work Team to assist in the development of a flood damage reduction project near the Black River. To date the RLWD has been progressing in the development and design of the Black River Impoundment as well as securing lands required for construction of the project.

On April 18, 2017 a Step I submittal was presented to the Red River Watershed Management Board with the Step II submittal for funding presented to their board October 17, 2017.

On August 9, 2018 a public hearing was held for the Black River Impoundment with an estimated cost of 7.8 million dollars. Also, in 2018 the District tried to secure funding through Minnesota Flood Hazard Mitigation Funding which was not successful. The District will continue with the development of the project, as well as trying to secure State funding for construction.

Thief River Falls Westside Flood Damage Reduction Project (RLWD Project No. 178)

October 12, 2017 at their regular scheduled Board meeting, the RLWD Board of Managers received a petition from the City of Thief River Falls and Pennington County Commissioners requesting a project to divert waters, from Pennington County Ditch #70, as it enters from the north and west of the City of Thief River Falls.

In 2018, the Red Lake Watershed District, Minnesota Department of Transportation (MnDOT), City of Thief River Falls and Pennington County developed a partnership to move forward with this project in conjunction with a project MnDOT was designing near the west side of the City. The District retained HDR Engineering Inc. to develop a plan for the proposed project. On February 24, 2018 an application for a $1,500,000 Flood Hazard Mitigation Grant as applied for through the Minnesota Department of Natural Resources. In May of 2018 the Red Lake Watershed District was informed that the grant application was approved and on September 7, 2018 the grant agreement in the amount of $1,500,000 was executed. To assist in the 50% cost share match required by the State, the District submitted a Step 1 submittal for a $1,000,000 funding request to the Red River Watershed Management Board. It is the hopes of the District to have all funding secured as well as to coordinate final planning with project partners which will allow Phase I construction of the project starting in in July or August of 2019 with completion of the project occurring in 2020.

Polk County Ditch No. 63 Improvement (RLWD Project No. 134)

In 2015, during routine ditch inspection, RLWD staff noticed head cutting occurring near the outlet of the public drainage system. During discussion with the RLWD Board, it was determined to solicit Clean Water Funds to assist with the repair. In 2016 West Polk SWCD informed the Board that funding was denied under the Clean Water Fund application but there were other grant options that may work. In December of 2016, West Polk SWCD informed that RLWD Board of Managers that they were approved for a Clean Water Legacy Fiscal Year 2017 Project and Practices Grant through the Board of Water and Soil Resources (BWSR) for repairs to the outlet of Polk County Ditch 63, RLWD Project No. 134.

On September 14, 2017, the RLWD Board approved a 25% cost share of the grant and decided to proceed with the final engineer's report. On October 12, 2017, the RLWD Board approved the engineers report in the amount of $97,658 and ordered staff to proceed with the solicitation of quotes for the project. On October 26, 2017, the district awarded the low quote from RJ Zavoral & Sons in the amount of $67,435.00. Construction was substantially completed and was finalized in spring/summer of 2018.

Red Lake River One Watershed One Plan (RLWD Project No. 149)

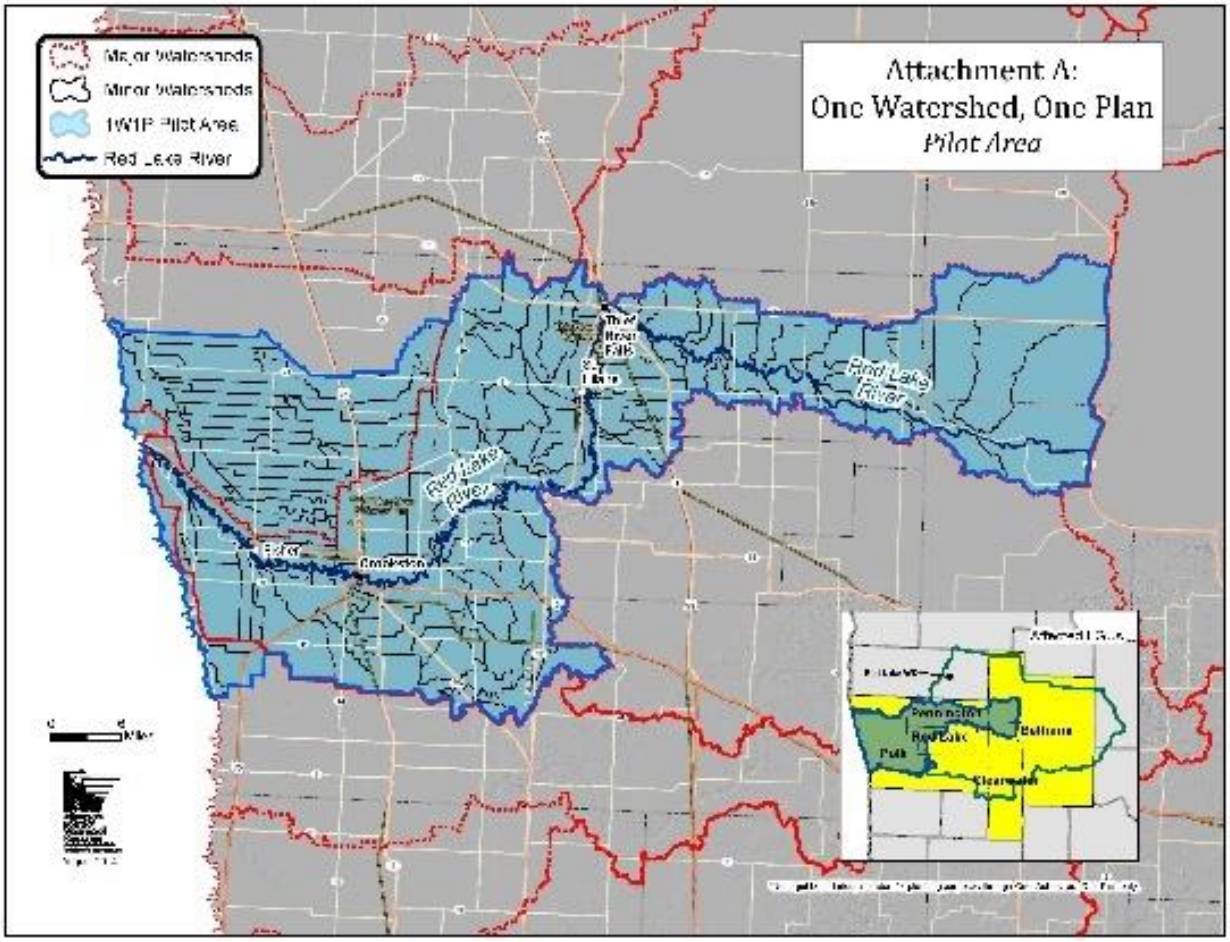
Minnesota has a long history of water management by local governments. One Watershed, One Plan is rooted in this history. In work initiated by the Local Government Water Roundtable (Association of Minnesota Counties, Minnesota Association of Watershed Districts, and Minnesota Association of Soil and Water Conservation Districts) in 2011, it was recommended that the local governments charged with water management responsibility should organize and develop focused implementation plans on watershed boundaries. The recommendation was followed by legislation that permits BWSR to adopt methods to allow comprehensive plans, local water management plans, or watershed management plans to serve as substitutes for one another; or to be replaced with one comprehensive watershed management plan. This legislation, and the associated BWSR program, is referred to as One Watershed, One Plan. Further Legislation was passed in 2015, defining purposes and outlining additional structure for the program.

Early 2014, the Red Lake Watershed District, Pennington, Red Lake County and West Polk Soil Conservation Districts, along with their respective Counties, partnered to apply for a grant through the Board of Water Resource One Watershed One Plan Pilot Project, to establish a Comprehensive Water Management Plan for

the Red Lake River Watershed. The grant was for five pilot projects that were approved for funding in December of 2014.

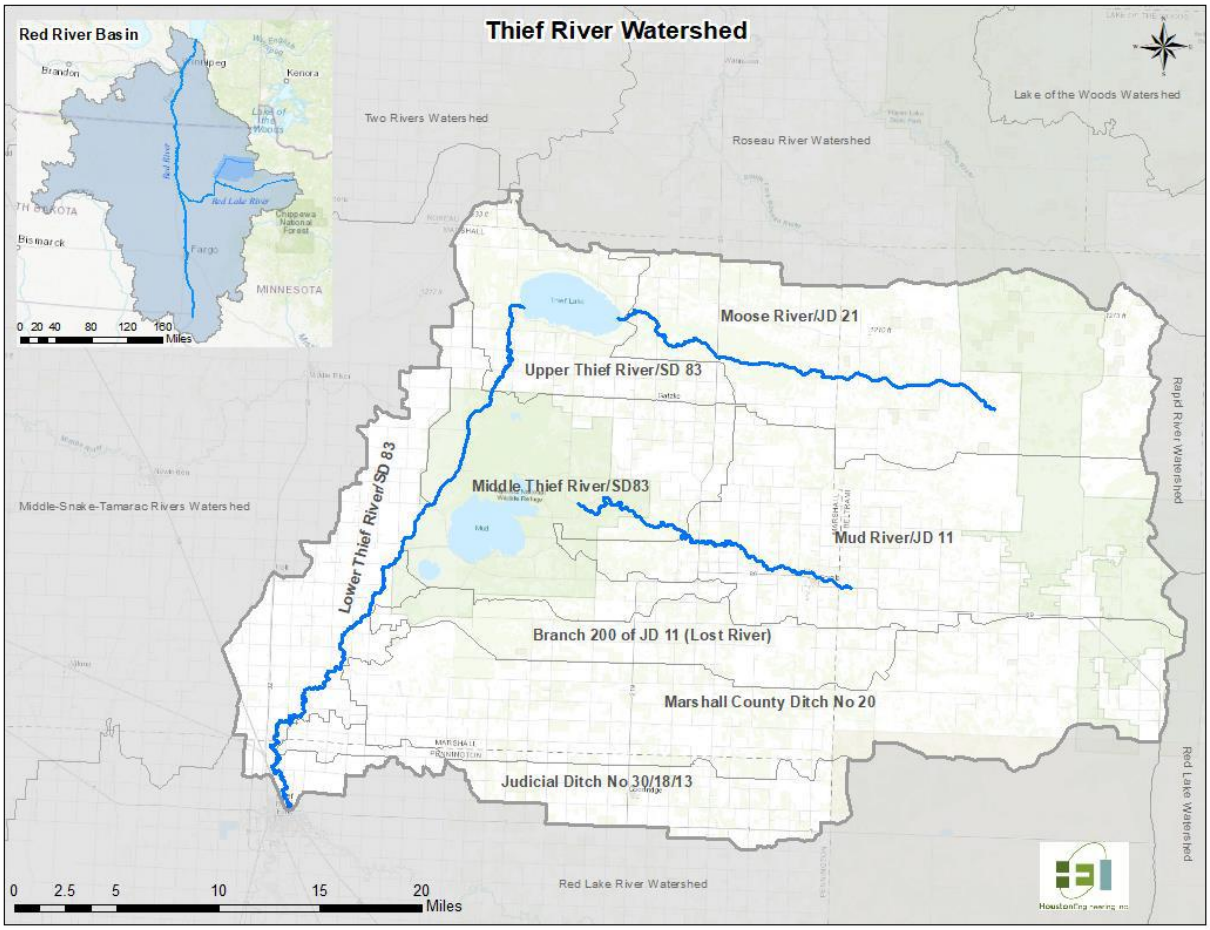
In 2015, the project partners started the planning process outlined by the BWSR which ultimately resulted in the approval of the plan in January 2017.

In 2018 the "Planning Work Group" for the Red Lake River One Watershed One Plan completed the required "Work Plan". Upon completion of the Plan and approval from the Board of Water and Soil Resources, a grant in the amount of $677,500 was awarded to complete various water quality projects highlighted in the plan. It is the hope of the District and its partners, that in early 2019 we will start construction on various project which will be highlighted in the 2019 Annual Report



Thief River One Watershed One Plan (RLWD Project No. 149A

In June of 2016, the Red Lake Watershed District, Pennington, Marshall and Beltrami Soil Conservation Districts and their respective counties applied for and were approved to receive a One Watershed One Plan grant from the Board of Water and Soil Resources (BWSR). On July 11, 2017, the grant was approved and executed by the BWSR. The plan development continued into 2018 with the hope that by mid-summer 2019, the plan will be completed and approved by the respective Policy Committee.



Sections of the plan were reviewed, one-by-one, by the planning work group, advisory committee, and policy committee. The Planning Work Group participated in regular conference calls and meetings to prepare meeting agendas, review comments on portions of the report, and discuss technical details of the plan. Draft portions of the report that were created in 2018 included:

- Introduction
- Protection and Restoration Strategy Technical Memorandum
- Measurable goals table
- Prioritization matrix
- Strategies and actions table
- Section 2 – Identification and Prioritization of Resource Categories, Concerns, and Issues
- Section 3 – Establishment of Measurable Goals
- Section 4 – Targeted Implementation
- Section 5 – Implementation Program

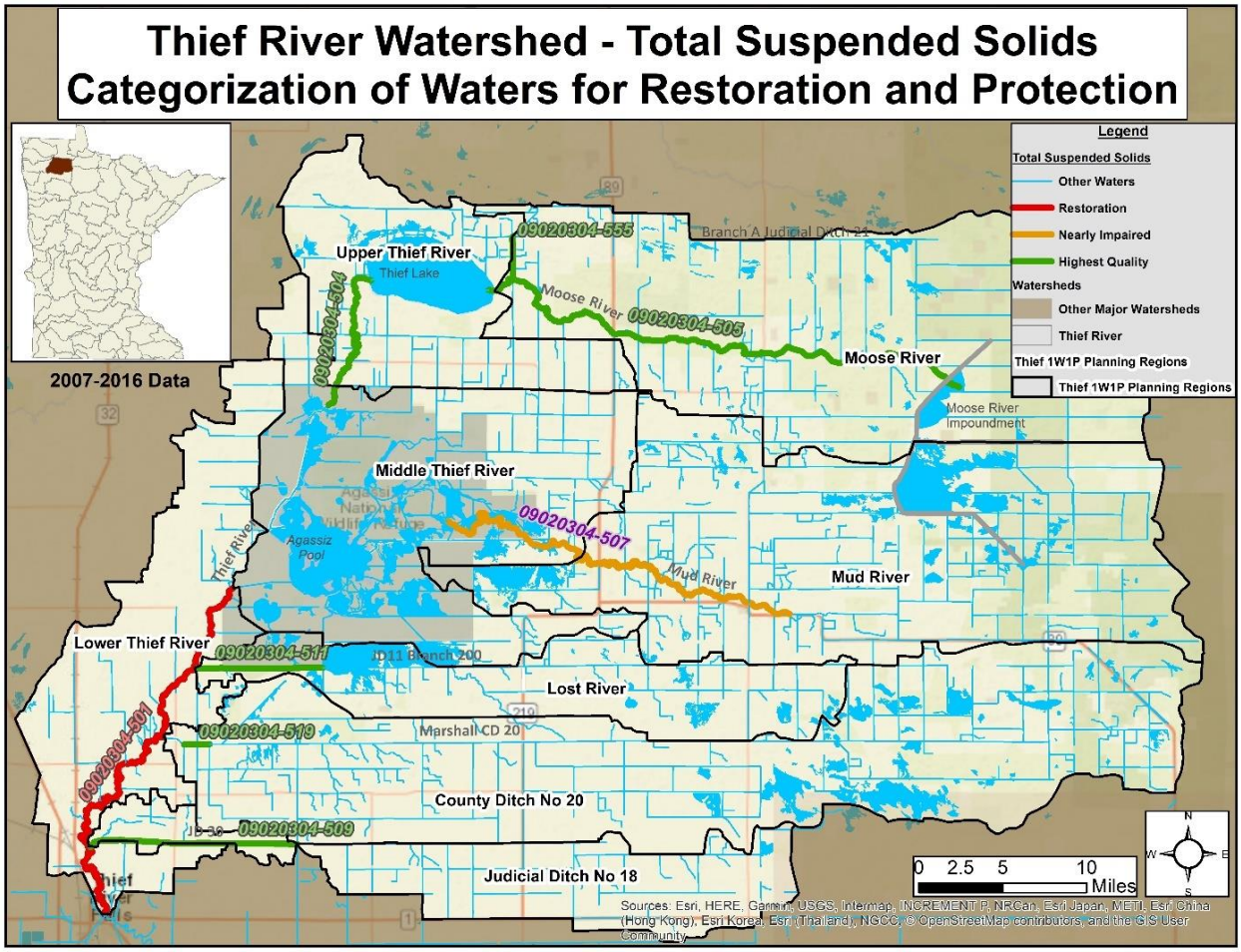
Meetings of the policy committee, advisory committee, and planning work group were held on:

- February 14, 2018
- March 14, 2018
- April 11, 2018
- May 9, 2018
- July 11, 2018
- August 8, 2018

- November 14, 2018
- December 12, 2018

Public meetings were held on January 9th and 10th, 2018 where attendees voted on priority issues and enjoyed free meals.

District staff categorized streams in the Thief River watershed using water quality assessment statistics that were generated for the Thief River Watershed Restoration and Protection Strategy project. Maps were created to help with prioritization for dissolved oxygen, total suspended solids, *E. coli* bacteria, and aquatic biology.



Flood Control Impoundments

The 2018 spring melt and runoff was the 7th consecutive year of no significant flooding in the basin. Rainfall events that did occur, were not large enough to generate significant runoff to require flood water storage.

Impoundments operated by the District are quite diverse and actual project operations are based on available flood storage, outlet structure facilities, and outlet channel capacity. Each impoundment is designed, based on upstream drainage area, topography, and runoff conditions. Some of the flood storage facilities are operated with adjustable stop-logs, adjustable flood gates, and some are non-gated fixed crest weir structures.

Non-gated – Fixed Crest Weir Type Structures

"Fixed crest" structures store water to the specific elevation of a weir. When the water surface raises above the weir elevation, outflows occur automatically. Most of the non-gated projects were constructed in the 1970's and early 1980's by the former Soil Conservation Service (SCS), known today as the Natural Resource Conservation Service (NRCS).

Latendresse Dam located in Red Lake Falls Township, Red Lake County

Odney Flaat Dam located in Onstad Township, Polk County

Storage Volume & Operations

Water storage is calculated in acre feet, which is a volume measurement that is one acre in area by one foot deep. Storage capacity in impoundments varies depending on the size in acres and depth of the storage area. One foot of water depth in an impoundment can be many thousands of acre feet of storage. Some impoundments are considered "dry" which means that the pool is basically drained dry after stored flood waters are released. Other impoundments are operated with a small permanent pool throughout the year.

Operation and maintenance vary, depending on the specific project. Some are operated solely by the District, and 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.

Routine inspections are performed, and the condition of the embankment and control structures is evaluated. Typical maintenance includes flood damage repairs, debris removal, removal of beaver dams/debris, nuisance beaver, and vegetation control.

The following pages describe some of the larger impoundment facilities that have gated and/or stop-log control flexibility.

Gated / Stop-log Type Structures

Projects with ‘adjustable flood gates and/or stop-logs’ have more flexibility for storing and also for controlling outflows from flood events. During large runoff events, flood waters are stored within the impoundments and as downstream conditions allow, the stored water is released in a controlled manner. This is done by operating flood gates or by adjusting stop-logs, depending on the respective flood storage facility. Water levels are typically lowered during the fall season. This ‘fall drawdown’ is performed to create additional flood storage for the next spring’s runoff.

Example of a “Dry” Impoundment. Stored flood water is released as soon as downstream channel conditions are acceptable to pass flows.

Example of an Impoundment with a permanent pool

Euclid East Impoundment (RLWD Project No. 60C)

GENERAL: Construction of the Euclid East Impoundment began on June 15, 2006. Due to excellent working conditions, it was substantially completed by the middle of November. The project became functional for operation in the spring of 2007. This project is funded jointly between the State of Minnesota, Red River Watershed Management Board and the District.

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

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

PROJECT COMPONENTS: The project has a drainage area of 17.1 square miles. The embankment and reservoir is constructed of approximately 3.6 miles of earthen clay embankment (332,681 cubic yards & approx. 12 feet at highest point), a grass lined emergency spillway, 2.4 miles of inlet channels and culvert works, 0.8 mile of outlet channel, and a gated concrete outlet structure. The operable components are the gated structure which releases water from the impoundment into an outlet channel. This water then flows northwesterly through legal ditch systems and eventually to the Red River of the North.

FUNCTIONAL DESIGN DATA

	Elevation (ft.-msl)	**Storage**
Top of Dam (total Storage)	908.0	2,443 (2.68 in. runoff)
Gated Storage (Secondary Spillway)	905.0	1,878 (2.06 in. runoff)
Ungated Storage to Emergency Spillway	906.0	565 (0.62 in. runoff)
April 21, 2011 was recorded as the highest pool elevation at 903.10		

OPERATIONAL: 2007

Principal Outlet Structure

In 2018, District staff and the local gate tender performed occasional gate operation and short-term storage throughout 2018. This operation and storage were mainly as a precautionary measure in advance of predicted severe storms and also for U.S. Highway 75 road construction and culvert installation.

Mechanical brushing was performed to control cattail and willow growth.

The Euclid East Impoundment site was added to the Pine to Prairie Birding Trail. The Pine to Prairie International Birding Trail is a trail in Minnesota and Canada with approximately 70 sites to view various birds and waterfowl that begins south of Fergus Falls and extends into Manitoba, Canada. A kiosk was installed on the north levee wall, with a four-sided informational panel, along with a white chimney structure for nesting of chimney swift species.

Brandt Impoundment (RLWD Project No. 60D)

GENERAL: Construction of the Brandt Impoundment began on July 31, 2006 and was substantially completed by the middle of November and functional for operation in the spring of 2008. The District and HDR Engineering of Thief River Falls jointly performed construction surveying and inspection duties. The project is funded by the State of Minnesota, Red River Watershed Management Board, and the District.

LOCATION: Section 7, Belgium Township, Polk County, approximately 14 miles north of Crookston, or 1 ½ miles east and 1 mile north of Euclid.

PURPOSE: The project will store runoff and reduce flooding on downstream agricultural lands and urban areas by retaining up to approximately 3,912 acre-feet of floodwater. The storage of water in the reservoir will also reduce peak discharges on the downstream "Brandt Channel," RLWD Ditch 15 and legal County Ditch #2 system.

PROJECT COMPONENTS:

The project has a drainage area of 23.6 square miles. The embankment and reservoir is constructed of approximately 3.5 miles of earthen clay embankment (492,579 cubic yards & approx. 19 feet at highest point), a grass lined emergency spillway, 2 – lines of 6 x 8 concrete box culverts and a gated concrete outlet structure.

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

Principal Outlet Structure

FUNCTIONAL DESIGN DATA

	Elevation (ft.-msl)	Storage
Top of Dam (total Storage)	918.0	3,912 (3.1 in. runoff)
Gated Storage (Secondary Spillway)	914.5	3,126 (2.48 in. runoff)
Ungated Storage to Emergency Spillway	916.0	786 (0.62 in. runoff)
July 4, 2010 was recorded as the highest pool elevation at 912.5		

OPERATIONAL: 2008

District staff and local gate tender performed occasional gate operation and short-term storage throughout 2018. This operation and storage were mainly as a precautionary measure in advance of predicted severe storms and for U.S. Hwy. 75 road construction and culvert installation.

Parnell Impoundment (RLWD Project No. 81)

GENERAL: Construction of the Parnell Impoundment began in 1997 and was completed in 1999. In 2004, modifications were made to the original design by lowering the emergency spillway 1.5 feet, expanding the inter-pool connecting channel, and installing an operable screw gate on the weir structure in the JD #60 outlet. The impoundment is now better utilized to store floodwaters by operating control gates. In 2009, excavation of an east pool interior channel, along with an inter-pool structure, consisting of 2-48" diameter culverts with operable gates was installed. The channel will enhance flow conveyance to J.D. #60 and the inter-pool structure will be beneficial in managing west pool water levels and held reduce flooding in County Ditch #126.

LOCATION: Sections 3 and 4, Parnell Township, Polk County, approximately 12 miles northeast of Crookston.

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 project has a drainage area of 23 square miles. The impoundment incorporates a 2 – pool design (no permanent pool), with two separate outlets, and an inter-pool 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.


West Pool Outlet Structure

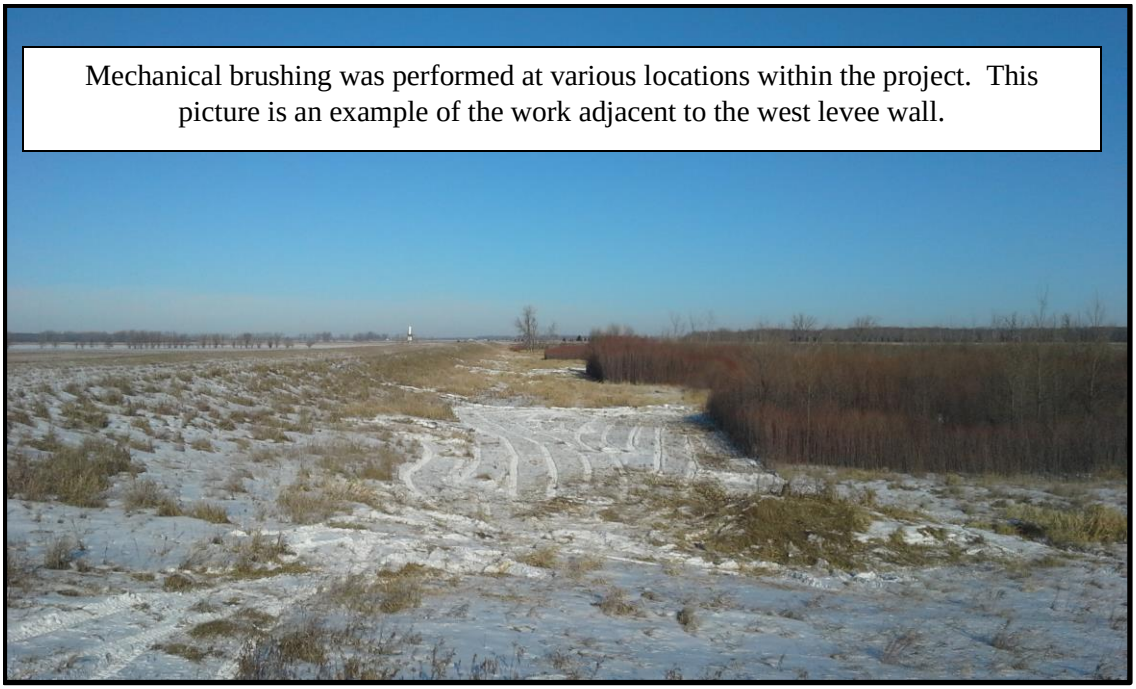
Operable components are the two gated structures which release water from the impoundment into two separate outlet channels. One of these channels is JD #60, which flows south to the Red Lake River and the other is CD #126, which flows west and eventually to the Red River of the North.

FUNCTIONAL DESIGN DATA:

	Elevation (ft.-msl)	Storage
Top of Dam (total Storage)	943.0	4,000 (3.2 in. runoff)
Emergency Spillway	939.5	3,000 (2.4 in. runoff)
March 25, 2009 was recorded as the highest pool elevation at 939.75		

OPERATIONAL: 1999

District staff & local gate tender performed occasional gate operation and short-term storage throughout 2018. This operation and storage were mainly as a precautionary measure in advance of predicted severe storms, also for U.S. Highway 75 road construction and culvert installation.



Mechanical brushing was performed at various locations within the project. This picture is an example of the work adjacent to the west levee wall.

The Parnell Impoundment site was added to the Pine to Prairie International Birding Trail. The Pine to Prairie International Birding Trail is a trail in Minnesota and Canada with approximately 70 sites to view various birds and waterfowl that begins south of Fergus Falls and extends into Manitoba, Canada. A kiosk was installed on the west levee wall, with a four-sided informational panel, along with a white chimney structure for nesting of chimney swift species.

Pine Lake (RLWD Project No. 35)

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

LOCATION: The site is near the south center of section 21, Pine Lake Township, Clearwater County.

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

FUNCTIONAL DESIGN DATA:

	Elevation (ft.-msl)
2nd Stage-top of dam	1284.5
1st Stage-top of dam	1284.0
Typical summer-top of stop logs	1283.5
Typical winter	1282.5
April 11, 2009 was recorded as the highest pool elevation at 1286.0	

The Pine Lake control structure is a sheet pile dam with 2 – four-foot wide adjustable stop-log bays. The stop-logs can be adjusted between elevations 1281.5 to 1283.5. There is also 26 feet of fixed crest weir at elevation 1284.0, and 65 feet of fixed crest weir at elevation 1284.5. The project has a drainage area of 45 square miles.

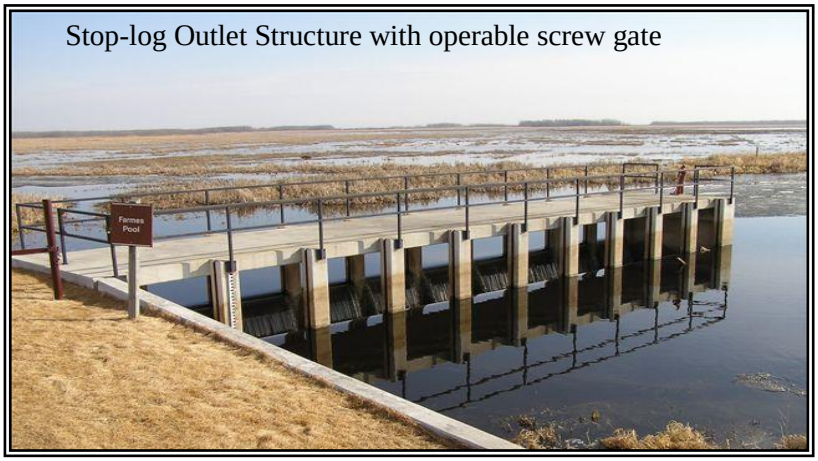
Typical fall drawdown with stop-logs

Based primarily on lake elevation, stop-logs may be removed from the dam to allow additional outflow until the lake recedes, and then they are replaced to the typical summer or winter elevation. The dam is also designed with a small fixed crest weir at elevation 1282.5, which is one foot lower than the normal summer stop-log elevation. This was an innovative design in the early 1980's and allows for minor outflows that provides stream flow maintenance. This is very important for keeping some flow in the Lost River especially during periods of low flow. Factors to consider when adjusting the stop-logs are monitoring "inflows" to the lake, existing lake elevation, downstream conditions and predicted runoff. Staff personnel at the Sportsman's Lodge are very helpful in reading the lake elevation gauge located inside the business and a local resident records rainfall data at the lake.

In 2018, the local Sportsman's Club operated the aeration system from February 13th to April 25th. Lake "ice out" occurred on about April 29th. Stoplogs were installed on May 4th to the typical summer elevation of 1283.5. Pine Lake crested at elevation 1281.16 in mid-May and in late June. Due to rainfall in late June, stop-log operation was required for a short period of time. In late September, stop-logs were removed to begin the normal fall drawdown and continued until November 29th at which time two stop-logs were installed in each of the two stop-log bays to elevation 1282.5. This installation was to be done by December 1st of every year, as per the Minnesota Department of Natural Resources requirements.

Elm Lake-Farmes Pool (RLWD Project No. 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. 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.



Stop-log Outlet Structure with operable screw gate

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:

	Elevation (ft.-msl)	Storage (ac.ft.)
Top of Dam	1145.0	19,700
Emergency Spillway	1142.0	11,000 (8.9 in. runoff)
Max Summer	1141.0	7,500 (6.11 in. runoff)
Typical Summer	1140.0	5,500 (4.48 in. runoff)
Typical Winter	1139.0	3,500
Project Drainage Area 63.0 sq.mi.		
*Highest recorded pool elevation was 1143.30 on April 23, 1997		

OPERATIONAL: 1991

In 2009, repairs were made to the principal outlet structure. Work consisted of repairing stop-log bays and channels, removal of corroded stop-logs, and installation of new handrails and safety grates.

Agassiz National Wildlife Refuge staff performs the actual operation of the outlet structure with cooperation from the District.

Relatively dry conditions prevailed throughout 2018.

Lost River Impoundment (RLWD Project No. 17)

GENERAL: Approximately in the mid-1970's, the project was constructed by the Minnesota Department of Natural Resources to improve waterfowl habitat. On December 14, 1978, the 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, proximately 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:

	Elevation (ft.msl)	Storage
Top of Dam	1150.2	14,600
Emergency Spillway	1148.2	10,000 (4.7 in.runoff
Typical Summer	1146.2	5,500 2.6 in. runoff)
Typical Winter	1145.2	3700
Drainage Area 53.0 sq.mi.		
Highest recorded pool elevation (RLWD) was 1147.80 on April 14, 1999		

OPERATIONAL: 1978

In 2014, the MnDNR obtained funding to make repairs on the outlet end of the control structure. Most of the work consisted of sediment removal, re-shaping of the plunge pool and ditch banks, plus installing rock riprap. The Watershed District helped with the design, cost estimate, and partial funding. The work was completed late in the year.

The Minnesota Department of Natural Resources (MnDNR) staff perform the actual operation of the outlet structure with cooperation from the District.

Relatively dry conditions prevailed throughout 2018.

Good Lake Impoundment (RLWD Project No. 67)

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

LOCATION: The project area lies entirely within the Red Lake Indian Reservation. The impoundment is approximately 30 miles east of Thief River Falls, in Clearwater and Beltrami Counties. The drainage area above the dam is 73 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 wild rice paddies. Paddies have not been built, but there is potential for paddy development in adjacent areas.

PROJECT COMPONENTS: Approximately 9 miles of earthen embankment, 7.5 miles of inlet channels, a reinforced concrete outlet structure, and 2 miles of outlet channel. Water released from the impoundment, enters the Red Lake River approximately 2.5 miles downstream (south easterly) from the outlet control structure.

FUNCTIONAL DESIGN DATA:

	Elevation (ft.-msl)	Storage (ac.ft.)
Top of Dam	1178.5	27,500
Flood Pool (Emergency Spillway)	1176.1	13,100 (4.8 in. runoff)
Normal Summer Pool	1173.0	3,250 (1.2 in. runoff)
Normal Winter Pool	1172.0	1,800
Drainage Area – 73 sq.mi.		
Highest recorded pool elevation was 1176.80 on May 25, 1999		

OPERATIONAL: 1996

On April 12, 2011, the Red Lake Tribal Council approved a new 5-year Special Land Permit (Resolution No. 61-11) granted to the District. The original permit had expired on January 12, 2010. In part, the permit states "The purpose of this permit is to facilitate cooperative management of the Good Lake Impoundment, where the

District and the Red Lake Band will cooperatively inspect, supervise and conduct necessary maintenance at the Good Lake Flood Control project site. Activities will be coordinated with the Red Lake Department of Natural Resources." Also, as part of the land use permit, the District is granted a right of access to the land described for a period of five years, starting on the date the permit commenced. It was signed by the Tribal Chairman and Secretary on April 13, 2011 and expired on April 13, 2016.

On July 12, 2016, two District Board Managers and two Staff members met before the Red Lake Tribal Council to discuss and ask for a renewal of the Special Land Permit. On August 24, 2016, the office received a new **2-**year Special Land Permit (Resolution No. 138-16) signed by the Tribal Chairman and Secretary and dated July 12, 2016 (expires on July 12, 2018).

The Special Land Permit (Resolution No. 138-16) with the Red Lake Nation expired on July 12, 2018. RLWD personnel have not been able to access the project since that time.

Automatic "outflow" at elevation 1173.0

April 21, 2009 – Pool elevation = 1175.9

Moose River Impoundment (RLWD Project No. 13)

GENERAL: The project, which is a two-pool design, is the largest impoundment operated by the District. It was a cooperative effort of the 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.

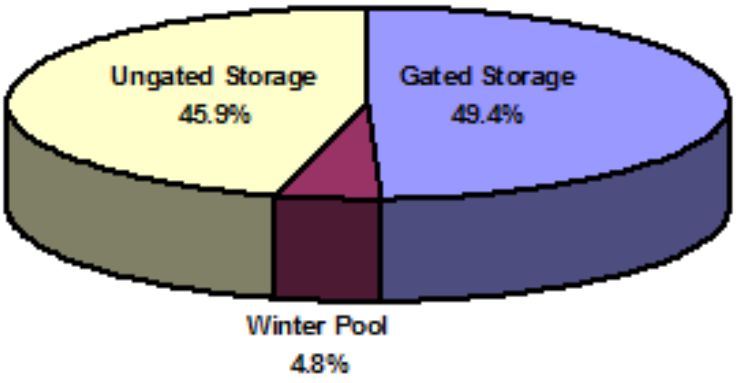
PURPOSE: Multi-purpose – designed to provide flood control, streamflow maintenance, increase wildlife values, and benefit fire control.

OPERATIONAL: 1988

FUNCTIONAL DESIGN DATA:

	North Pool	South Pool	Total
Top of Dam Elevation (ft.msl.)	1218.0	1220.0	
Freeboard Flood Elevation (ft.-msl)	1217.2	1219.3	
Freeboard Flood Storage (ac.ft.)	16,250	38,250	54,500
Emergency Spillway Elevation (ft.-msl)	1216.0	1218.0	
Emergency Spillway Storage (ac.ft.)	12,000	24,250	36,250 (5.4 in. runoff)
Gated Pool Elevation (ft.-msl)	1215.3	1217.4	
Gated Pool Storage (ac.ft.)	9,750	19,750	29,500 (4.4 in. runoff)
Typical Summer Elevation (ft.-msl)	1211.7	1213.6	
Typical Summer Storage (ac.ft.)	2,000	4,000	6,000 (2.1 in. runoff)
Typical Winter Elevation (ft.-msl)	1210.5	1212.4	
Typical Winter Storage (ac.ft.)	800	1,800	2,600
Max No-Flood Elevation (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
*Highest Recorded Pool Elevation May 16, 1999	*1215.90	*1218.05	

This impoundment has a small permanent winter pool to allow for maximum storage capacity as indicated on the graph shown to the right.



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.

2018 Operation: Flood water storage and gate operations occurred during the spring melt. The maximum North Pool elevation for 2018 was 1212.20 (2,681 ac/ft) which occurred on May 28th. Due to dry conditions, and for second consecutive year, no gate operation was performed (which is extremely rare) until the October Fall drawdown.

The Minnesota Department of Natural Resources (MnDNR) performed spotted knapweed control at various locations of the project. The watershed performed other routine maintenance (dike mowing, stream gage repair, and debris removal). The normal 'fall drawdown' was performed in October.

North Pool – Gated Principal Outlet Structure

Moose River Impoundment – South Pool

The South Pool outlets into the Mud River (JD #11 Main Branch). 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. Between the North and South pools is an inter-pool 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.

2018 Operation: Flood water storage and gate operations occurred during the spring melt. The maximum South Pool elevation for 2018 was 1214.45 (5,939 ac/ft) which occurred on May 28th. Due to dry conditions, and for the second consecutive year, no gate operation was performed (which is extremely rare) until the October Fall drawdown.

The Minnesota Department of Natural Resources performed spotted knapweed control at various locations of the project. The watershed performed other routine maintenance (dike mowing, stream gage repair, and debris removal). The normal 'fall drawdown' was performed in October.

South Pool - Gated Principal Outlet Structure

Schirrick Dam (RLWD Project No. 25)


Principal outlet structure hydraulic gate operation


Looking downstream from outlet structure

GENERAL: The Schirrick Dam was constructed on the Black River in 1984. The project was 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.

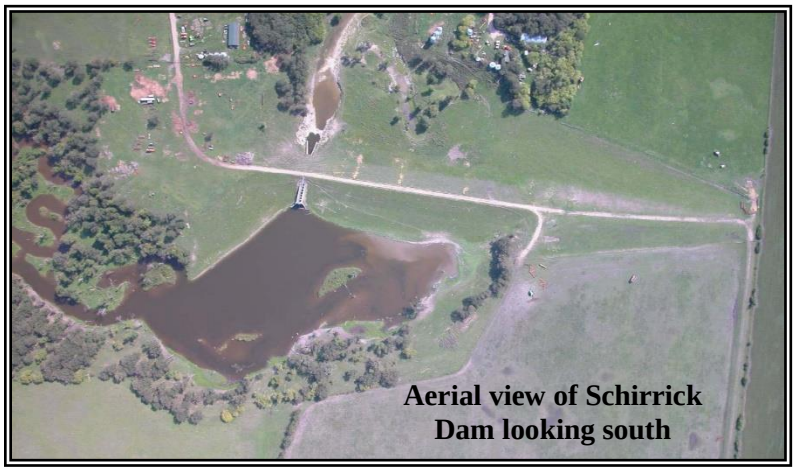
PURPOSE: The primary purpose is to provide flood relief on the Red Lake River and the Red River of the North by controlling the flow contribution from the Black River. A small permanent pool is also provided.

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:

	Elevation (ft.-msl)	Storage (ac.ft.)
Top of Dam	992.5	6,000
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 was 988.75 on April 17, 1997		

OPERATIONAL: 1985


Aerial view of Schirrick Dam looking south

In 2018, the spring and summer runoff events, were not large enough to raise downstream river levels to the plan "trigger point" elevations, therefore no gate operation was required. In October, yearly routine maintenance was performed on the two hydraulic gates and lifting mechanism. The gates were also test operated (closed and opened) to make sure that they function properly. This is done to be prepared in the event of a severe 2019 spring flood which would require closure. This dam and the timing of closure are vitally important for the flood protection for city of Crookston.

Water Quality Program

The District and other organizations are working to protect and restore water quality in rivers, streams and lakes in the five major watersheds within the District's boundary. To protect water quality, it is important to have a confident understanding of current water quality conditions. District staff monitor water quality and flow conditions. Monitoring involves regular sample collection, investigative sampling, and event monitoring with autonomous sensors. The data is used to assess water quality conditions by comparing statistics to water quality standards that are established by the State of Minnesota. The results of data assessment and analysis are used to identify problem areas and trends. Sampling activities can also be conducted to find the locations of pollutant sources.

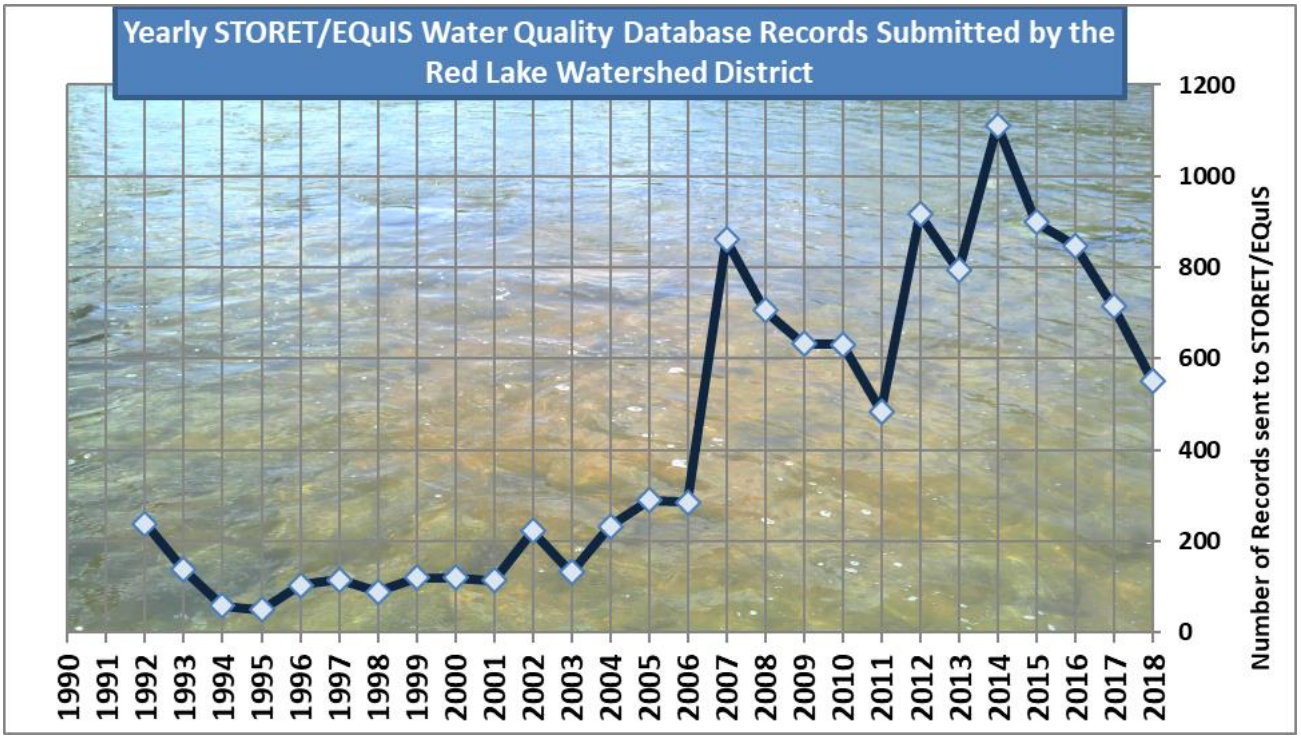
Thanks to the Clean Water Land and Legacy Act, the MPCA has been able to provide the District with funding for four watershed restoration and protection strategy (WRAPS) projects (Thief River, Red Lake River, Grand Marais Creek, and Clearwater River watersheds). A fifth WRAPS project within the District is being conducted for the Upper/Lower Red Lakes watershed by the Red Lake Department of Natural Resources. In 2018, much time was spent by District staff on the Clearwater WRAPS project and revisions of Total Maximum Daily Load (TMDL) and WRAPS reports for the Red Lake River, Grand Marais Creek, Thief River watersheds. The completion of those reports required a great deal of data analysis and technical writing. The time spent writing those reports did not greatly subtract from the District's data collection efforts, though. In addition to the District's long-term monitoring program, water quality staff deployed and maintained dissolved oxygen loggers, deployed water level loggers, and investigated blue-green algae problems.

An important part of the District's water quality program is public education. The District supports River Watch programs at schools that monitor water quality in streams within its boundaries. The information that the District collects needs to be interpreted and shared for it to be most beneficial. Therefore, the District generates regular (monthly and annual) water quality reports, hosts open house events, and participates in other educational events like water festivals. Information is shared online.

The creation of informative maps using GIS software is also used to attain a better understanding of water resources and watersheds.

The knowledge that is gained through the District's water quality program is also used for the planning of projects that will improve water quality conditions and overall watershed planning efforts (1W1P). The District has identified sources of pollutants that can be addressed through large and small projects. The Board of Managers provides financial support to projects and programs that will improve water quality. The success of those projects can also be monitored through the District's water quality program.

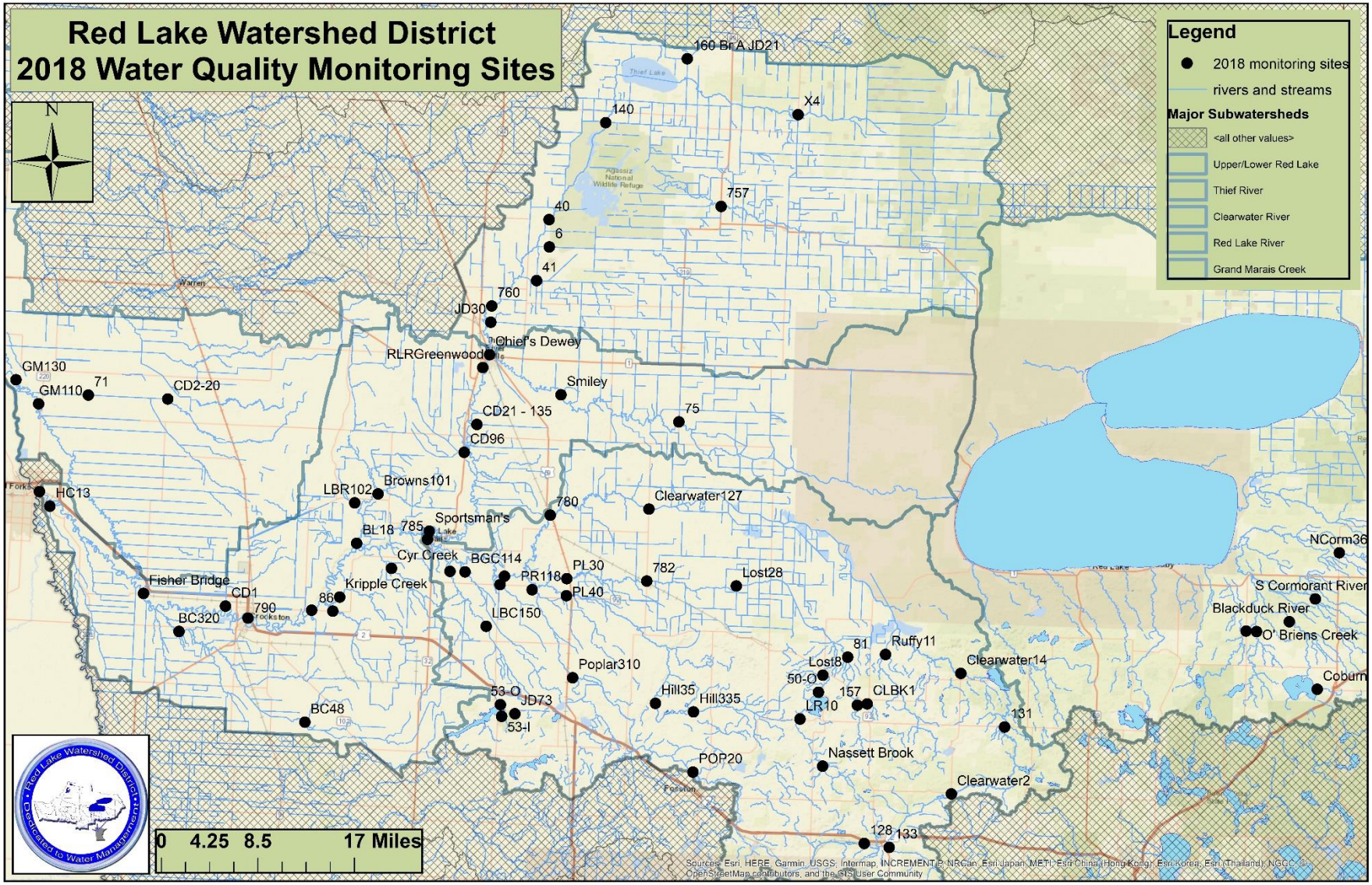
The District's long-term district monitoring program has collected water quality data throughout the district since 1980. Water quality monitoring was conducted at 73 sites as part of the District's regular monitoring program in 2018.



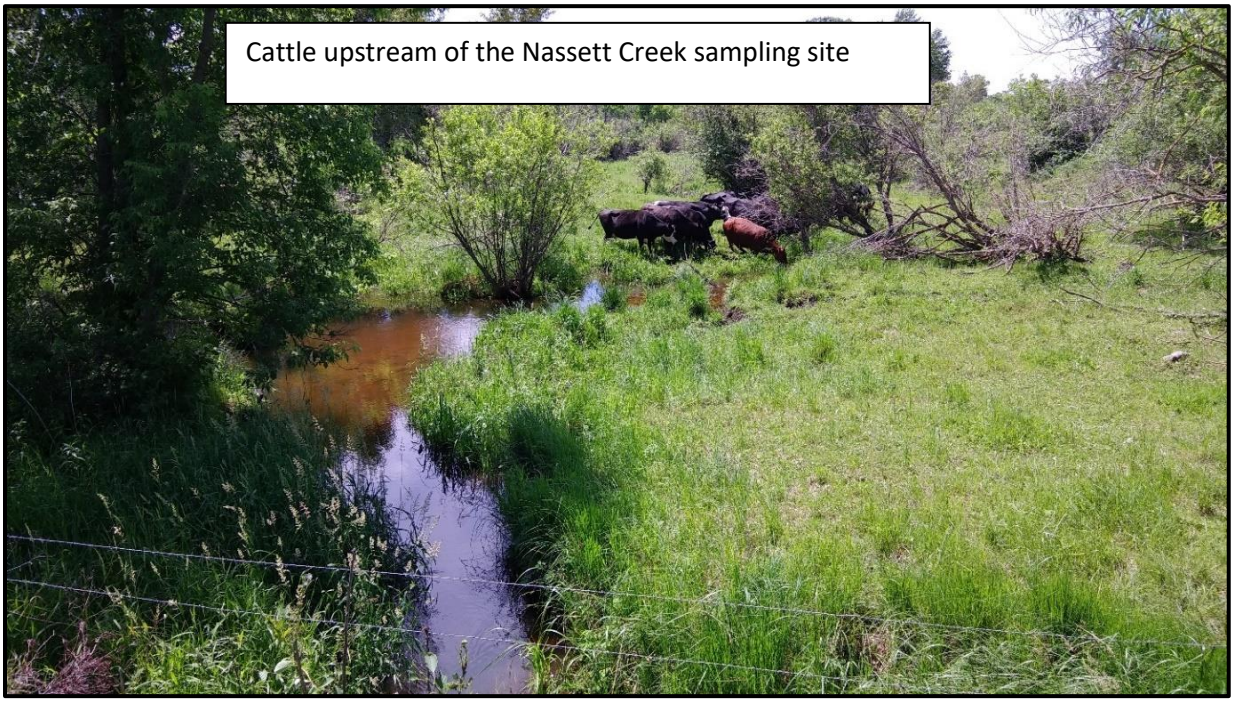
Field measurements of dissolved oxygen, temperature, turbidity, specific conductivity, pH, and stage are collected during each site visit if there is flowing water. Four rounds of samples are also collected and analyzed for total phosphorus, orthophosphorus, total suspended solids, total dissolved solids, total Kjeldahl nitrogen, ammonia nitrogen, nitrates + nitrites, and E. coli. Chemical/biochemical oxygen demand analysis is performed on samples from rivers and streams that are impaired by low dissolved oxygen levels. The four 2018 rounds of sampling occurred in May, June, July, and September.

Monitoring sites were selected so that data could be strategically collected from as many assessment units (reaches of rivers, streams, and ditches – delineated by the MPCA for assessment purposes) as possible. Generally, monitoring sites are located near the pour points (downstream ends) of rivers, streams, and ditches.

Long-Term Water Quality Monitoring Program



Some changes were made to the District's long-term monitoring program in 2018 include the following. The CR 127 (S002-916) crossing of the Clearwater River was added to the list of long-term monitoring site. That site is near the pour point of the channelized portion of the Clearwater River (09020305-647) and Total Maximum Daily Loads will be established at that location. The Hwy 89 crossing of the Moose River (S002-089) was dropped from the list of long-term monitoring sites because the Moose River is represented well enough by the sampling at the CSAH 54 crossing (S004-211). The Badger Lake inlet along the Poplar River Diversion channel (S002-129) was removed from the long-term monitoring program in anticipation that the Poplar River Diversion upstream of that location would be re-classified by the state so that it would not need a TMDL for the dissolved oxygen impairment. Coburn Creek, near the inlet to Blackduck Lake, is a stream in the Upper/Lower Red Lakes watershed that was added to the long-term monitoring program due to potential water quality problems.



Cattle upstream of the Nassett Creek sampling site

The District monitors concentrations of *E. coli* bacteria in streams, ditches, and rivers. High concentrations of *E. coli* bacteria indicate an increased risk of gastrointestinal illness from aquatic recreation activities (swimming) that involve contact with water. High E. coli concentrations (>126 MPN/100ml) occurred in 2018 in the following waters (alphabetical order).

1. Beau Gerlot Creek at CR 114
2. Blackduck River
3. Browns Creek at County Road 101
4. Burnham Creek at CR 48
5. Chief's Coulee at Dewey Avenue in Thief River Falls
6. Clearwater River
    - CSAH 24 (Clearwater Lake inlet)
    - CR 127
7. Coburn Creek near the inlet to Blackduck Lake
8. Darrigan's Creek
9. Gentilly River at CSAH 11
10. Grand Marais Creek
    - 130th St. NW

11. Heartsville Coulee at 13th Street in East Grand Forks
12. Hill River
    - CR 119, north of Brooks
    - CSAH 35
13. Judicial Ditch 30 at 140th Ave NE, north of Thief River Falls
14. Judicial Ditch 73 at the Maple Lake inlet
15. Lost River
    - 109th Ave, upstream of Pine Lake
    - CSAH 8
    - CSAH 28
16. Lower Badger Creek at 150th Ave SE
17. Moose River at CSAH 54
18. Mud River
    - Highway 89
    - Grygla City Park
19. Nassett Brook
20. North Cormorant River at CSAH 36
21. O' Briens Creek at Harvest Rd. NE
22. Polk County Ditch 1
23. Polk County Ditch 14 near the Maple Lake outlet
24. Poplar River
    a. CSAH 30
    b. 310th St SE
    c. CR 118
25. Ruffy Brook at CSAH 11
26. Silver Creek
    - 159th Ave, west of Clearbrook
    - CR 111
27. South Cormorant River at CSAH 37
28. Terrebonne Creek at Hwy 92
29. Thief River
    - 380th St NE
30. CSAH 7
    a. 140th Ave NE, north of Thief River Falls
31. Walker Brook at CSAH 19

The highest concentration of *E. coli* bacteria recorded in the District in 2018 was >2,419.6 (more than the lab could accurately measure) and that level was recorded at multiple locations

- Poplar River at CR 118
- Hill River at CR 119
- Lower Badger Creek at 150th Ave SE
- Kripple Creek at 180th Ave SW
- Darrigan's Creek at CSAH 23
- Coburn Creek near Blackduck Lake
- Chief's Coulee at Dewey Ave
- Silver Creek at 159th Ave, near Clearbrook

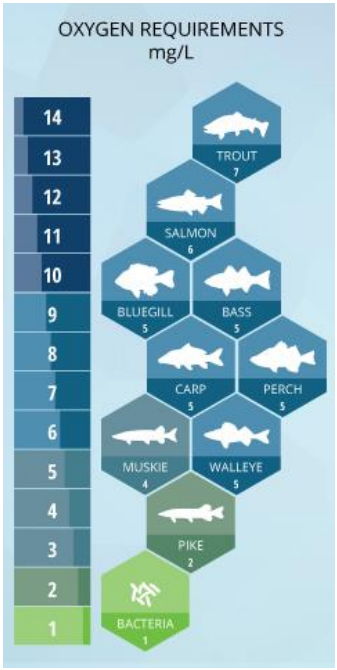
- The lowest 2018 E. coli concentration of <1 MPN/100ml (less than to the laboratory's minimum reporting limit) was found in Browns Creek.
- Chief's Coulee, at Dewey Avenue North in northern Thief River Falls, smelled like septic effluent when it was sampled in August. The septic drainage was present at the downstream end of the culverts under the railroad tracks but was not present at Atlantic Avenue North.

The amount of sediment that is carried by a stream is measured by collecting and analyzing samples for total suspended solids. Fish and aquatic macroinvertebrates (bugs, worms, crustaceans, etc.) are harmed by high concentrations of total suspended solids. Relatively few instances of high total suspended solids concentrations (>65 mg/l, >30 mg/l, or >15 mg/l, depending on the site's location) were found during 2018 sampling efforts for the District's long-term monitoring program:

- >65 mg/L – Violated applicable South (65 mg/L), Central, and North River Nutrient Region standards in 2017
    1. Chief's Coulee at Dewey Ave
    2. Red Lake River at Highlanding (173 mg/L)
- >30 mg/L – Violated applicable Central (30 mg/L) and North River Nutrient Region standards
    3. Branch A of JD 21
    4. Chief's Coulee at Dewey Ave
    5. Clearwater River
        a. near Plummer
        b. CSAH 12 near Terrebonne
        c. Red Lake Falls
    6. Darrigan's Creek at CSAH 23
    7. Red Lake River at CSAH 11 near Gentilly
    8. Silver Creek at 159th Ave, near Clearbrook
    9. Thief River at 380th St NE
- >15 mg/L – Violated the North (15 mg/L) River Nutrient Region standard, where applicable
    10. Moose River at CSAH 54
    11. Mud River at Hwy 89 (local goal of meeting the 15 mg/L standard)
- >10 mg/L – Violated the 10 mg/L standard for trout streams
    12. Clearwater River at CSAH 24
    13. Nassett Brook
- The highest total suspended solids concentration that was found during 2017 District long-term monitoring was 78 mg/L, at the 130th St NW crossing of Grand Marais Creek.
- The lowest possible total suspended solids (cleanest water) is a censored value of <1 mg/l or <2 mg/L (less than the laboratory's minimum reporting limit) and was found at these sites in 2018:
    1. Branch A of JD 21
    2. Clear Brook at CSAH 92
    3. Clearwater River
        a. CSAH 25, upstream of Bagley
        b. CSAH 14
        c. Near Plummer
        d. CSAH 12 (Terrebonne Bridge)
        e. Red Lake Falls
    4. Coburn Creek
    5. Cyr Creek

6. Gentilly Creek at CSAH 11
7. Hill River
    a. CSAH 335
    b. CSAH 35
    c. CR 119 near Brooks
8. Judicial Ditch 30 at 140th Ave NE, north of Thief River Falls
9. Judicial Ditch 73
10. Little Black River at CR 102
11. Lost River
    a. 109th Ave, upstream of Pine Lake
    b. Oklee
12. Pennington County Ditch 21 at 135th Ave NE
13. Poplar River
    a. CR 118, near the Lost River confluence northwest of Brooks
    b. 310th St SE
14. Terrebonne Creek

Aquatic fish and macroinvertebrates rely on dissolved oxygen in water for survival. Dissolved oxygen can enter the water through mechanical means (splashing over rocks, wave action) or through the photosynthesis process of aquatic vegetation. Low dissolved oxygen levels (<5 mg/l) were found in the following rivers and streams during 2018 monitoring for the District's long-term monitoring program (alphabetical order).



1. Chiefs Coulee at Dewey Ave in Thief River Falls
2. Clear Brook at CSAH 92
3. Clearwater River at CSAH 25 near Bagley
4. Coburn Creek
5. Grand Marais Creek at 110th St. NW
6. Heartsville Coulee at 13th Street in East Grand Forks
7. Judicial Ditch 30
8. Judicial Ditch 73
    a. 343rd Street SE near Rydell NWR
    b. Maple Lake Inlet
9. Little Black River at CR 102
10. Lost River
    a. 109th Ave, upstream of Pine Lake
11. Moose River at CSAH 54
12. North Cormorant River at CSAH 36
13. O' Briens Creek
14. Thief River
    a. 380th St NE (north boundary of Agassiz National Wildlife Refuge)
    b. "Golf Course Bridge" north of Thief River Falls during the die-off of the blue-green algae
    c. Long's Bridge
15. Walker Brook at CSAH 19

The highest (best) dissolved oxygen concentration recorded for the District's long-term monitoring program in 2018 was 18.53 mg/L at the 150th Ave SE crossing of Lower Badger Creek. That may have been a case of supersaturation in stagnant water. A nearly identical concentration was recorded at that site in 2017. The lowest (worst) dissolved oxygen concentration found at a District long-term monitoring site was 0.78 mg/L in Walker Brook.

The state's water quality standard for total phosphorous varies by river nutrient region. Rivers and tributaries in the western part of the District have to meet a 0.150 mg/l standard in the South River Nutrient Region. Rivers and tributaries assigned to the Central River Nutrient region have to meet a 0.100 mg/l standard. Rivers and tributaries in the eastern part of the District have to meet a more protective standard of 0.050 mg/l in the North River Nutrient Region. High total phosphorus concentrations relative to the State of Minnesota's new regionalized river eutrophication nutrient criteria were recorded in samples collected at the following sites.

1. North River Nutrient Region (>0.05 mg/L), where applicable:
    - Blackduck River at Deer Trail Rd.
    - Clear Brook at Hwy 92 in Clearbrook
    - Clearwater River
        - CSAH 2
        - CSAH 24, upstream of Clearwater Lake
    - Coburn Creek
    - Darrigan's Creek at CSAH 23
    - Moose River at CSAH 54
    - Mud River in Grygla
    - Nassett Creek
    - North Cormorant River at CSAH 36
    - O' Briens Creek at Harvest Rd.
    - Ruffy Brook at CSAH 11
    - Silver Creek
        - 159th Ave, near Clearbrook
        - CR111
    - South Cormorant River at CSAH 37

2. Central River Nutrient Region (>0.1 mg/L), where applicable:
    - Chiefs Coulee at Dewey Ave in Thief River Falls (0.632 mg/L - 5.32 mg/L)
    - Clearwater River
        - North of Plummer
        - CSAH 12 crossing near Terrebonne
        - Red Lake Falls
    - Hill River
        - CR 119, near Brooks
        - 335th Ave SE
        - CSAH 35
    - Lost River
        - 109th Ave, upstream of Pine Lake
        - CSAH 28
        - Oklee
        - CR 119, north of Brooks

- Pennington County Ditch 21 at 135th Ave NE
- Poplar River
    - CSAH 30 near Fosston
    - 310th St SE
    - CR 118
- Thief River
    - 380th St NE (north boundary of Agassiz National Wildlife Refuge)
    - "Golf Course Bridge," near Thief River Falls

3. South River Nutrient Region (>0.15 mg/L), where applicable:
    - Black River at CSAH 18
    - Brown's Creek at County Road 101
    - Burnham Creek at 320th Ave SW
    - Cyr Creek
    - Grand Marais Creek
        - 110th St. NW
        - 130th St. NW
    - Heartsville Coulee at 13th Street, in East Grand Forks
    - Polk County Ditch 1
    - Polk County Ditch 2 at CR 62
    - RLWD Ditch 15 at CSAH 20

The highest 2018 concentration of total phosphorus, 5.32 mg/L, was found in Chief's Coulee at Dewey Avenue in Thief River Falls. The lowest 2018 concentration of total phosphorus, 0.011 mg/L, was found in the Clearwater River at CSAH 14, downstream of Clearwater Lake.

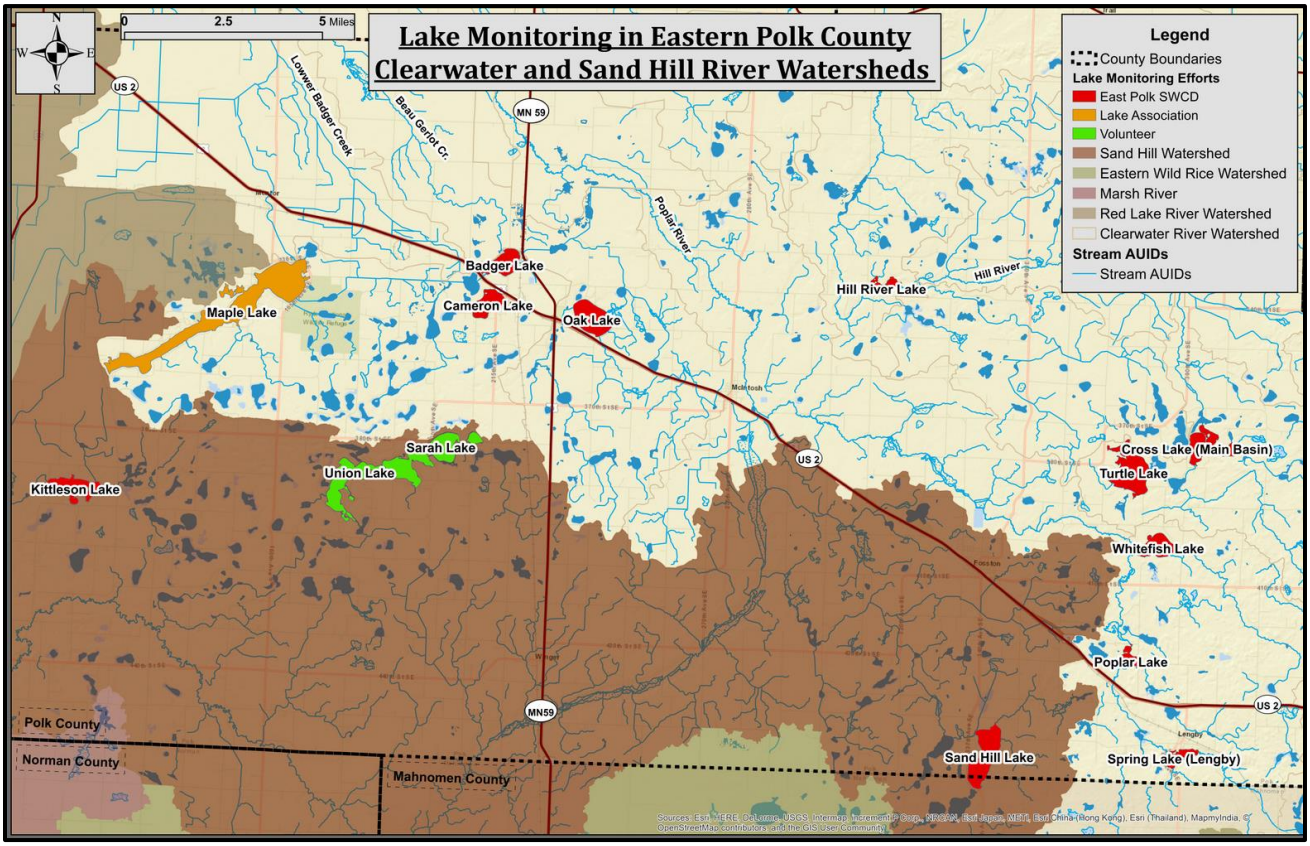
High biochemical oxygen demand (BOD) concentrations (>3.5 in the South or >2.0 in the Central River Nutrient Region) were found in the following streams. Most of these streams were also on the 2016 list.

- Lost River
    - 109th Ave, upstream of Pine Lake
- Mud River
    - Hwy 89
- Poplar River
    - CSAH 30, north of Fosston
- Red Lake River at CSAH 219 (Highlanding)*

Data from 2018 water quality monitoring was entered into the District's database, transferred to an EQuIS submittal template, reviewed for accuracy, then submitted to the MPCA for storage in the EQuIS database. A total of 552 records were submitted to the MPCA. More than 264 of those records involved the collection of water quality samples. Data collected by the East Polk SWCD staff from additional locations within eastern Polk County were entered into the MPCA data submittal template, reviewed and submitted to the MPCA.

The district partnered with the East Polk SWCD and the Maple Lake Improvement District to collect water quality samples from lakes in the Clearwater River watershed:

2018 Lake Sampling Summary						
Lake	Summer Average Total Phosphorus (µg/L)	Summer Average Chlorophyll-a (µg/L)	Summer Average Secchi Depth (m)	Applicable Total Phosphorus Standard (µg/L)	Applicable Chlorophyll-a Standard (µg/L)	Applicable Secchi Transparency Standard (m)
Maple Lake	31.7	11.9	3.6	60	20	1
Cameron Lake	68.2	34.2	0.6	60	20	1
Badger Lake	32.2	8	2.2	60	20	1
Oak Lake	62.2	63.4	0.5	60	30	1
Poplar Lake	25.8	7.6	2.1	40	14	1.4
Hill River Lake	107	34.3	1.2	40	14	1.4
Cross Lake	45.5	18.5	4.9	40	14	1.4
Whitefish Lake	36.8	14.5	1.7	40	14	1.4
Spring Lake	22.2	8.6	2.4	40	14	1.4
Turtle Lake	60.2	10.6	2.1	60	20	1



Dissolved Oxygen Logger Deployments

Dissolved oxygen loggers were deployed at 6 sites throughout the District in 2018. These sites were monitored to provide a better understanding of conditions in streams that are impaired by low dissolved oxygen, learn more about the conditions for aquatic life, measure the amount of daily fluctuation in dissolved oxygen levels, and have more confidence in dissolved oxygen data assessments. Sites were chosen in 2018 and a schedule for dissolved oxygen logger deployments throughout the District was compiled to plan the collection of continuous dissolved oxygen data in preparation for the next formal water quality assessments. The District acquired used Eureka Manta sondes, with optical DO probes, from a government surplus auction.

- Poplar River at CR 118 (Station S007-608 on Assessment Unit 09020305-504)
- Poplar River at 310th St. SE (Station S009-392 on Assessment Unit 09020305-518)
- Lost River at CSAH 7 (Station S004-500 on Assessment Unit 09020305-645)
- Lost River at Lindberg Lake Road (Station S005-501 on Assessment Unit 09020305-530)
- Mud River in Grygla (Station S008-122 on Assessment Unit 09020304-507)
- Grand Marais Creek at 130th St. NW (Station S008-904 on Assessment Unit 09020306-513)

Early August dissolved oxygen measurements in the Poplar River at CR 118 were all better than the 5 mg/L standard. However, there were one or two days in which the dissolved oxygen levels dropped below 5 mg/L in the Poplar River upstream of Highway 59 at 310th St. SE. Dissolved oxygen levels in the Poplar River at CR 118 and 310th St SE remained above 5 mg/L throughout the first week of September. The Poplar River dropped below 5 mg/L on and around 9/17/2018 (1 day at CR 118 and 3 days at 310th St) after several days of rainfall.

At Lindberg Lake Road, the (uncorrected, raw) dissolved oxygen readings from the Lost River were all greater than the 5 mg/L standard through August and September dissolved oxygen logger deployments. The Lost River downstream of Anderson Lake at CSAH 7, however, experienced large fluctuations (as much as 6 mg/L) in dissolved oxygen levels and dissolved oxygen levels that regularly dropped below 5 mg/L. More investigation is needed to determine if dissolved oxygen levels in the river are influenced by dissolved oxygen levels and algae concentrations in Anderson Lake.

The Mud River, in Grygla, experienced large daily fluctuations in dissolved oxygen levels and dropped below 5 mg/L on a daily basis.

Grand Marais Creek (pictured above) had low flow, high daily fluctuation of dissolved oxygen levels, and daily violations of the 5 mg/L dissolved oxygen standard. The dissolved oxygen logger in Grand Marais Creek was removed on September 4, 2018 because the stream was no longer flowing. The rest of the dissolved oxygen loggers were retrieved on September 24, 2018.

Red Lake River Fish Kill Investigation

A fish kill was reported in the Red Lake River east of Thief River Falls. A resident reported that he found around 100 dead suckers in the river while fishing and noticed large chunks of dried algae floating down the river near the Highlanding and Smiley Bridges in either late May/early June. The most common cause of fish kills is a lack of dissolved oxygen in the water, but they may also be caused by extreme temperatures, diseases, parasites, or toxins. District staff collected longitudinal water quality samples along the Red Lake River in an effort to discover a potential cause of this particular fish kill. Some dead white suckers were found at the Kratka Bridge. Dissolved oxygen levels were sufficient (>5 mg/L). Flow wasn't exceptionally high at the time. There were no signs of extreme flow in ditches. Some ditches weren't even flowing. The water coming from Good Lake Impoundment was clean and clear. There were live suckers in the river at 420th Ave SE.

At the "River Valley" Bridge (CSAH 3), District staff notices a metallic smell in the air, an oily sheen on the water, and a large floating mat of something that looked and smelled very much like manure. Although that floating, manure-like mat was odd, it was not a likely cause of a fish kill. Another unusual occurrence near the Red Lake River was a collision of two trucks at an intersection north of the Kratka Bridge. One of those trucks was hauling fertilizer and there was some evidence of spillage – brown, chemically "burnt" grass, oil in the road ditch. There was a strong diesel/chemical odor at the crash site. It looked like both trucks went into a ditch that flows to the Red Lake River (CD 59) less than a mile downstream. The vegetation was discolored near the water line in the ditch near the crash site, there was an oily sheen, and there was a dead duckling in the water. The ditch near the accident connects to the Red Lake River but was stagnant and choked with cattails and other vegetation that likely would have filtered much of any pollutants that might have been spilled into the ditch.

It was odd that only suckers were affected by the fish kill event. If the fish kill was caused by conditions in the river, it would have made sense for it to have affected other, more sensitive species. DNR staff were notified of the fish kill but did not investigate because it was not an ongoing problem. Despite the effort that was put into investigating the problem, no definitive answer and no water-quality-based cause of the fish kill could be found. Other theories have been proposed but are difficult to prove (disease, die-off within a tributary ditch). RLWD staff continued to regularly sample the Red Lake River until initial sampling results were received. The river met water quality standards in most of the samples, except for a high total suspended solids concentration at the Highlanding Bridge on June 18, 2018.

Blue Green Algae Sampling

The District began testing water in the Mud River for blue-green algal toxins (microcystins and canotoxins) in response to dog deaths that were caused by ingesting blue-green algae. The District has been using Abraxis kits to test the water for algal toxins. Regular samples were collected from the Mud River at the Grygla city park and water was tested for blue-green algae from July through September. No positive test results for blue-green algae were discovered in the Mud River. In 2018, blue-green algae became a concern in several additional locations, including Maple Lake, Thief River, Cameron Lake, and Badger lake.

The District received a call from the City of Erskine about a potential blue-green algae bloom in Cameron Lake. Cameron lake was sampled for algal toxins on August 13, 2018 and a concentration of approximately 2.5 – 5 ppb was found. That concentration presents a low risk to humans but is noteworthy because the District has found very few positive results for algal toxins since it began using Abraxis test kits several years ago.

Maple Lake Algae

In response to complaints of nuisance algae in Maple Lake, the District collected samples and utilized RMB Environmental Laboratories' (RMB Labs) new algae identification service. A sample of lake water and floating algae clumps was collected from a dock in the Maple Bay area. Analysis by RMB Labs found that the dominant forms of phytoplankton were diatoms and green algae (Spirogyra). Spirogyra is common in freshwater habitats and may develop slimy, filamentous green masses. It can be a nuisance but is not harmful. In addition to identifying the dominant form of algae, however, the lab also noted that potentially toxic species of blue-green algae were also present in the sample. In response to that information, RLWD staff collected a sample that included multiple floating clumps of algae and tested it with an algal toxin test strip on July 6, 2018. The test indicated that there were approximately 5 µg/L of microcystin algal toxins in the sample. An algae sample was then collected for analysis by RMB Environmental Laboratories. The algal toxin test results were shared with the Maple Lake Improvement District and the Maple Lake, Mentor MN" Facebook group. The test revealed that algal toxins were present in the sample at a concentration of approximately 5 ug/L. Information on the EPA website categorizes that concentration as a "low risk." Additional research has been done in order to better define "low risk" and will continue. The concentration of 4 ug/L was noted on the NOAA website as a level that could be an irritant to people with allergies. A microcystin (algal toxin) concentration of 4 ug/L is also noted as a draft EPA advisory concentration for recreational exposures (EPA recommends a swimming advisory for concentrations higher than that level).

The RLWD collected another sample from the public swimming beach on the north end of the lake on July 9, 2018 and sent it to RMB Labs for analysis. A more thorough analysis was conducted on that sample to accurately quantify the different types of phytoplankton. Cyanobacteria (blue-green algae) comprised 7.4% of the total units (cells/colonies/filaments) per liter of phytoplankton found in the sample.

Based on the discovery of the 4 ug/L draft EPA swimming advisory recommendations, the RLWD will collect and analyze additional samples for algal toxins and share the results with Maple Lake Improvement District board members, the Maple Lake, Mentor MN Facebook group, and with any other recommended outlets/individuals.

The lake was sampled again for algal toxins on July 27, 2018. Samples were collected from the swimming beach on the north end of the lake (wading depth) and from the boat access on the southwest end of the lake. Both samples had a microcystin algal toxin concentration of approximately 5 µg/L.

Agricultural runoff is one source of sediment and nutrient runoff to the lake that can be controlled with best management practices. The East Polk Soil and Water Conservation District and the RLWD will work together to submit a Clean Water Fund grant application to fund the installation of water and sediment control basins (WASCOBs) in the Clearwater River Watershed.

Maple Lake was sampled for algal toxins at the north swimming beach on August 24, 2018 and the concentration had decreased since July (0-1 ppb). A landowner along the lake contacted the RLWD to express concern about increased development around the lake and the effect it might be having upon water quality and weed/algae growth in the lake. The lake resident also shared photos of the proliferation of filamentous algae that occurred in the southwest end of the lake.

Thief River Blue-Green Algae Bloom

On Friday, Jul 13, 2018, a significant blue-green algae bloom was found in the Thief River near the Thief River Golf Club. District staff were notified of the bloom by Pennington County Soil and Water Conservation District (SWCD) staff. They had been alerted to the problem by a landowner. The river looked normal at the northern 140th Ave crossing of the river ("Hillyer Bridge"). However, while traveling south and nearing the "Golf Course Bridge" crossing of the river, there was a very noticeable, strange smell in the air. The river was a very abnormal green color.

Pennington SWCD staff helped photograph and find the extent of the bloom. They found floating, slimy mats of blue-green algae along the streambank within the golf course. They reported that the bloom extended upstream, past the golf course clubhouse. The bloom had not yet traveled downstream to Long's Bridge. Samples were collected. Latex gloves were used for protection during sampling. The slime from the blue-green algae coated sampling equipment, so it had to be thoroughly washed afterward. Mayor Brian Holmer was informed of the blue-green algae problem and he decided to shut down the beach (http://trfradio.com/2018/07/13/holmer-orders-tindolph-beach-closed-due-to-blue-green-algae/).

Thief River Blue-Green Algae Bloom July 13, 2018 – Golf Course Bridge

District staff printed and laminated water advisory signs. The signs were placed along the Thief River and the Red Lake River (downstream of the confluence) where people or pets might access the water. Photos and information about the bloom were shared on social media, law enforcement, the mayor, and city staff. District staff were interviewed for a Thief River Falls Times newspaper article.

Pennington SWCD and RLWD staff discussed the problem and agreed that a no-wake ordinance would help prevent future problems by minimizing the disturbance of sediment and reducing erosion along the river. Nutrient enrichment leads to algae blooms. Internal loading is the resuspension of nutrients into the water column. In shallow lakes, internal loading is caused by wave action and boat traffic. While investigating the blue-green algae bloom, several boats were observed traveling upstream and downstream. Active resuspension of sediment from the bottom of the river and erosion of riverbanks was observed after the fast-moving boats passed. Slower-moving watercraft had a lesser impact. Regardless of the presence of an algae bloom, it might

be a good idea to have a no wake zone in the shallower and narrower parts of the Thief River to reduce erosion and damage to shoreline. A no-wake zone would also be good for the general safety for people that are using the river. Where the river is narrower, it could be dangerous for two boats to meet while rounding a corner if they are moving too fast. The no-wake idea was passed along to the mayor, along with other information about the blue-green algae bloom. The mayor, sheriff, and county attorney also thought that a no-wake ordinance was a good idea and quickly began working on a temporary no-wake ordinance. District staff provided additional information to city and county staff to help support the ordinance.

This was a problem that hadn't been documented on this river before. It was likely that a number of factors combined to cause the problem like stagnant water, heat (warm water), and nutrients. Some things, like a lack of vegetative streambank protection, have existed there for some time without causing an algae bloom. There seemed to be a significant, more noticeable, amount of boat traffic up the Thief River (to the golf course and further upstream). Slow and careful travel might be okay and might not stir up too much sediment, but one of the observed boats was a pontoon pulling a water skier. They were traveling relatively fast and left a wake of stirred-up sediment behind them. Disturbing nutrient-rich sediment from the river bottom and adding nutrients to the water column could make the algae problem worse.

Thief River Blue-Green Algae Bloom July 17, 2018 – Long's Bridge

Thief River at the Golf Course Bridge on July 25, 2018 – looking like it was back to normal

When the weather cooled-off at the end of July, the blue-green algae bloom in the Thief River seemed to disappear. There no longer were visual signs of a bloom at the Golf Course Bridge or Long's Bridge. Dissolved oxygen was abnormally low at the Golf Course Bridge on July 25th, which was a sign that the bloom had died-off and was decomposing. District staff conducted several tests on the water in the Thief River at Long's Bridge during the last week of July and all the tests indicated that blue-green algae and algal toxins are at very low, safe levels. A sample was collected (near-shore, surface water at Long's Bridge) on July 26th and sent to RMB Environmental Laboratories. That sample was analyzed for the presence of any blue-green algae (toxic or not).

In a sample collected on July 13th (the day that we discovered the bloom), the lab found that the phytoplankton population in the sample was dominated by potentially toxic species of cyanobacteria (blue-green algae) and validated the initial concern about the bloom. In a sample collected on July 26th (collected after the bloom seemed to have cleared-up), the lab found that the blue-green algae in the sample were "not at concentrations that may cause harm." The RLWD used Abraxis test strip kit to test for algal toxins on July 27th and the test did not show that a measurable amount of toxins were present (0 parts per billion). Samples were also sent to RMB Environmental Laboratories for an analysis called a "cyano scan."

The Red Lake Watershed District removed the water advisory signs that were placed along the river once there no longer were indications of a threat from blue-green algae. However, we now know that a bloom is something that can happen in our area. So, we still recommend keeping an eye-out for potential blooms, especially during hot summer days, because blue-green algae can grow quickly and become dominant if conditions are "right."

Here is a link to an interesting article about how problematic blue-green algae blooms have been spreading across the state: https://www.wisconsingazette.com/news/environment/mystery-in-minnesota-dogs-dying-from-toxic-algae-blooms/article_9a3f4a83-0d15-5866-bcf8-071783130321.html.

The issue caught the interest of the public in Thief River Falls. Approximately 70 people began following the RLWD Facebook page to stay updated on the issue. The RLWD's Facebook post about the problem was shared 423 times. There were some questions from residents about the safety of the Red Lake River downstream of the Thief River confluence. Flow from the Red Lake River was much greater than flow from the Thief River (the flow in the Thief River was <1 cubic foot per second at the time), so any blue-green algae coming from the Thief River would have been diluted by the relatively clean water in the Red Lake River. A

sample was collected from the Red Lake River (Hartz Park, 8/9/2018) and analyzed by RMB Environmental Laboratories to see if potentially toxic blue-green algae were present at levels that would be cause for concern and hopefully confirm that the water is safe. The lab found only a few colonies of a potentially toxic species of blue-green algae (*Aphanocapsa sp*.). The lab reported that the blue-green algae was present at such a low concentration that it was not very likely to cause any harm or other concerns.

Please feel free to contact the Red Lake Watershed District, the Pennington County Soil and Water Conservation District, or city staff/leadership if you ever see anything that might be a public health threat in the river.

District staff continued to keep the City of Thief River Falls and other interested parties (Voyageurs View in Red Lake Falls and individual residents) informed about the status of the blue-green algae problem that was found in the Thief River in July. A brief Thief River Falls water quality summary was assembled and shared with the Thief River Falls mayor in preparation for a visit from US Senator Amy Klobuchar.

By August, the Thief River blue-green algae bloom had dissipated. Samples collected from the Thief River were tested for algal toxins and no toxins were detected. Samples sent to RMB Environmental Labs revealed that blue-green algae were still present, but in low concentrations that were not a cause for concern. In response to concerns about blue-green algae in the Red Lake River downstream of the Thief River, RLWD staff collected a sample from the Red Lake River at Hartz Park that was sent to RMB Environmental Labs to be analyzed for the presence of cyanobacteria. Potentially toxic species (*Aphanocapsa*) of cyanobacteria were found in the sample but at low concentration that was not likely to cause harm or other concerns.

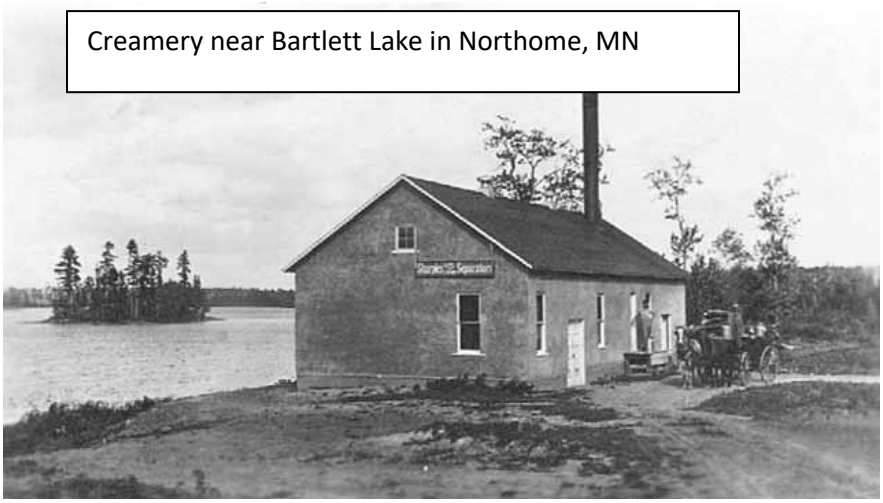
A public hearing was held on August 14, 2018 in Thief River Falls to discuss a temporary no wake ordinance for the Thief River between Long's Bridge and the northern Pennington County border line. The Pennington County Board passed the ordinance, which was effective until November 1, 2018.

The District's Water Quality Coordinator was interviewed by KTRF radio live and in a YouTube video while sampling the Thief River at Long's Bridge on August 15, 2018 (https://www.facebook.com/trfradio/videos/668889573481724/?t=7). The Water Quality Coordinator was also interviewed by a reporter from the Star Tribune. http://www.startribune.com/odd-potentially-toxic-algae-infests-western-minn-waters/491716831/.

Bartlett Lake

Bartlett Lake is a shallow lake by Northome that has been affected by long-term pollution from the city sewer and a creamery. Excess nutrients have caused the lake to become eutrophic.
District staff and Manager Dwight reviewed information from a paleolimnological investigation of Bartlett Lake, which is located in Koochiching County near Northome, MN. The lake is impaired and has suffered from high levels of nutrients, high concentrations of chlorophyll-a, low water clarity, and winter fish kills. The excess nutrients in the lake are attributed to historical impacts from sanitary sewer discharge into the lake, logging operations along the shore, and pollution from a creamery that operated from 1916 to 1974. Sediment cores were collected from the lake and analyzed for geochemical and biological clues that provide information about the lake and its history.

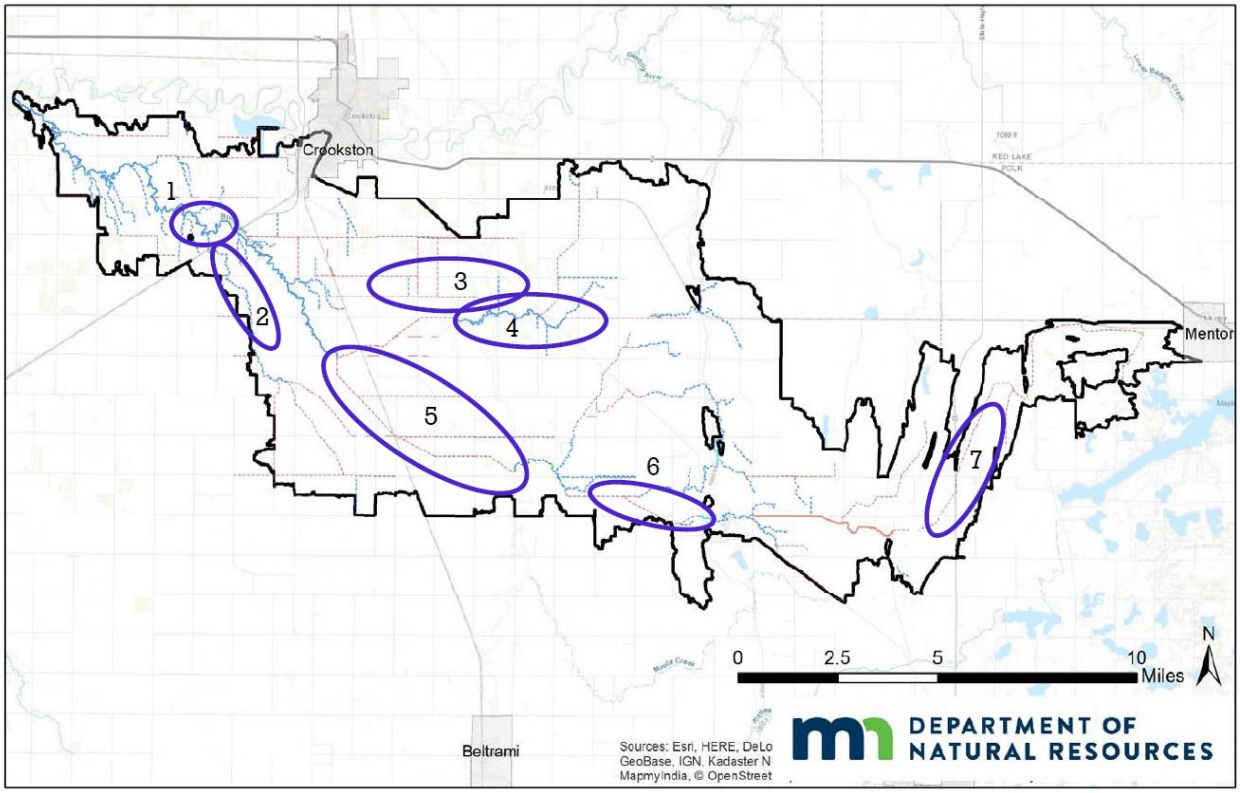
Sedimentation within the lake began to increase within the lake at the time of European settlement and has continued to increase. As much as 75% of the phosphorus in Bartlett Lake is coming from internal loading. Much of that internal loading phosphorus is from the historical pollutant sources (sewer, creamery, and logging). That historic sediment and phosphorus is mobile and can be mixed into the water column due to the relatively shallow maximum depth of the lake (16 feet). Some of that legacy phosphorus is being removed through burial in sediment, but the lake is still impaired. The lake has been slowly recovering since the creamery was closed and a new wastewater treatment system was constructed. Possible actions to speed the recovery process, like an alum treatment, will be explored by the city and the District.



Creamery near Bartlett Lake in Northome, MN

Emmons and Olivier Resources, Inc (EOR) conducted an analysis of potential in-lake management strategies to improve water quality in the lake. Unfortunately, there are no quick-fix solutions to the problem. The consultant concluded that Alum treatments would be ineffective. The report primarily suggested that manipulation of biology in the lake could lower algae levels in the lake. Winter aeration and the stocking of gamefish like northern pike were recommended. The northern pike would help reduce panfish populations. Panfish feed on zooplankton, so reducing panfish populations will increase zooplankton populations. Zooplankton feed on algae, so increasing zooplankton populations will keep algae populations in check.

Burnham Creek



DNR and RLWD staff conducted October geomorphic study of the Burnham Creek watershed. The areas in the map above were targeted for Bank Erosion Hazard Index (BEHI) ratings. Representative reaches in areas 3, 4, 5, 6, and 7 were assessed in October 2018. The further downstream areas (1 and 2) will be assessed during the summer of 2019. The goal of the work will be to find answers to some questions about the watershed:

- Where is the channel actively eroding excessive sediment into the system?
    - If eroding, where is the channel in the evolutionary process? What can be done to guide the channel into a more stable form?
    - If not eroding, what factors are critical for stability? What protection steps can be taken to maintain stability?
- Where is longitudinal connectivity creating poor connectivity conditions?
- Where is lateral connectivity in poor condition, resulting in potentially decreased habitat and increased instability?
- Where is the channel efficiently transporting sediment?
- Where is the channel unable to transport the supplied quantity of sediment?
- What channel management practices and land uses are contributing to sediment yield and river impairment?
- How are the cumulative effects of various watershed processes affecting water resources?

Photos and information about what we discovered can be found in the October 2018 Water Quality Report:

http://www.redlakewatershed.org/waterquality/MonthlyWQReport/2018%2010%20October%20Water%20Quality%20Report.pdf

Watershed Restoration and Protection (WRAP) Projects

The Federal Clean Water Act (1972) requires each State to develop plans for the identification and restoration of waterbodies that are deemed impaired by state regulations. A TMDL is required by the U.S. Environmental Protection Agency (USEPA) as a stipulation of the Clean Water Act. A TMDL identifies the pollutant sources causing the impairment. It is a calculation of the maximum amount of pollutant that can enter a waterbody without causing the concentration of the pollutant within the waterbody to exceed water quality standards.

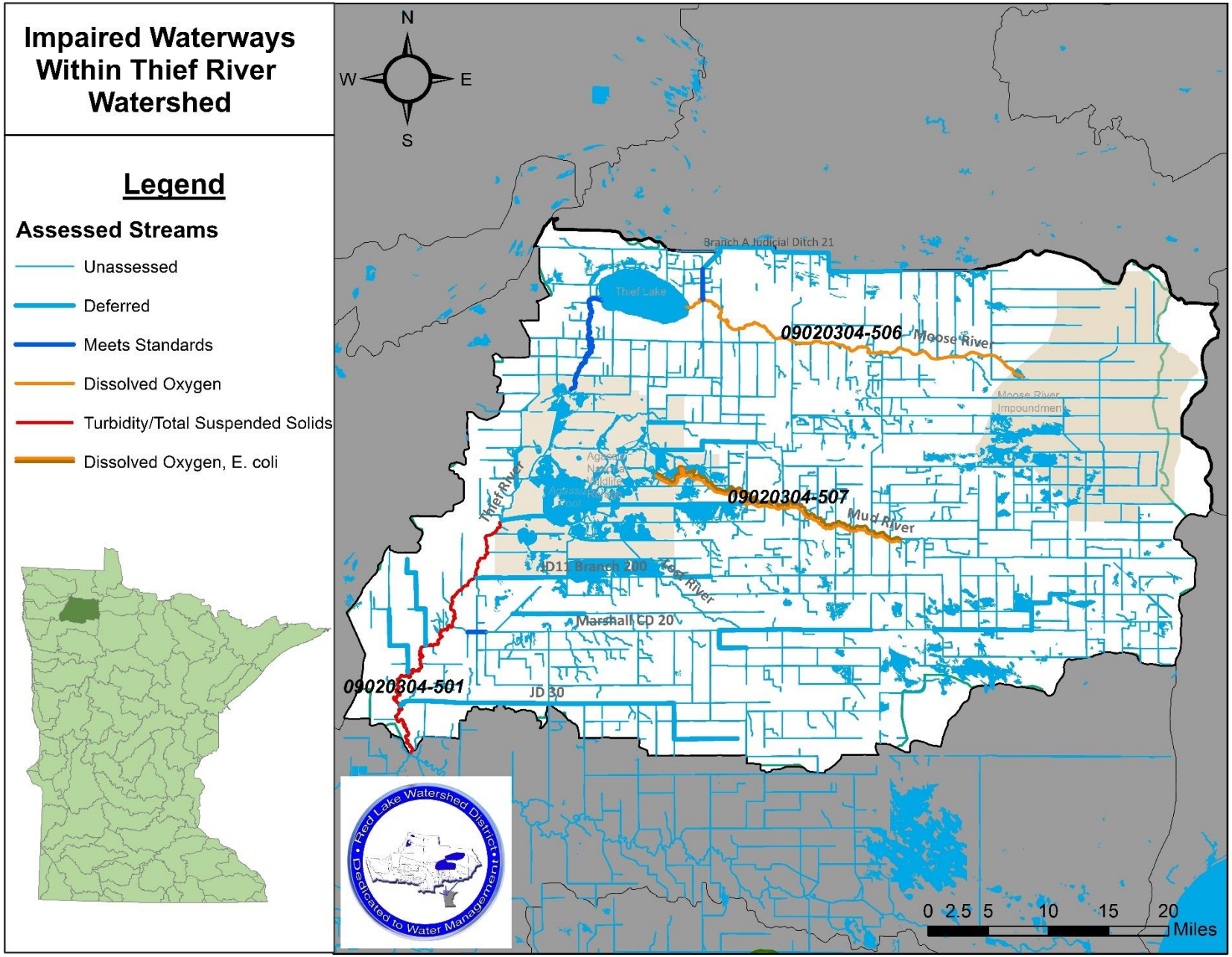
The State of Minnesota has adopted a "watershed approach" to address the state's 80 major watersheds (denoted by 8-digit hydrologic unit code or HUC). This watershed approach incorporates water quality assessment, watershed analysis, civic engagement, planning, implementation, and measurement of results into a 10-year cycle that addresses both restoration and protection. The watershed-based strategy recognizes the connectivity of the watershed better than the reach-by-reach system. An impairment may extend over multiple assessment units. Impairments for different parameters may be linked by common stressors and/or pollutants. The stakeholder process will also be helped through this strategy. Not only is there an increased emphasis on civic engagement, but the process also avoids the redundancy that could occur when addressing TMDLs with a reach-by-reach strategy. The watershed-based, comprehensive implementation plan will be more useful and effective because it will address pollutant sources and stressors throughout the watershed. It will also reduce the complexity of incorporating TMDL implementation plans into watershed management plans.

Thief River Watershed Restoration and Protection Strategy (WRAPS)

The District completed the Thief River WRAPS project in 2016, which produced draft Thief River Watershed TMDL and WRAPS Documents. In 2017-2018 the District entered into a contract to add an *E. coli* TMDL for the Mud River and to revise the Thief River documents before and after the public comment period. The documents were revised in late 2017-18 using feedback from the MPCA, EPA, MN DNR, and public comments. The public comment period for the Thief River TMDL and WRAPS reports began on June 25, 2018 and ended on July 25, 2018.

The number of impairments on the 2014 USEPA's 303(d) list of impaired waters was reduced to just three after multiple reaches were recommended for delisting during the 2013 assessment and after additional data collection. The Moose River and the Mud River remained impaired by low dissolved oxygen. The Thief River downstream of Agassiz Pool was listed as impaired by high turbidity. The state's new 30 mg/l Central Nutrient Region total suspended solids (TSS) standard was used to develop a TMDL to address the turbidity impairment. The analysis of data revealed that the absence of sufficient flow in the Moose River and Mud River had a greater influence upon the ability of the streams to meet the 5 mg/l DO standard than any of the pollutants that have been monitored in those rivers. The findings of the Thief River Watershed Restoration and Protection Strategy (WRAPS) and other studies completed in the watershed will be used to guide the development of implementation strategies. A full list of these strategies will be part of the Thief River WRAPS report.

The Thief River TMDL Report, WRAPS report, and other technical reports are publicly available on the MPCA website for the Thief River watershed: https://www.pca.state.mn.us/water/watersheds/thief-river. These and other documents can also be found on watershed-based web pages created for the Thief River: https://www.rlwdwatersheds.org/tr-watershed-info.


Impaired Waterways Within Thief River Watershed
Legend
Assessed Streams
Unassessed
Deferred
Meets Standards
Dissolved Oxygen
Turbidity/Total Suspended Solids
Dissolved Oxygen, E. coli
N
W
E
S
Branch A Judicial Ditch 21
Thief Lake
09020304-506
Moose River
Moose River Impoundment
09020304-507
Mud River
Thief River
JD11 Branch 200
Marshall CD 20
09020304-501
JD 30
Red Lake Watershed District
Dedicated to Water Management
0 2.5 5 10 15 20
Miles

Red Lake River Watershed Restoration and Protection Strategy (WRAPS)

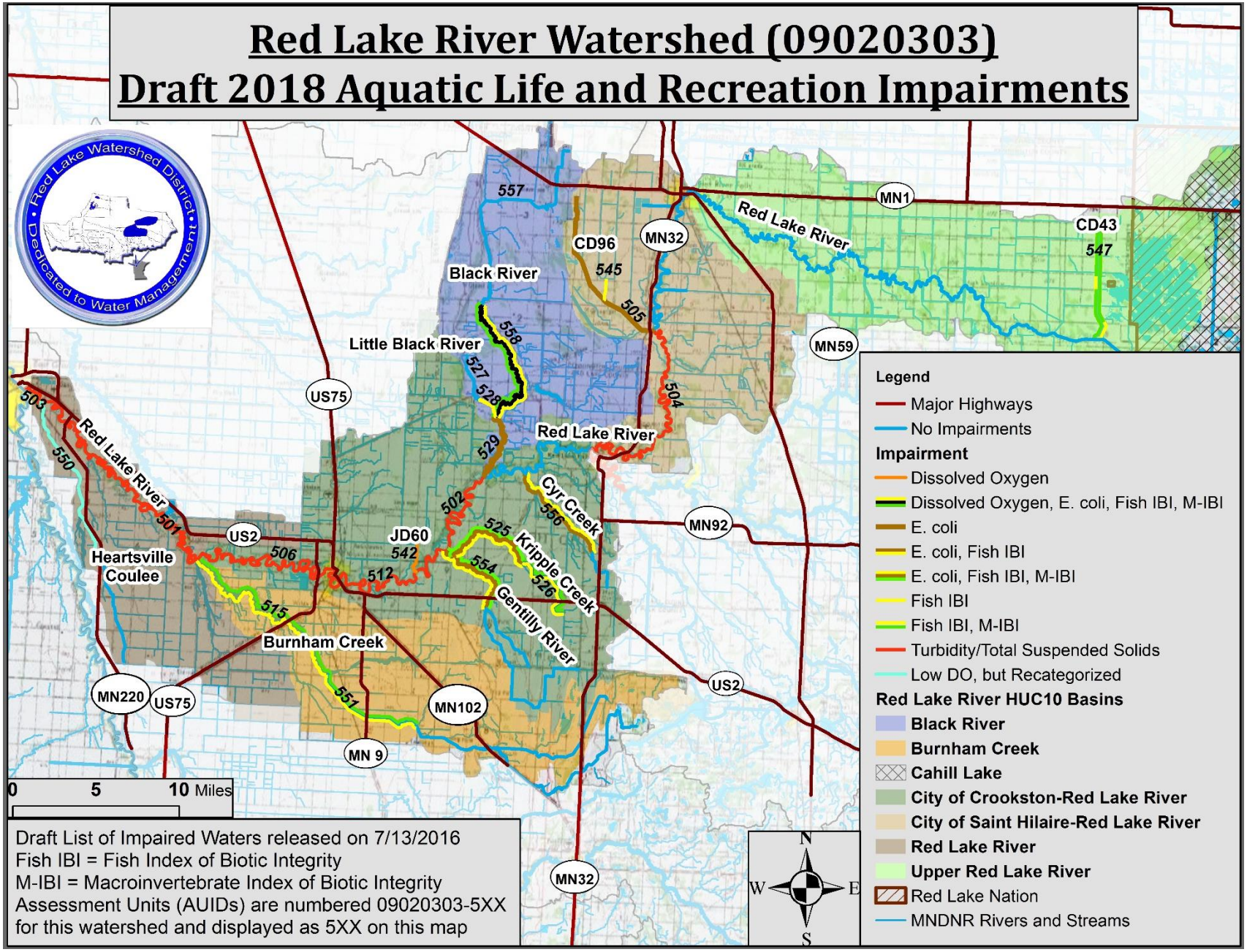
The District completed the Red Lake River WRAPS project in 2016, which produced draft Red Lake River Watershed Total Maximum Daily Load and Red Lake River Watershed Restoration and Protection Strategy documents. The District entered into a contract in 2017 to revise the documents before and after the public comment period. The TMDL was reviewed by MPCA staff and revised in 2018. The MPCA review of the Red Lake River WRAPS was concluded in early 2019 and will be revised in March 2019.

The Red Lake River Watershed TMDL addressed 31 impairments of aquatic life and/or recreation that have been found within 19 reaches of the Red Lake River and its tributaries. Turbidity and/or total suspended solids (TSS) impairments were found in 6 reaches of the Red Lake River between the Pennington County Ditch 96 confluence and the Red River of the North. Impairments due to chronically high concentrations of E. coli bacteria have been found along 6 reaches of Red Lake River tributaries. Impairments due to low dissolved oxygen (DO) levels have been addressed for 2 tributaries of the Red Lake River. Low index of biotic integrity (IBI) scores have resulted in macroinvertebrate IBI (M-IBI) impairments for 7 reaches and fish IBI (F-IBI) impairments for 10 reaches along tributaries of the Red Lake River. TMDLs were calculated for reaches that were impaired by quantifiable pollutants: 5 TSS impairments and 6 E. coli impairments. Load reduction recommendations were calculated for reaches where concurrent flow and sampling data had been collected.

The causes of water quality impairments and threats to other, unimpaired streams were investigated and summarized. Protection considerations were contemplated and compiled for unimpaired waters throughout the watershed. Multiple tools are available for prioritizing and targeting restoration and protection projects. Assessment statistics helped identify and prioritize nearly restored and nearly impaired streams. Spatial analysis of the watershed identified areas that could be contributing pollutants at relatively high rates. Tools like the Soil and Water Assessment Tool (SWAT) model, Hydrological Simulation Program – Fortran (HSPF) model, HSPF-Scenario Application Manager tool, stream power index, and Prioritize Target and Measure Application (PTMApp) have been used to identify areas where implementation of best management practices (BMPS) and other projects should be targeted within the Red Lake River Watershed. The sources of water quality problems were also investigated through direct measurements like longitudinal sampling, a fluvial geomorphology study, and microbial source tracking. Stressor identification found that insufficient base flow was the most common stressor for aquatic biology and DO within impaired Red Lake River tributaries and it exacerbated the effects of other stressors.

Strategies were recommended for reducing nonpoint contributions of TSS from the landscape and in stream/ditch channels. Strategies for addressing sources of E. coli pollution have been described. Recommendations were also provided for strategies that could improve DO levels, base flows, aquatic habitat, and the quality of aquatic life. This report also includes information about future monitoring plans, cost estimation, and civic engagement strategies.

Efforts were made to inform and involve the public throughout the Red Lake River WRAPS project. Recent civic engagement efforts and plans are described in this document. There is currently excellent cooperation among agencies underway for project implementation and monitoring. Local organizations are cooperating to implement projects through the Red Lake River One Watershed One Plan. Water chemistry and stage/flow data will be regularly collected throughout the watershed by local and state organizations.


Red Lake River Watershed (09020303)
Draft 2018 Aquatic Life and Recreation Impairments
Red Lake Watershed District
Dedicated to Water Management
557
CD96
545
505
MN32
MN1
Red Lake River
CD43
547
Black River
558
Little Black River
527
528
MN59
504
US75
503
Red Lake River
550
529
Red Lake River
Cyr Creek
556
502
525
Kripple Creek
MN92
JD60
542
554
526
506
US2
501
Heartsville
Coulee
512
Gentilly River
515
Burnham Creek
MN220
US75
551
MN102
US2
MN 9
MN32
0 5 10 Miles
Draft List of Impaired Waters released on 7/13/2016
Fish IBI = Fish Index of Biotic Integrity
M-IBI = Macroinvertebrate Index of Biotic Integrity
Assessment Units (AUIDs) are numbered 09020303-5XX
for this watershed and displayed as 5XX on this map
N
W
E
S
Legend
Major Highways
No Impairments
Impairment
Dissolved Oxygen
Dissolved Oxygen, E. coli, Fish IBI, M-IBI
E. coli
E. coli, Fish IBI
E. coli, Fish IBI, M-IBI
Fish IBI
Fish IBI, M-IBI
Turbidity/Total Suspended Solids
Low DO, but Recategorized
Red Lake River HUC10 Basins
Black River
Burnham Creek
Cahill Lake
City of Crookston-Red Lake River
City of Saint Hilaire-Red Lake River
Red Lake River
Upper Red Lake River
Red Lake Nation
MNDNR Rivers and Streams

Comments were received from the MPCA and EPA on the Red Lake River Total Maximum Daily Load (TMDL) report on 10/31/2018, so editing of that document began in early November 2018. The map and table of impaired were revised so that they reflected changes (delistings and recategorizations) that were made in the 2018 Draft List of Impaired waters. Other map revisions included:

- Land use
- Drainage areas of impaired waters
- Kripple Creek fish, macroinvertebrate, and habitat scores (AUIDs 098020303-525 and -526)
- JD 60 subwatershed map
- Cyr Creek fish, macroinvertebrate, and habitat scores
- Black River longitudinal dissolved oxygen

A chart showing the seasonality of total suspended solids was revised. The spreadsheets that were used for the calculation of total maximum daily loads were provided to the MPCA Project Manager and MPCA engineers. All of the sections in the report were reviewed for grammar, spelling, and clarity. The Cyr Creek and Gentilly Creek TMDLs were revised with updated flow records. Industrial and construction stormwater wasteload allocations were added to all total suspended solids TMDLs.

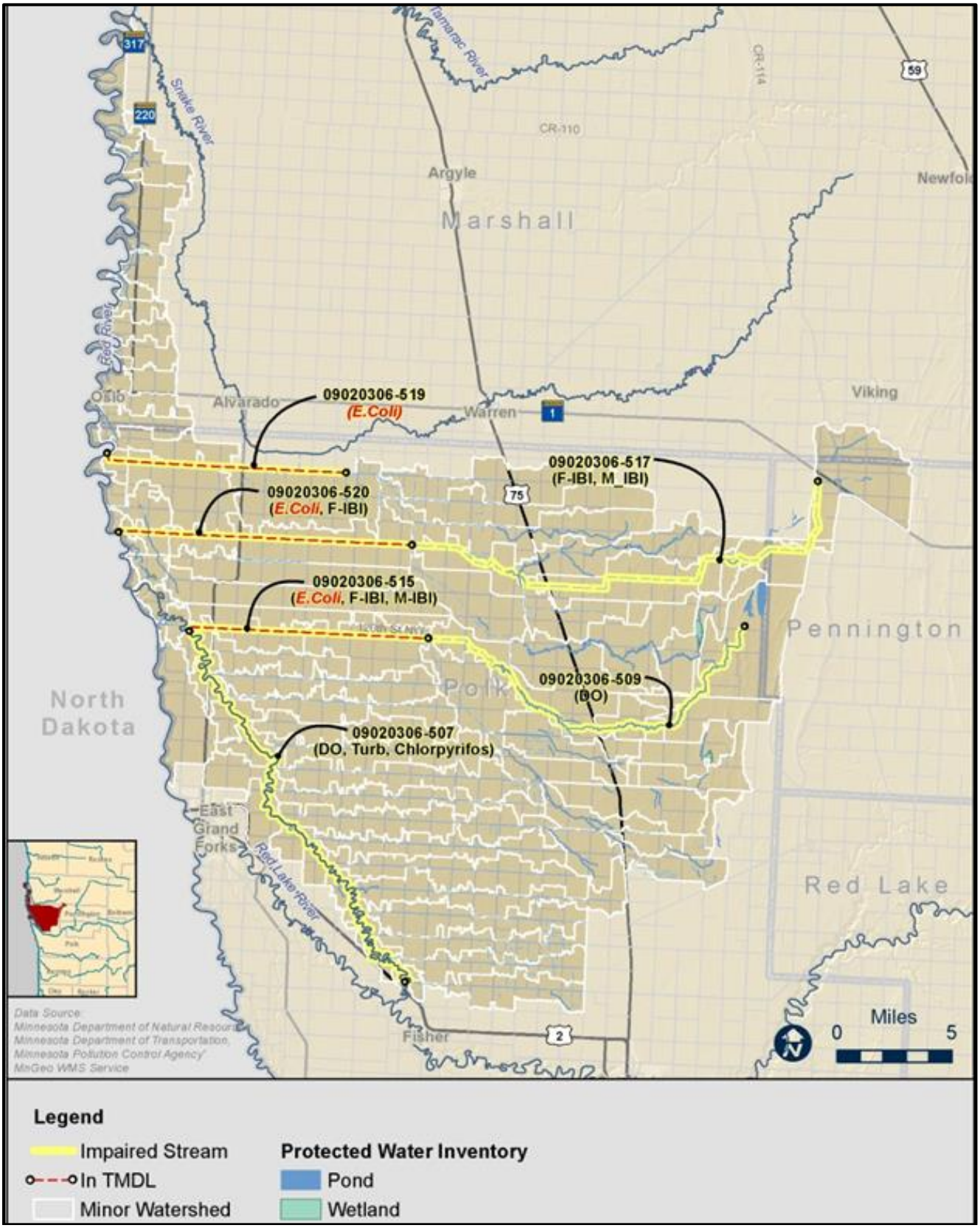
RLWD and MPCA staff discussed the possibility of designating the City of Thief River Falls as an MS4 (Municipal Separate Storm Sewer). The state and local staff agreed that the city should not be designated as an MS4 at this time because the Red Lake River is not impaired as it flows through the city and thee is a net decrease in total suspended solids concentrations from upstream of town to downstream because of sedimentation that occurs in the Thief River Fall reservoir. The MS4 and MNDOT Right of Way stormwater wasteload allocations for the cities of East Grand Forks and Crookston were calculated, incorporated into TMDLs, and summarized.

A revised draft of the Red Lake River TMDL was completed and sent to the MPCA Project Manager on December 7, 2018. An edited TMDL summary section for the Red Lake River WRAPS was also completed and sent to the MPCA Project Manager. A public comment period for the reports will likely take place in April and May of 2019.

Grand Marais Creek Watershed Restoration and Protection Strategy (WRAPS)

Emmons and Olivier Resources, Inc. (EOR) staff and District staff worked together to create draft Grand Marais Creek Watershed Total Maximum Daily Load and Grand Marais Creek Watershed Restoration and Protection Strategy reports that were completed in June 2017. A contract was signed on January 12, 2018 and executed on January 22nd, 2018 for the public notice process and editing of the Grand Marais Creek Total Maximum Daily Load (TMDL) and Watershed Restoration and Protection Strategy (WRAPS) documents. Comments were received from the MPCA and EPA on the Grand Marais Creek WRAPS report. The reports were revised by the District in 2018 using comments from the EPA and MPCA to prepare the documents for the January 7 – February 6, 2019 public comment period.

The TMDL report addressed *E. coli* impairments in three streams located in the Grand Marais Creek Watershed that are on Minnesota's Draft 2016 303(d) list of impaired waters. The Grand Marais Creek WRAPS Report will be publicly available on the MPCA Grand Marais Creek Watershed website: https://www.pca.state.mn.us/water/watersheds/red-river-north-grand-marais-creek. Additional supporting information and reports can be found on the Red Lake Watershed District's watershed-based website: http://www.rlwdwatersheds.org.


09020306-519
(E.Coli)
09020306-520
(E.Coli, F-IBI)
09020306-515
(E.Coli, F-IBI, M-IBI)
09020306-517
(F-IBI, M_IBI)
09020306-509
(DO)
09020306-507
(DO, Turb, Chlorpyrifos)
Marshall
Pennington
Red Lake
Polk
North Dakota
Argyle
Alvarado
Warren
Viking
East Grand Forks
Fisher
Red Lake River
Snake River
Tamarac River
Data Source:
Minnesota Department of Natural Resources
Minnesota Department of Transportation
Minnesota Pollution Control Agency
MnGeo WMS Service
Miles
0
5
Legend
Impaired Stream
In TMDL
Minor Watershed
Protected Water Inventory
Pond
Wetland

Clearwater River Watershed Restoration and Protection Strategy (WRAPS)

The District worked on writing the Clearwater River TMDL and WRAPS reports in 2017. TMDLs were calculated. Assessment statistics were updated assess data collected from 2007 through 2016. Assessment statistics were ranked in order to prioritize the reaches of impaired streams and rivers that are closest to meeting water quality standards and the reaches of unimpaired waters that are closest to becoming impaired. The District assisted the MPCA with the stressor identification process and summarized the results of that process with the TMDL. The MPCA's completed watershed monitoring and assessment and stressor identification documents can be found on the MPCA website: https://www.pca.state.mn.us/water/watersheds/clearwater-river. Draft TMDL and WRAPS reports are nearly complete. Sections and features of the reports that were created in 2018 included:

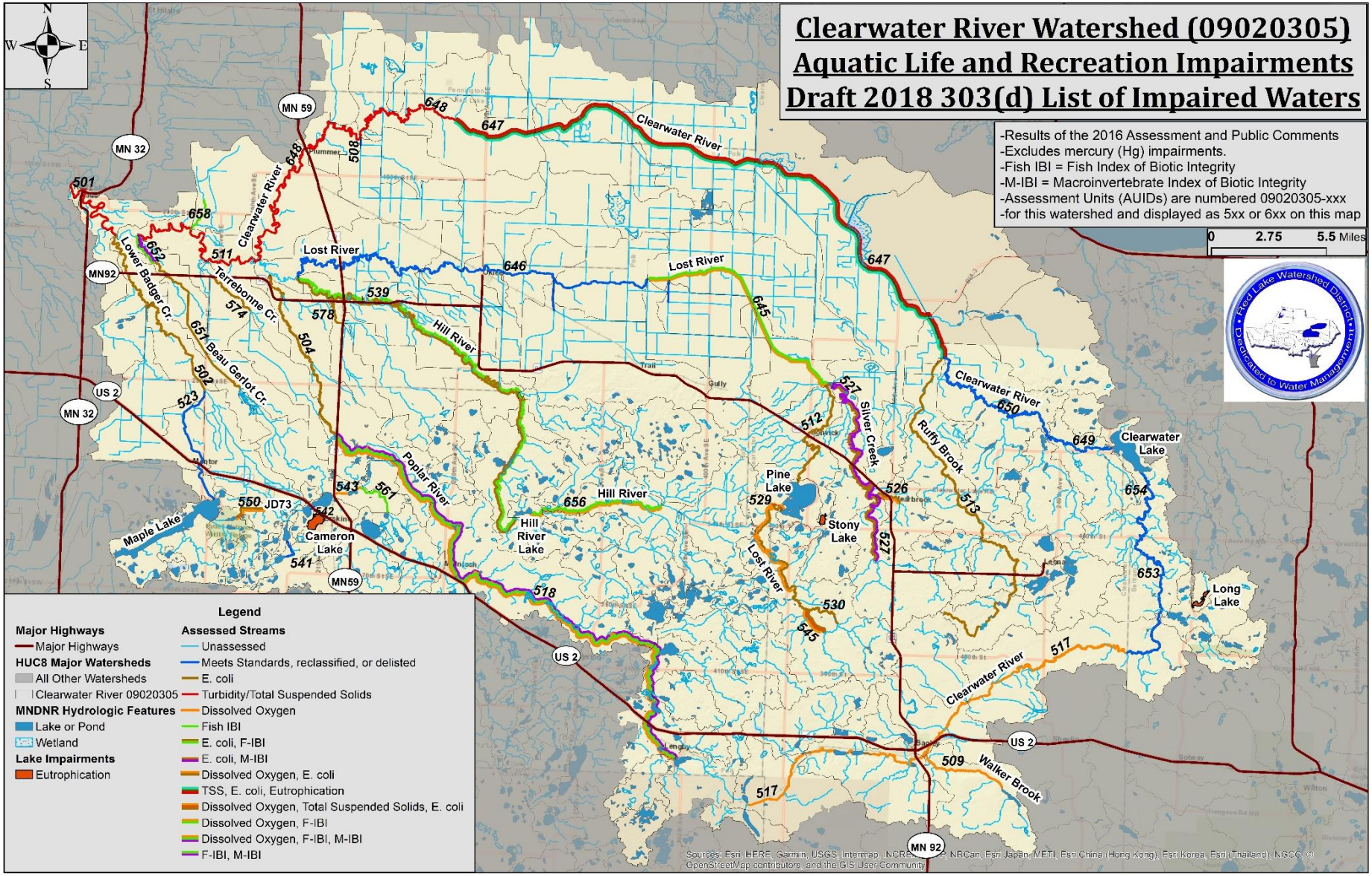
- TMDL Executive Summary
- An impaired waters table was created for Section 1.2 of the TMDL.
- TMDL Section 1.3 - Priority Ranking
- TMDL Section 3.1 – Subwatershed Characterization
- TMDL Section 3.2 - Lake Characterization (Cameron Lake portion)
    - Drainage area delineation
    - Map of the Cameron Lake drainage area
    - Long Lake (near Pinewood) description, drainage area delineation, and maps.
    - Stony Lake (near Pine Lake) description, drainage area delineation, and maps.
- TMDL Section 3.3 – Stream Characterization
- TMDL Section 3.4 – Land Use
- TMDL Section 3.5 – Current/Historic Water Quality
    - Improvements were made to index of biotic integrity maps.
- TMDL Section 4 – Pollutant Sources
    - Longitudinal *E. coli* and dissolved oxygen sampling charts were created to communicate the results of 2017 longitudinal sampling within the Clearwater River watershed.
    - Longitudinal Poplar River dissolved oxygen assessment
    - A map of Pfankuch streambank stability rating results was created.
- TMDL Section 4.1.2 and WRAPS Section 3.2.7
    - MN DNR staff provided a draft version of the Clearwater River Watershed Fluvial Geomorphology report for use in writing the Clearwater River WRAPS and TMDL reports.
    - Longitudinal, site-by-site assessment of total suspended solids concentrations along the Clearwater River.
- TMDL Section 4.2.2 – Sources of *E. coli* bacteria
- TMDL Sections 4.4.1, 4.4.2, and 4.5.3 - TMDL Sections Poplar River sections that describe causes of low dissolved oxygen levels, stressors of fish communities, and stressors of macroinvertebrate communities
- TMDL Section 4.4.3 – Stressors of macroinvertebrate biological integrity in Silver Creek
- TMDL Section 4.4.4 – Stressors of fish biological integrity in the Hill River downstream of Hill River Lake
    - 2017 continuous dissolved oxygen data from the Hill River at 290th Ave SE was compiled, corrected, and graphed.
- TMDL Section 4.4.5 - Stressors of fish index of biological integrity in a tributary of the Poplar River Diversion (Gerdin Lake outlet channel, AUID 09020305-561).
- TMDL Section 4.4.7 - Stressors of fish index of biological integrity in Beau Gerlot Creek (AUID 09020305-652).
- TMDL Section 4.4.8 - Stressors of macroinvertebrate index of biological integrity in Beau Gerlot Creek (AUID 09020305-652).
- TMDL Section 4.4.9 – Stressors of fish biological integrity in the Hill River upstream of Hill River Lake (09020305-656)

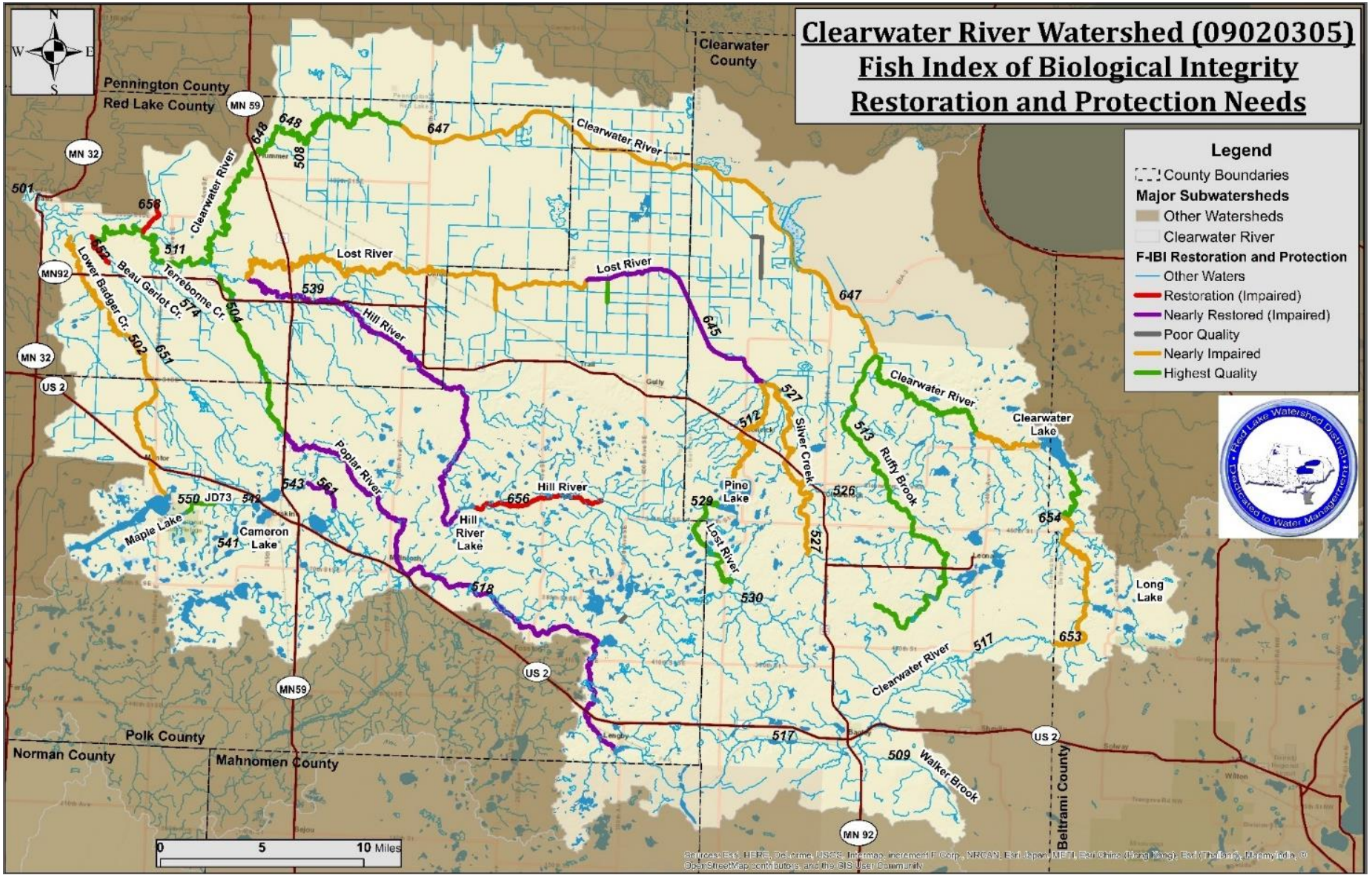
- TMDL Section 4.4.10 - Stressors of fish biological integrity in Red Lake County Ditch 23 (09020305-658)
    - 2017 dissolved oxygen logger data from Red Lake County Ditch 23 was compiled, corrected, and summarized.
- TMDL Section 4.5.1 - Causes of low dissolved oxygen in Walker Brook (09020305-509)
- TMDL Section 4.5.2 - Causes of low dissolved oxygen in the headwaters of the Clearwater River (09020305-517)
- TMDL Section 4.5.4 - Causes of low dissolved oxygen in Clear Brook (AUID 09020305-652).
- TMDL Section 4.5.6 - Causes of low dissolved oxygen in Nassett Creek (Assessment Unit 09020305-545)
    - Nassett Creek dissolved oxygen data was examined to find clues about what is causing the low dissolved oxygen problem. Dissolved oxygen is okay at the furthest downstream monitoring site, but it is sometimes low at upstream monitoring sites. The creek runs through some beaver ponds in the upstream portions of the stream in which water may be relatively stagnant.
- TMDL Section 4.5.7 - Causes of low dissolved oxygen in Judicial Ditch 73 (Assessment Unit 09020305-550)
- TMDL Section 4.5.8 - Causes of low dissolved oxygen in the Lost River (Assessment Unit 09020305-645, Anderson Lake to CSAH 28)
- TMDL Section 4.5.9 - Causes of low dissolved oxygen in the Hill River upstream of Hill River Lake (09020305-656)
- TMDL Section 5.1 – Total Suspended Solids Total Maximum Daily Load Development
- TMDL Section 5.1.1 – Loading Capacity
- TMDL Section 5.1.2 - Load Allocation Methodology
- TMDL Section 5.1.3 – Wasteload Allocation Methodology
- TMDL Section 5.1.4 – Margin of Safety
- TMDL Section 5.1.5 – Seasonal Variation
- TMDL Section 5.1.6 – Reserve Capacity
- TMDL Section 5.1.7 – TMDL Summary
- TMDL Section 5.2.1 – Loading Capacity Methodology for *E. coli* bacteria
    - Flow data from Clear Brook (collected during a stormwater study) was combined with modeled flows to improve upon the accuracy of *E. coli* TMDL calculations.
- TMDL Section 5.2.5 – Seasonal Variation of *E. coli bacteria*
    - A table was created to show the seasonality of *E. coli* concentrations in impaired streams of the Clearwater River watershed
- TMDL Section 8 and WRAPS Section 4 - A monitoring plan was written for inclusion in the Clearwater River WRAPS and TMDL reports. Maps of long-term water quality and flow monitoring sites were created for that section.
- WRAPS Section 2.5 – Protection considerations
    - Protection considerations for the Middle Clearwater River HUC10 Subwatershed
    - District staff reviewed a stressor identification report that was described the results of an investigation of factors that could be negatively affecting biology in Cross Lake and Hill River Lake. Neither Lake was officially impaired, but the lakes were relatively close to violating standards.
- WRAPS Section 3.1 - Streams in the Clearwater River Watershed were classified for the prioritization of restoration and protection efforts using impairment status, fish index of biological integrity scores, macroinvertebrate index of biological integrity scores, *E. coli* data, dissolved oxygen, total phosphorus, Minnesota Stream Habitat Assessment scores, and total suspended solids data. Lakes were classified for restoration or protection priorities based on impairment status, total phosphorus data, chlorophyll-a data, and Secchi disk transparency data. When completed, Section 3.1 of the WRAPS was shared with technical advisors and project partners so that SWCDs would have the information available for planning projects. The section was edited based on comments that were received.

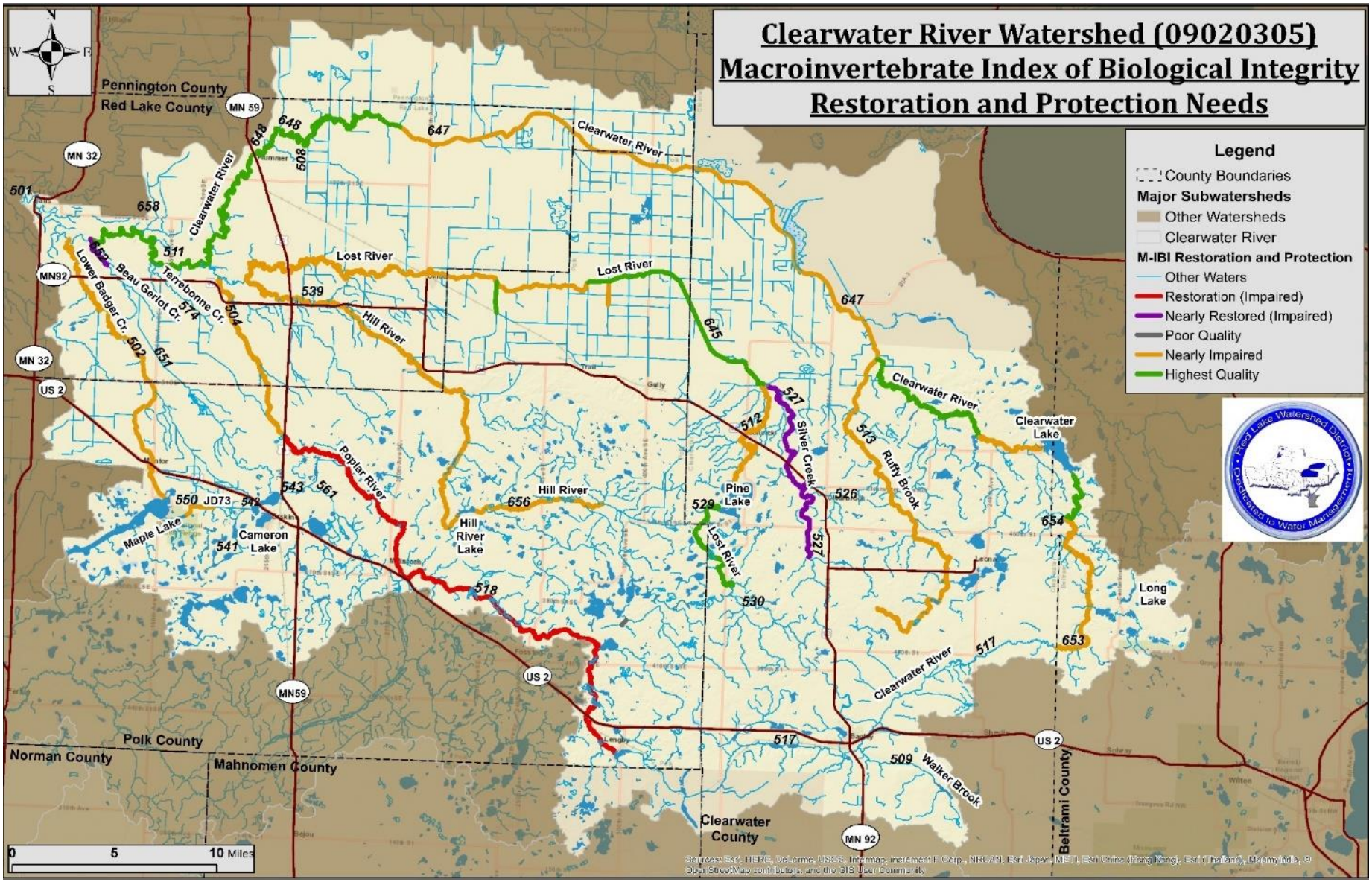
- WRAPS Section 3.4 - Actions were added to the lists of restoration and protection strategies for the WRAPS report based on information in the Clearwater River Watershed Monitoring and Assessment Report.

Staff from RMB Environmental Laboratories obtained MP3 audio files of the completed Water Minutes (read by Joel Heitkamp). District staff shared them with other local agency staff. Articles were written for the East Polk SWCD's Lake Leader newsletter. The SWCD decided to use one of the articles – about Cameron Lake. District staff attended a Maple Lake Improvement District (MLID) meeting on July 14, 2018 at the Mentor Community Center. Staff spoke to the standing-room-only crowd about water quality in the lake and blue-green algae issues. A presentation was prepared for the November 28, technical advisory committee meeting. A technical advisory meeting was held on November 28, 2018 to discuss restoration and protection strategies for the Clearwater River Watershed. Completed sections of the TMDL and WRAPS were shared with the core team of technical advisors

A semi-annual progress report was completed for the Clearwater River WRAPS and sent to the MPCA Project Manager. 2017 dissolved oxygen logger data from the Clearwater River at CSAH 10 was compiled, corrected, and summarized.


Clearwater River Watershed (09020305)
Aquatic Life and Recreation Impairments
Draft 2018 303(d) List of Impaired Waters
-Results of the 2016 Assessment and Public Comments
-Excludes mercury (Hg) impairments.
-Fish IBI = Fish Index of Biotic Integrity
-M-IBI = Macroinvertebrate Index of Biotic Integrity
-Assessment Units (AUIDs) are numbered 09020305-xxx
-for this watershed and displayed as 5xx or 6xx on this map
0 2.75 5.5 Miles
Red Lake Watershed District
Dedicated to Water Management
Legend
Major Highways
Major Highways
HUC8 Major Watersheds
All Other Watersheds
Clearwater River 09020305
MNDNR Hydrologic Features
Lake or Pond
Wetland
Lake Impairments
Eutrophication
Assessed Streams
Unassessed
Meets Standards, reclassified, or delisted
E. coli
Turbidity/Total Suspended Solids
Dissolved Oxygen
Fish IBI
E. coli, F-IBI
E. coli, M-IBI
Dissolved Oxygen, E. coli
TSS, E. coli, Eutrophication
Dissolved Oxygen, Total Suspended Solids, E. coli
Dissolved Oxygen, F-IBI
Dissolved Oxygen, F-IBI, M-IBI
F-IBI, M-IBI
Clearwater River
Lost River
Hill River
Poplar River
Lower Badger Cr.
Terrebonne Cr.
Beau Geriot Cr.
Silver Creek
Ruffy Brook
Walker Brook
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Stony Lake
Clearwater Lake
Long Lake
MN 59
MN 32
MN92
US 2
MN59
MN 92
JD73
Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community


Clearwater River Watershed (09020305)
Fish Index of Biological Integrity
Restoration and Protection Needs
Legend
County Boundaries
Major Subwatersheds
Other Watersheds
Clearwater River
F-IBI Restoration and Protection
Other Waters
Restoration (Impaired)
Nearly Restored (Impaired)
Poor Quality
Nearly Impaired
Highest Quality
Red Lake Watershed District
Dedicated to Water Management
Clearwater County
Pennington County
Red Lake County
Polk County
Norman County
Mahnomen County
Beltrami County
Clearwater River
Lost River
Hill River
Poplar River
Silver Creek
Ruffy Brook
Walker Brook
Lower Badger Cr.
Beau Gerlot Cr.
Terrebonne Cr.
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Clearwater Lake
Long Lake
JD73
MN 59
MN 32
MN92
US 2
MN 92
0
5
10 Miles


Clearwater River Watershed (09020305)
Macroinvertebrate Index of Biological Integrity
Restoration and Protection Needs
Legend
County Boundaries
Major Subwatersheds
Other Watersheds
Clearwater River
M-IBI Restoration and Protection
Other Waters
Restoration (Impaired)
Nearly Restored (Impaired)
Poor Quality
Nearly Impaired
Highest Quality
Pennington County
Red Lake County
Polk County
Norman County
Mahnomen County
Clearwater County
Beltrami County
Clearwater River
Lost River
Hill River
Poplar River
Silver Creek
Ruffy Brook
Walker Brook
Terrebonne Cr.
Beau Gerlot Cr.
Lower Badger Cr.
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Clearwater Lake
Long Lake
JD73
MN 59
MN 32
MN92
US 2
MN59
MN 92
501
502
504
508
511
512
517
518
526
527
529
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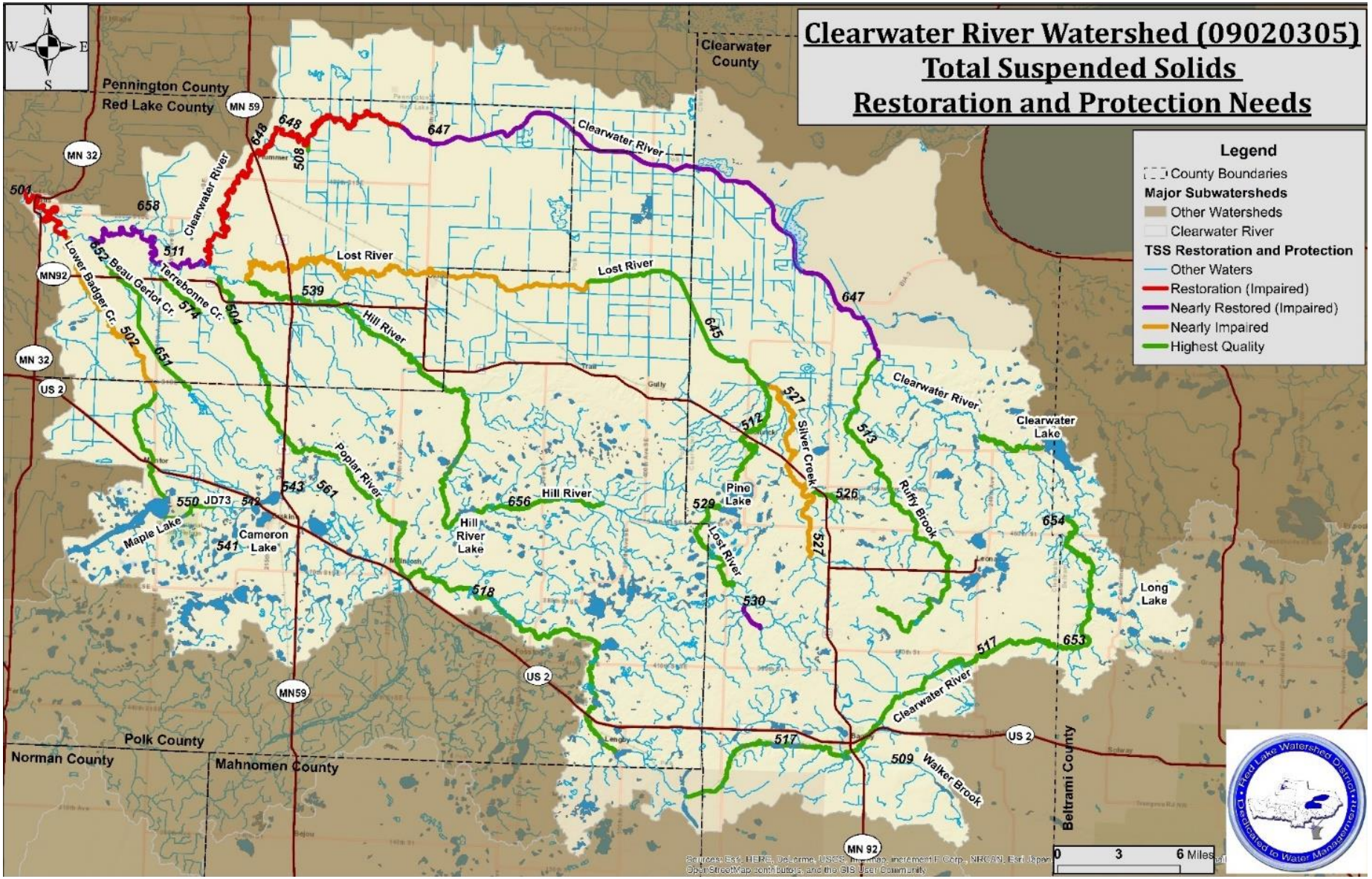
10 Miles


Clearwater River Watershed (09020305)
Total Suspended Solids
Restoration and Protection Needs
Legend
County Boundaries
Major Subwatersheds
Other Watersheds
Clearwater River
TSS Restoration and Protection
Other Waters
Restoration (Impaired)
Nearly Restored (Impaired)
Nearly Impaired
Highest Quality
Pennington County
Red Lake County
Clearwater County
Polk County
Norman County
Mahnomen County
Beltrami County
Clearwater River
Lost River
Hill River
Poplar River
Silver Creek
Ruffy Brook
Walker Brook
Lower Badger Cr.
Beau Gerlot Cr.
Terrebonne Cr.
JD73
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Clearwater Lake
Long Lake
MN 59
MN 32
MN92
US 2
MN 92
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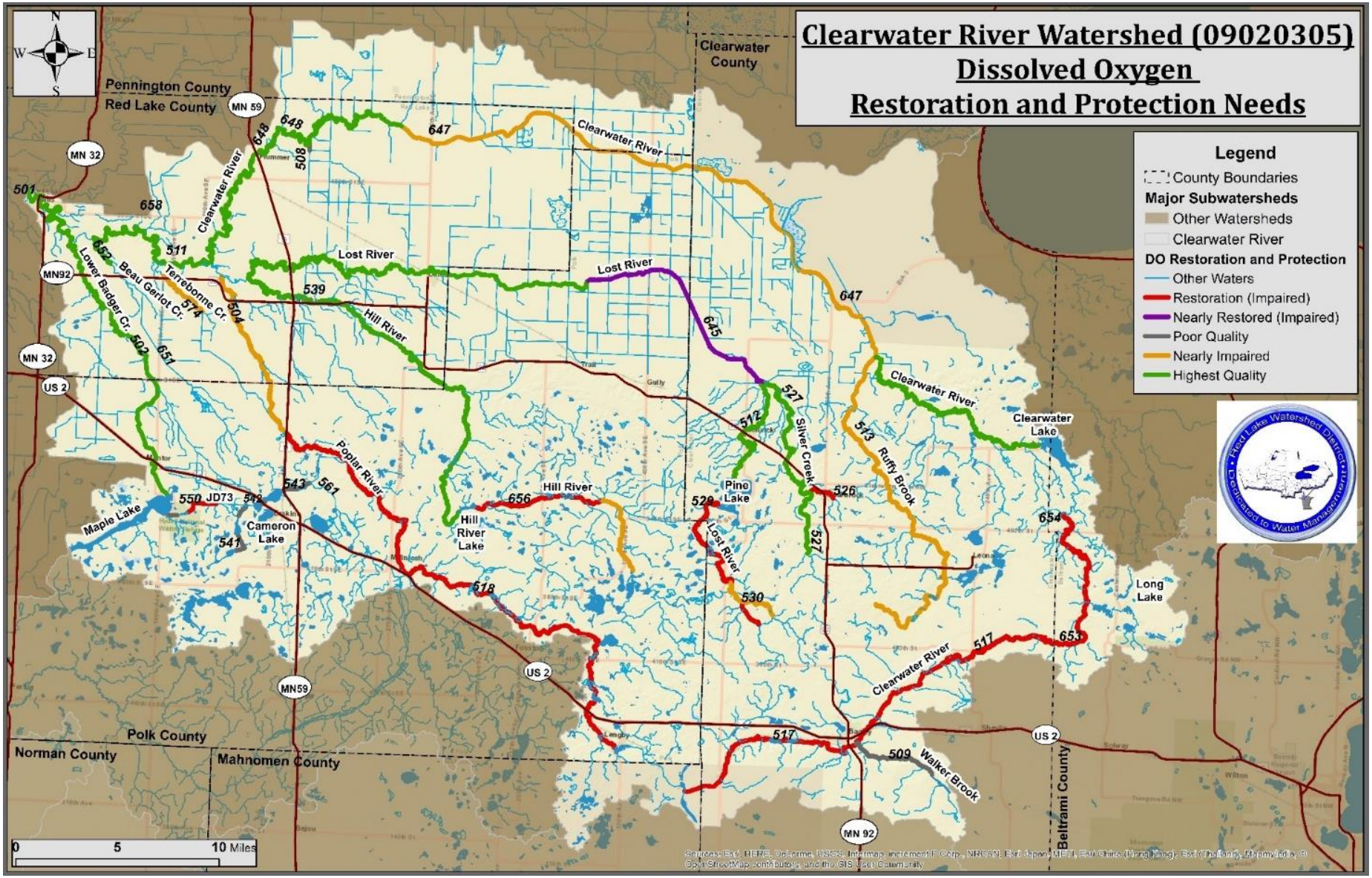
Clearwater River Watershed (09020305)
Dissolved Oxygen
Restoration and Protection Needs
Legend
County Boundaries
Major Subwatersheds
Other Watersheds
Clearwater River
DO Restoration and Protection
Other Waters
Restoration (Impaired)
Nearly Restored (Impaired)
Poor Quality
Nearly Impaired
Highest Quality
Clearwater County
Pennington County
Red Lake County
Polk County
Norman County
Mahnomen County
Beltrami County
Clearwater River
Lost River
Hill River
Poplar River
Silver Creek
Ruffy Brook
Walker Brook
Lower Badger Cr.
Beau Garlot Cr.
Terrebonne Cr.
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Clearwater Lake
Long Lake
MN 59
MN 32
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US 2
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MN 92
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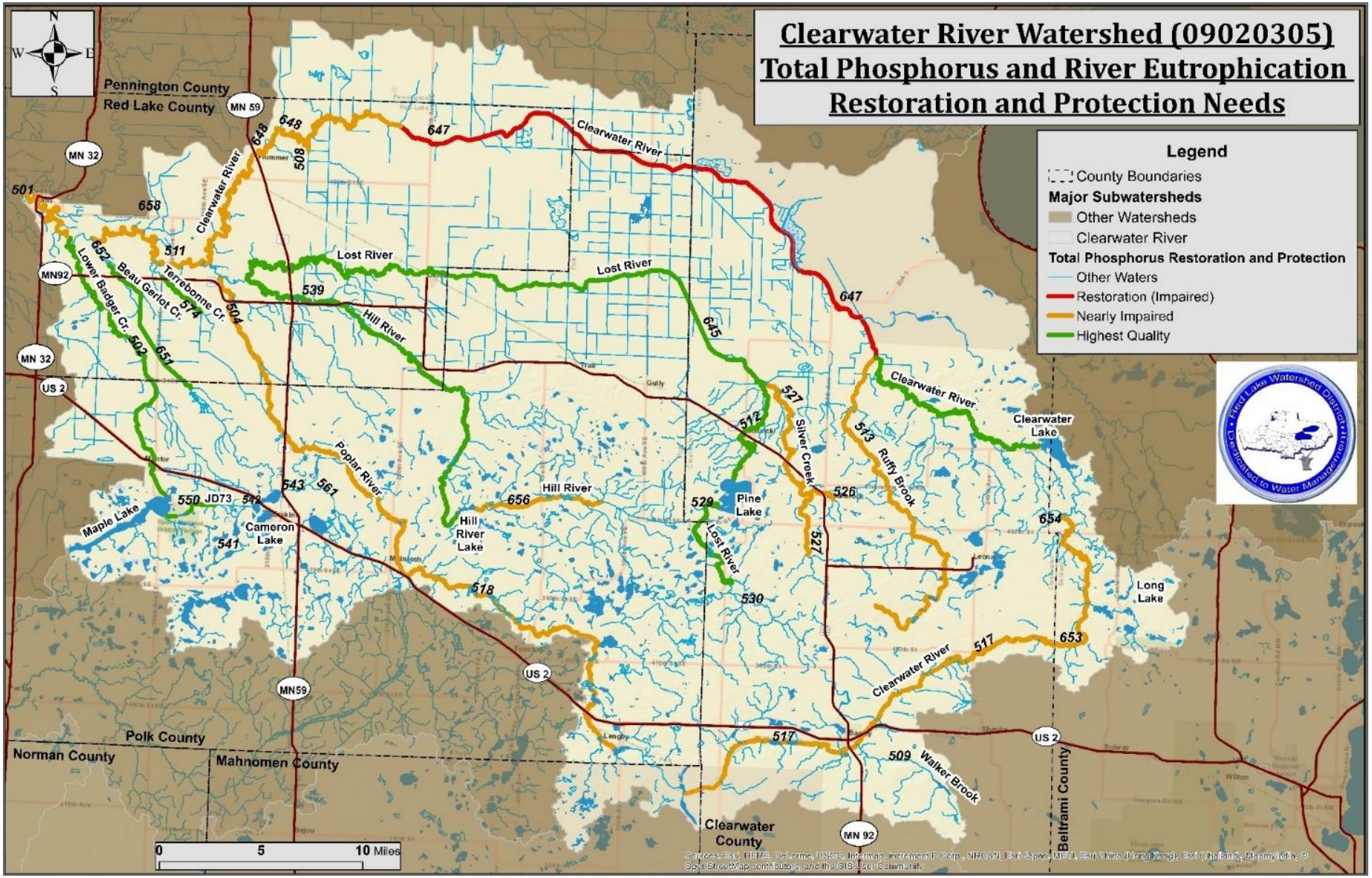
Clearwater River Watershed (09020305)
Total Phosphorus and River Eutrophication
Restoration and Protection Needs
Legend
County Boundaries
Major Subwatersheds
Other Watersheds
Clearwater River
Total Phosphorus Restoration and Protection
Other Waters
Restoration (Impaired)
Nearly Impaired
Highest Quality
Pennington County
Red Lake County
Polk County
Norman County
Mahnomen County
Beltrami County
Clearwater County
Clearwater River
Lost River
Hill River
Poplar River
Silver Creek
Ruffy Brook
Walker Brook
Lower Badger Cr.
Beau Gerlot Cr.
Terrebonne Cr.
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Clearwater Lake
Long Lake
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MN 32
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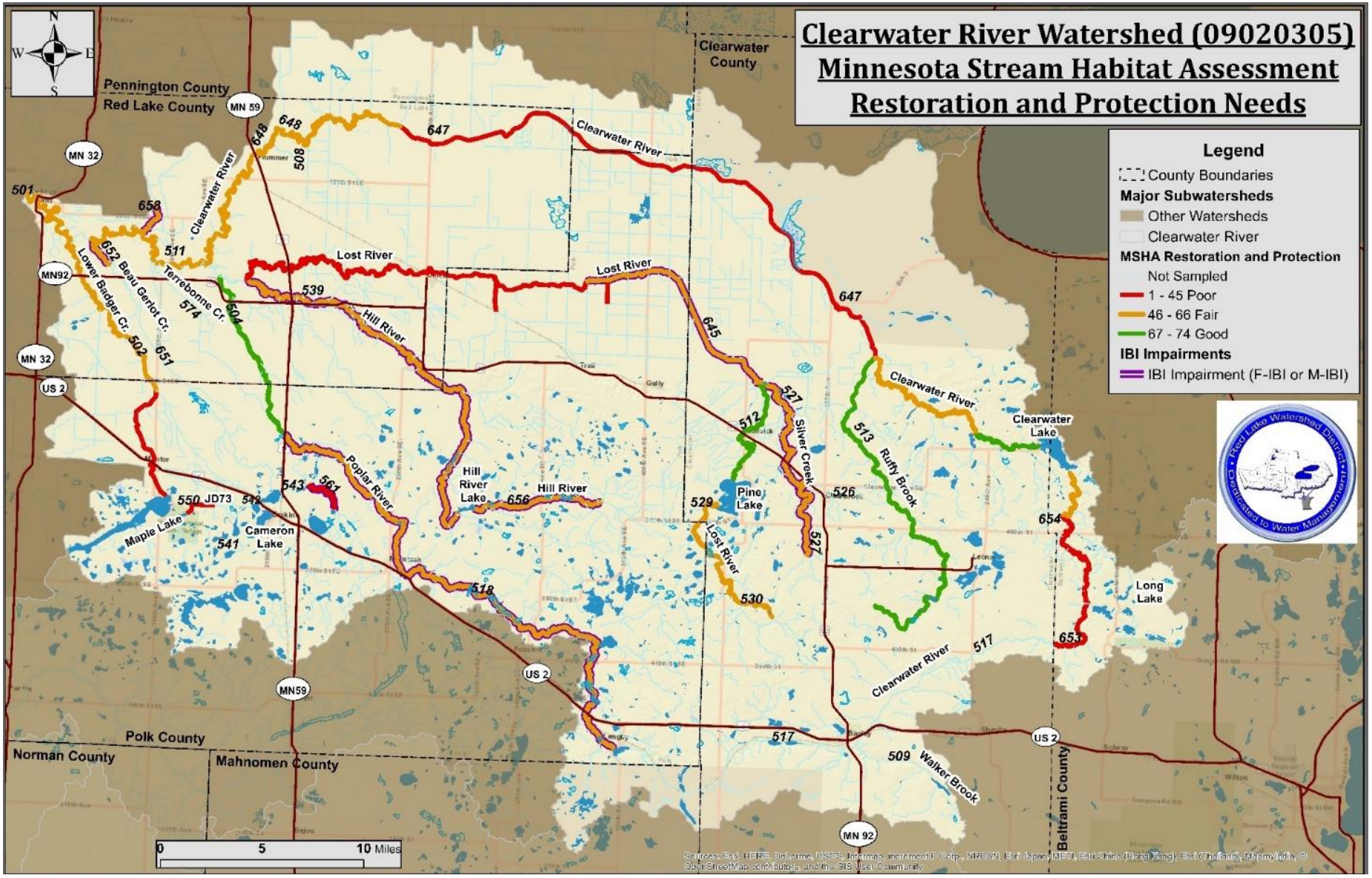
Clearwater River Watershed (09020305)
Minnesota Stream Habitat Assessment
Restoration and Protection Needs
Legend
County Boundaries
Major Subwatersheds
Other Watersheds
Clearwater River
MSHA Restoration and Protection
Not Sampled
1 - 45 Poor
46 - 66 Fair
67 - 74 Good
IBI Impairments
IBI Impairment (F-IBI or M-IBI)
Pennington County
Red Lake County
Clearwater County
Polk County
Norman County
Mahnomen County
Beltrami County
Clearwater River
Lost River
Hill River
Poplar River
Silver Creek
Ruffy Brook
Walker Brook
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Hill River Lake
Pine Lake
Clearwater Lake
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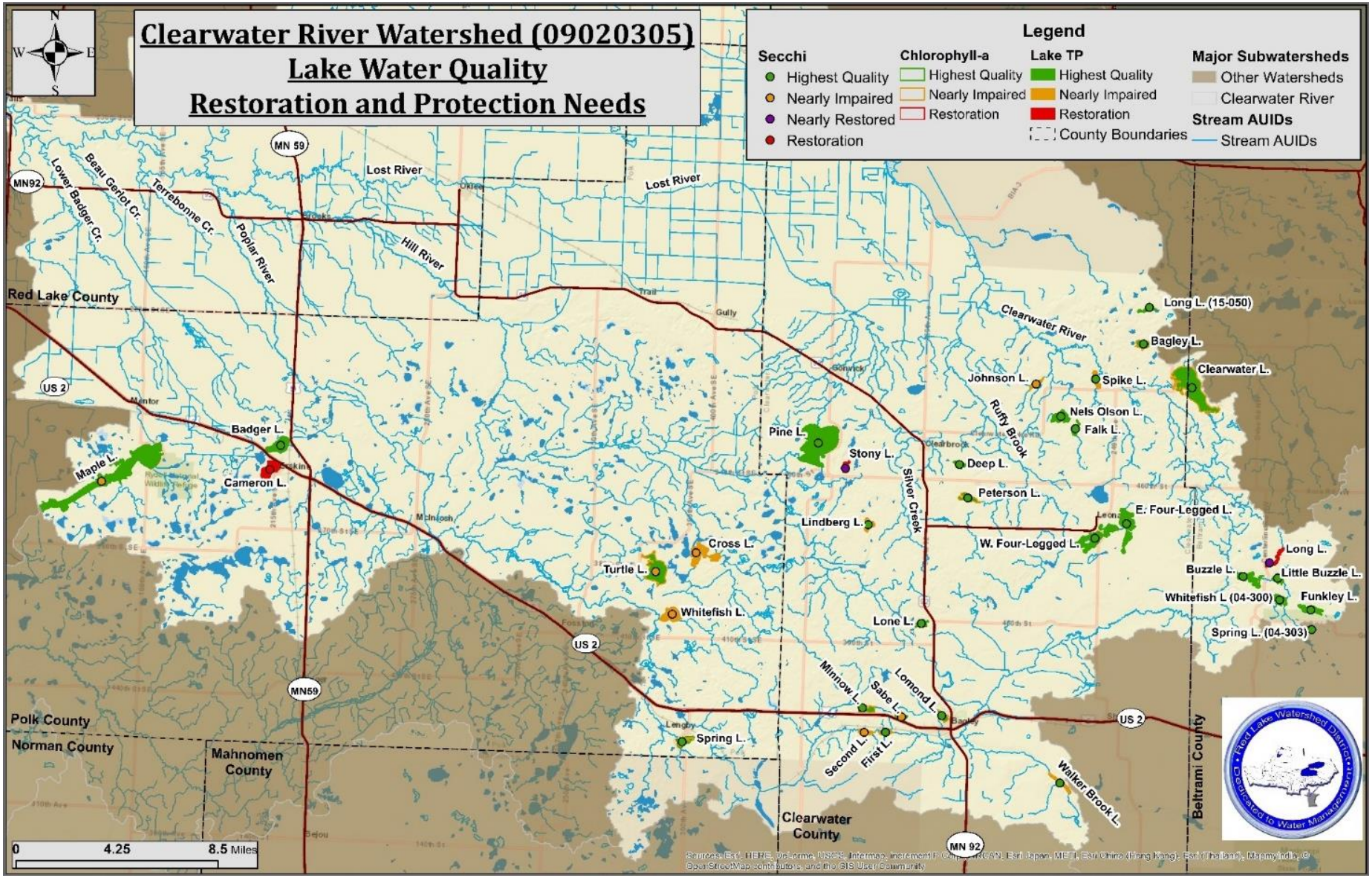
Clearwater River Watershed (09020305)
Lake Water Quality
Restoration and Protection Needs
Legend
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Highest Quality
Nearly Impaired
Nearly Restored
Restoration
Chlorophyll-a
Highest Quality
Nearly Impaired
Restoration
Lake TP
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Nearly Impaired
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County Boundaries
Major Subwatersheds
Other Watersheds
Clearwater River
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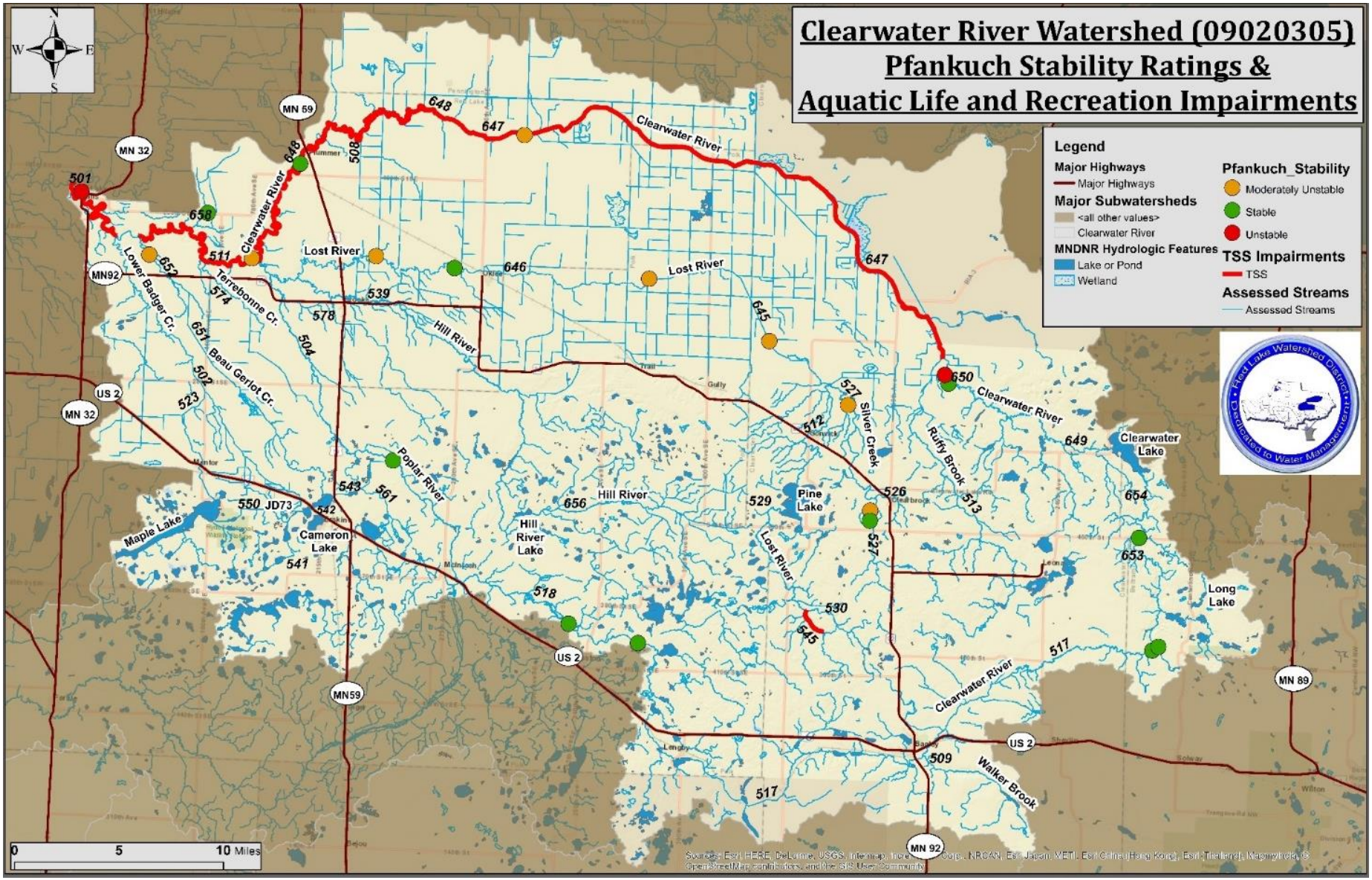
Lost River
Lower Badger Cr.
Beau Gerlot Cr.
Terrebonne Cr.
Poplar River
Hill River
Red Lake County
Polk County
Norman County
Mahnomen County
Clearwater County
Beltrami County
Clearwater River
Ruffy Brook
Silver Creek
Minnow L.
Sabe L.
Lomond L.
Long L. (15-050)
Bagley L.
Clearwater L.
Johnson L.
Spike L.
Nels Olson L.
Falk L.
Pine L.
Stony L.
Deep L.
Peterson L.
E. Four-Legged L.
W. Four-Legged L.
Lindberg L.
Cross L.
Turtle L.
Whitefish L.
Lone L.
Spring L.
Second L.
First L.
Walker Brook L.
Badger L.
Maple L.
Cameron L.
Long L.
Buzzle L.
Little Buzzle L.
Whitefish L (04-300)
Funkley L.
Spring L. (04-303)
0
4.25
8.5 Miles


Clearwater River Watershed (09020305)
Pfankuch Stability Ratings &
Aquatic Life and Recreation Impairments
Legend
Major Highways
Major Highways
Major Subwatersheds
<all other values>
Clearwater River
MNDNR Hydrologic Features
Lake or Pond
Wetland
Pfankuch_Stability
Moderately Unstable
Stable
Unstable
TSS Impairments
TSS
Assessed Streams
Assessed Streams
Red Lake Watershed District
Dedicated to Water Management
MN 59
MN 32
MN92
US 2
MN59
MN 92
MN 89
Clearwater River
Lost River
Hill River
Lower Badger Cr.
Terrebonne Cr.
Beau Gerlot Cr.
Poplar River
Silver Creek
Ruffy Brook
Walker Brook
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Clearwater Lake
Long Lake
JD73
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502
504
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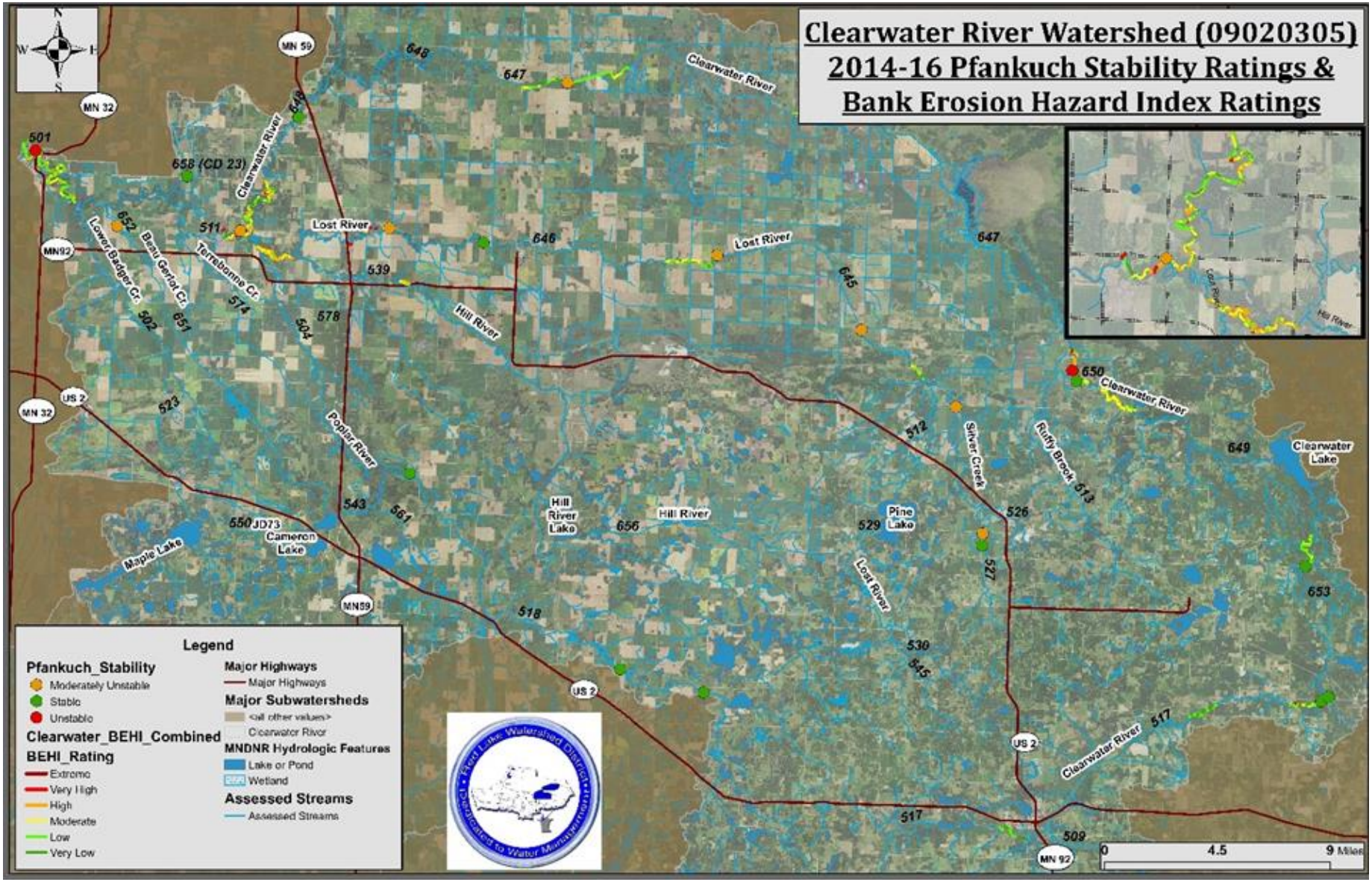
10 Miles


Clearwater River Watershed (09020305)
2014-16 Pfankuch Stability Ratings &
Bank Erosion Hazard Index Ratings
Legend
Pfankuch_Stability
Moderately Unstable
Stable
Unstable
Clearwater_BEHI_Combined
BEHI_Rating
Extreme
Very High
High
Moderate
Low
Very Low
Major Highways
Major Highways
Major Subwatersheds
<all other values>
Clearwater River
MNDNR Hydrologic Features
Lake or Pond
Wetland
Assessed Streams
Assessed Streams
Clearwater River
Lost River
Hill River
Poplar River
Silver Creek
Ruffy Brook
Lower Badger Cr.
Beau Gerlot Cr.
Terrebonne Cr.
Maple Lake
Cameron Lake
Hill River Lake
Pine Lake
Clearwater Lake
658 (CD 23)
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4.5
9 Miles

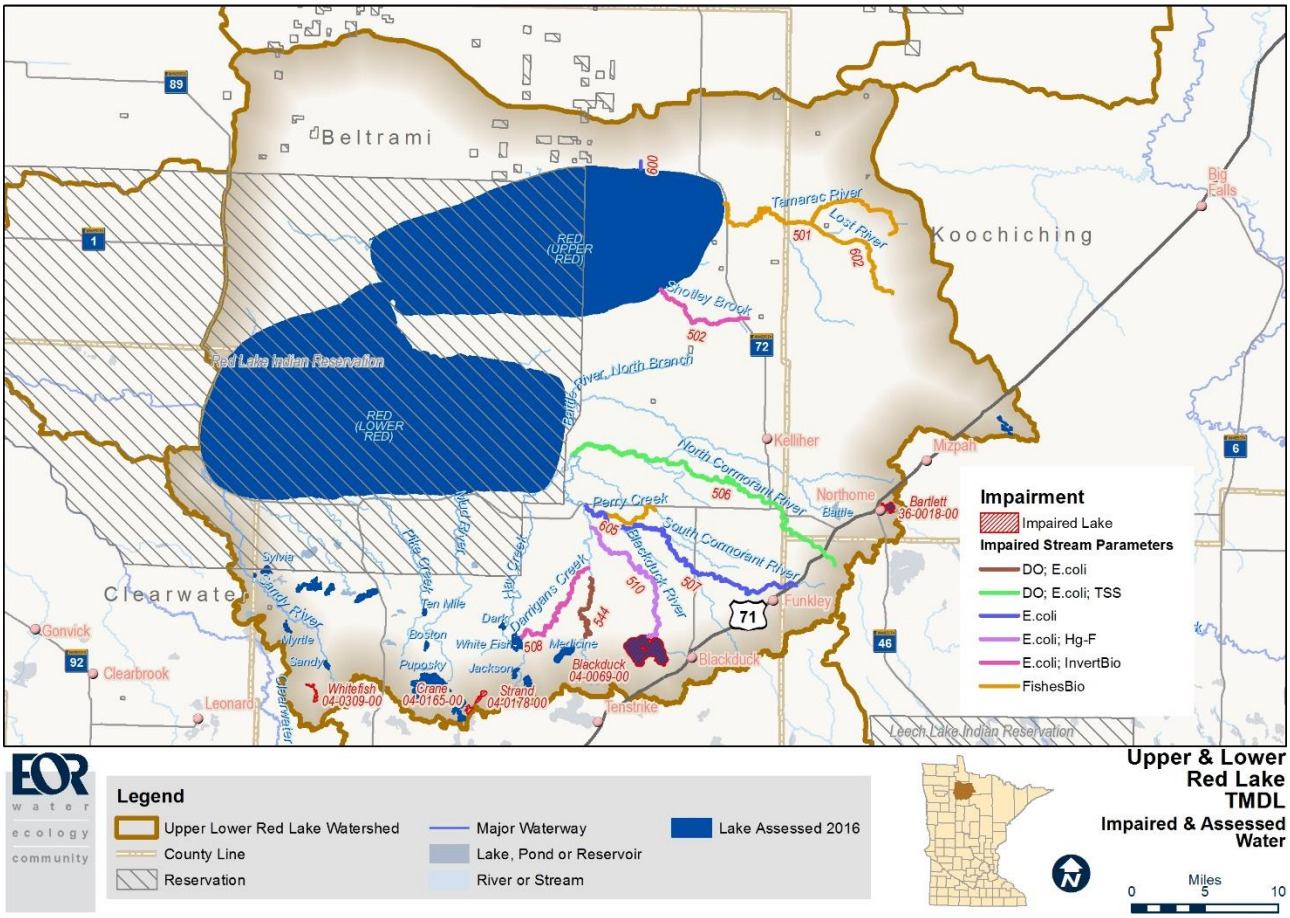
Clearwater Lakes Stressor Identification Report

The MPCA and MN DNR coordinated to collect and assess biological data from lakes in the Clearwater River Watershed. Index of biological integrity (IBI) scores were calculated to assess the quality of fish populations within lakes. Of the lakes that were formally assessed, no lakes were found to be impaired during the assessment. There were some lakes that had low fish IBI scores but were not assessed due to recent winterkills (Pine Lake and Badger Lake). Cross Lake and Hill River Lake were considered vulnerable due to their proximity to the impairment threshold. Those lakes were the focus of the stressor identification report due to their vulnerability to future impairment.

The shoreline habitat of Cross and Hill River Lakes has been only minimally altered by development. Connectivity could be an issue that is affecting the fish populations in these lakes. The Hill River connects those two lakes and portions of the river are impaired by low dissolved oxygen levels and poor fish IBI scores downstream of each of those lakes. Evidence suggests that land use and nutrient loading from the contributing watersheds of those two lakes may be having the greatest impact upon fish communities. The report recommends water quality data collection within the lakes, enhancement of lakeshore habitat, improvement of lakeshore buffers, and an examination of fish passage at the Hill River Lake Dam.

Summary of Fish Index of Biological Integrity Assessments for Lakes in the Clearwater River Watershed									
Lake ID	Lake Name	County	Year of Survey	Notes	MNDNR GIS Acres	% Littoral	FIBI Score	Below Impairment Threshold	Within 90% Confidence Interval of Impairment Threshold
04-0300	**Whitefish**	Beltrami	2015	June & Aug. 2015	125	42%	**77, 66**	No	No, No
04-0343	**Clearwater**	Beltrami	2013		999	34%	**73**	No	No
15-0060	**Walker Brook**	Clearwater	2015	Limited sampling	95	42%	**48**	No	No
15-0081	**Lomond**	Clearwater	2013	Limited sampling	95	47%	**59**	No	No
15-0137	**Minnow**	Clearwater	2014	Limited sampling	110	87%	**71**	No	No
15-0149	**Pine**	Clearwater	2014	Limited sampling, winterkill	1238	100%	**15**	Yes	Yes
60-0012	**Spring**	Polk	2014		130	33%	**67**	No	No
60-0015	**Whitefish**	Polk	2015	June & Aug. 2015	243	81%	**43, 43**	No	Yes
60-0027	**Cross**	Polk	2014		166	90%	**40**	No	Yes
60-0142	**Hill River**	Polk	2014		103	68%	**28**	No	Yes
60-0214	**Badger**	Polk	2010	Recent winterkill	255	100%	**6**	Yes	No
60-0305	**Maple**	Polk	**2010, 2015**		1576	100%	**31, 67**	**Yes, No**	**Yes, No**
≤ lower CL		**> lower CL & ≤ Threshold**			**> threshold & ≤ upper CL**			**> upper CL**	**NA = Not available**

Upper/Lower Red Lakes Watershed Restoration and Protection Strategy (WRAPS)



The effort to complete a WRAPS project for the Upper and Lower Red Lakes major watershed is being led by the Red Lake Department of Natural Resources. They have been collecting flow data, sampling data, and continuous dissolved oxygen data. District staff attended the April 24, 2018 public open house event for the Upper/Lower Red Lakes WRAPS project in Kelliher. An information display board was assembled for the meeting. The meeting was well attended and there was constant conversation with attendees during the "open house" portion of the event. Attendees showed great interest in improving/protecting water quality and asked very good questions.

Updates on the WRAPS project and links to completed reports can be found on the Red Lake DNR's website: http://www.redlakednr.org/wraps

Improvements were made to Upper/Lower Red lakes web pages on the www.rlwdwatersheds.org website.

- http://www.rlwdwatersheds.org/2297560-general-info
- http://www.rlwdwatersheds.org/2297608-wrap-info

The MPCA has completed a watershed monitoring assessment report and a stressor identification report for the watershed. Local staff provided input for the stressor identification report.

- https://www.pca.state.mn.us/water/watersheds/upperlower-red-lake
- The Upper/Lower Red Lakes Fluvial Geomorphology Report is now available online at https://wrl.mnpals.net/islandora/object/WRLrepository%3A2957. Some highlights and recommendations from the report include:
    - An undersized and damaged culvert needs to be replace along on Perry Creek.
    - Cattle access has damaged stream banks along Darrigan's Creek. Portions of the channel are over-widened.
    - Grade stabilization is needed along Shotley Brook, North Branch of the Battle River, and the South Cormorant River.
    - Buffers, upland erosion control, and vegetative cover improvements are needed on many reaches due to fine soils.
    - An assessment of road crossings for fish passage is recommended for Perry Creek and Pike Creek.
    - Abandon purposeless ditches in peatlands.
- The Upper/Lower Red Lake Watershed Monitoring and Assessment Report is available online at https://wrl.mnpals.net/islandora/object/WRLrepository%3A740.

Public Education

- District staff helped judge the Franklin Middle School Science Fair.
- District staff presented on water quality parameters at the 15th Annual Red River Basin Water Quality Monitoring Training Session.
- The District continued to support the River Watch program, which is described in more detail in its own section of this report.
- District staff participated in the Pennington County Outdoor Education Day.
- District staff participated in the Northwest Minnesota Water Festival (Warren and Fertile).
- Monthly water quality reports are available online at http://www.redlakewatershed.org/monthwq.html.

- Information about the Red Lake Watershed District, programs, and contacts is available at the www.redlakewatershed.org.
- Watershed-based information (reports, photos, projects, contacts) for the Red Lake River, Upper/Lower Red Lakes, Clearwater River, Thief River, and Grand Marais Creek major watersheds can be found online at: www.rlwdwatersheds.org.
- The District maintains a Facebook page: https://www.facebook.com/Red-Lake-Watershed-District-266521753412008/.
- The RLWD set up a booth at the Polk County Fair in Fertile and the Clearwater County Fair in Bagley. District staff created a display and handouts for the event.

Water Quality Partnerships

The District provides support to other organizations that are working on projects that will improve water quality and habitat within the District's boundaries. That support can come in the form of technical advice/information, financial support, and project administration support. The District considers collaborations to be very important and encourage local governmental units to continue their request for assistance from the District wherever possible.

- The District continued to support the River Watch program.
- District staff participate in Water Resource Advisory Committee (SWCD planning) meetings.
- The Red Lake River Corridor Enhancement Joint Powers Group has been revived.
- The District worked with partners on the Red Lake River 1W1P planning work group and Houston Engineering to update the Red Lake River PTMApp model and create a targeted implementation plan.
- District staff participates in the Polk County AIS Task Force that meets several times each year to discuss appropriation of AIS funds.
- The Board approved the reimbursement of analysis expenses for water quality samples that were collected in Maple Lake by the Maple Lake Improvement District.
- The Board approved a 3-year agreement to pay for the collection of samples by the East Polk SWCD in 9 lakes within the Clearwater River watershed.
- The District agreed to assist the West Polk SWCD for the Red Lake River One Watershed One Plan Ditch Inventory Project, that would identify sites in need of side water inlet culverts within Polk County ditches.
- The Pennington SWCD received funding from BWSR to complete a study of stormwater runoff within the City of Thief River Falls. The District helped collect water quality samples from the outlets of stormwater drainage systems.
- District staff met with United States Fish and Wildlife Service (USFWS) staff to tour wetlands that have been restored by the USFWS in the headwaters of the Lost River and Hill River in Clearwater County.
- The Board approved a contribution of up to $10,000 to the East Polk SWCD for the construction of a water and sediment project in Section 35 of Hill River Township in Polk County. The project will reduce erosion of sediment and nutrients into the Hill River.
- The Board approved $12,500 to help fund the design and installation of side water inlets by the Marshall County SWCD within Thief River watershed.
- The Board approved $7,537.50 in cost-share funding to help the Clearwater SWCD complete 3D aerial imaging of Clearwater County.

2019 Plans

- Final edits to the Thief River Watershed Restoration and Protection Strategy after the public review process
- Red Lake River Watershed Restoration and Protection Strategy public review process
    - Public comment period in April and May 2019
    - Assist MPCA with responses to public comments on draft TMDL/WRAPS reports. Incorporate appropriate public comments into the TMDL and WRAPS reports and prepare documents for final state and USEPA approval.
- Clearwater River Watershed Restoration and Protection Strategy
    - Complete a draft Clearwater River Watershed Total Maximum Daily Load Report
    - Complete a draft Clearwater River Watershed Restoration and Protection Strategy
    - Edit draft WRAPS/TMDL reports using comments from state and local agencies
    - Assist MPCA with responses to public comments on draft TMDL/WRAPS reports.
- Sampling for the District's long-term monitoring program in April, June, August, and October
- Continuous dissolved oxygen monitoring at several locations.
- Blue-green algae monitoring
    - Monitoring the Mud River and Maple Lake for algal toxins
    - Watching for blue-green algae blooms on the Thief River
    - Temperature logging in the Thief River
    - Possible late-summer screening for algal toxins in eutrophic lakes
- Stage and flow monitoring
- Thief River 1W1P process
- Public education
- River Watch
- Assist SWCDs with grant-writing

River Watch

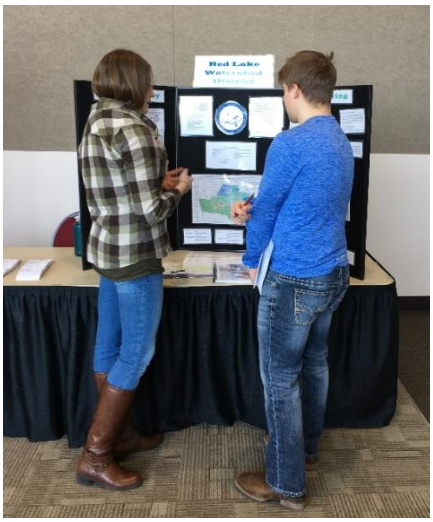
In 2018, five schools located within Red Lake Watershed District's boundaries participated in River Watch by collecting water quality data from their local rivers and streams. Four of which received direct support from RLWD staff, they included: Win-E-Mac, Red Lake County Central, Red Lake Falls and Clearbrook-Gonvick. International Water Institute (IWI) led the remaining school groups in the watershed which included: Sacred Heart of East Grand Forks, MN. River Watch water quality monitoring began late April and ended late October. Approximately 40 different sites were sampled 3 or more times in 2018 by River Watch schools within RLWD boundaries.

River Watch water quality data is part of a data set used by the Minnesota Pollution Control Agency to conduct use assessment. There are some areas within the watershed where River Watch data is the only data collected, making River Watch a very beneficial program for collecting water quality data within the watershed district.

September 2017, IWI held one of three River Watch Kick Offs at the RLWD office in Thief River Falls, MN. Schools were presented with their winter project to be completed by the spring 2018 River Watch Forum. This year's assignment was "River Watch in Action". River Watch teams were asked to create a plan for a service project centered around stewardship of a local waterway. They were asked to write a project proposal and create a video about their service project. Students were given a worksheet to fill out to help brainstorm service project ideas. Kickoff attendees were also treated to a paddle on the Thief and Red Lake Rivers, in large 10-person voyager canoes.

River Watch Forum

The annual River Watch forum was held February 7th, 2018 at the Alerus Center in Grand Forks, ND, where schools from North Dakota and Minnesota were represented. Keynote speaker Brad Durick, a nationally recognized catfish guide on the Red River of the North, talked about the discovers he has made at the bottom of the Red River using the same technology he uses for fishing. There were four 30-minute group rotations which included, illustrated history by Steve Stark; college and career fair (RLWD set up an informational booth about the watershed); virtual sand table, and Q and A with River Watch staff. Red Lake County Centrals service project was to design and install an informational kiosk in People's Park in Oklee, MN. Win-E-Mac proposed setting up an informational booth at Maple Lake, about the dangers of aquatic invasive species and how to prevent them.



River Watch Retreat

2018 was the first annual River Watch Retreat, a 1.5-day overnight retreat for student leaders from throughout the Red River Basin to participate in watershed education activities and leadership development. Two students from Crookston and one student from Red Lake County Central represented the RLWD at the retreat. Students checked in at the University of Minnesota Crookston campus morning of July 17th, after getting settled into their dorm rooms the rest of the day included team building activities, learning the geography of the Red River Basin, RLWD staff lead a hands on introduction to macroinvertebrate sampling and identification which was followed by a kayak trip down the Clearwater River and a grill out for dinner.

Day 2 began with the Leadership Compass activity, students learned about their leadership style and how to positively interact with those who have a different leadership style. Each leadership style has coordinating colors, each student was able to tie-dye a t-shirt with their leadership colors. The rest of the

day consisted of a completive version of River Watch Olympics, a discussion on how to "bring it back to school" and learning about continuous monitoring stations that will be available for schools to use in their local rivers.

Macro Invertebrate Sampling – River Watch

The Red Lake County Central River Watch Team sampled for macroinvertebrates in the Hill River, half a mile northwest of Brooks, MN on October 3rd, 2018. Students learned how to follow invertebrate sampling protocol, identify different habitat types to sample, proper use of equipment for collecting inverts, and sorting and identify invertebrates using a key. Students also learned which invertebrates are indicators of good and bad water quality.

River of Dreams

4th grade classes of the schools that participate in River Watch were invited to participate in the River of Dreams (ROD) education program in 2018. ROD is a cross curriculum watershed education program tailored to elementary students. Students learn watershed terminology and how their subwatershed fits

into the Red River Basin through the reading of Holling Clancy Holling's book *Paddle to the Sea,* and then design and real-life launch of a 14-inch cedar canoe.

The ROD education program had been initiated in the past but never took hold. In 2018 IWI revamped the ROD program with 17 Minnesota schools participating. Those schools that are located within the RLWD boundary include: Clearbrook-Gonvick, Crookston, Grygla, Red Lake County Central, Red Lake Falls, Scared Heart (East Grand Forks), St. Bernards (Thief River Falls), and Win-E-Mac.

Geographic Information Systems (GIS)

Mapping: Maps are created as needed to accommodate requests by District staff. It should be noted that RLWD created maps are not to be used as legal survey maps, they are for reference use only.

PTMApp (Prioritize Target and Measure Application)

PTMApp is a GIS based application that uses LiDAR data and terrain analysis methods to prioritize field scale locations for conservation and best management practices. Generating data to prioritize resources/issues, target specific fields to place CPs and BMPs, and measure water quality improvement by tracking expected nutrient and sediment load reduction to priority resources.

The tool enables users to build prioritized and targeted implementation scenarios, measure the cost-effectiveness of the scenario for improving water quality, and report the results to pursue funds for project implementation.

RLWD, in partnership with Pennington County SWCD was awarded an Accelerated Implantation Grant in 2017 to help with the creation of data for PTMApp, run PTMApp, and evaluate the results in a written report to be presented to the Thief River 1W1P advisory board. Time spent for this project in 2018 was preparing required input data needed to run PTMApp, running PTMApp, and quality checking output data.

Other Watershed Activities

Permits (RLWD Project No. 90)

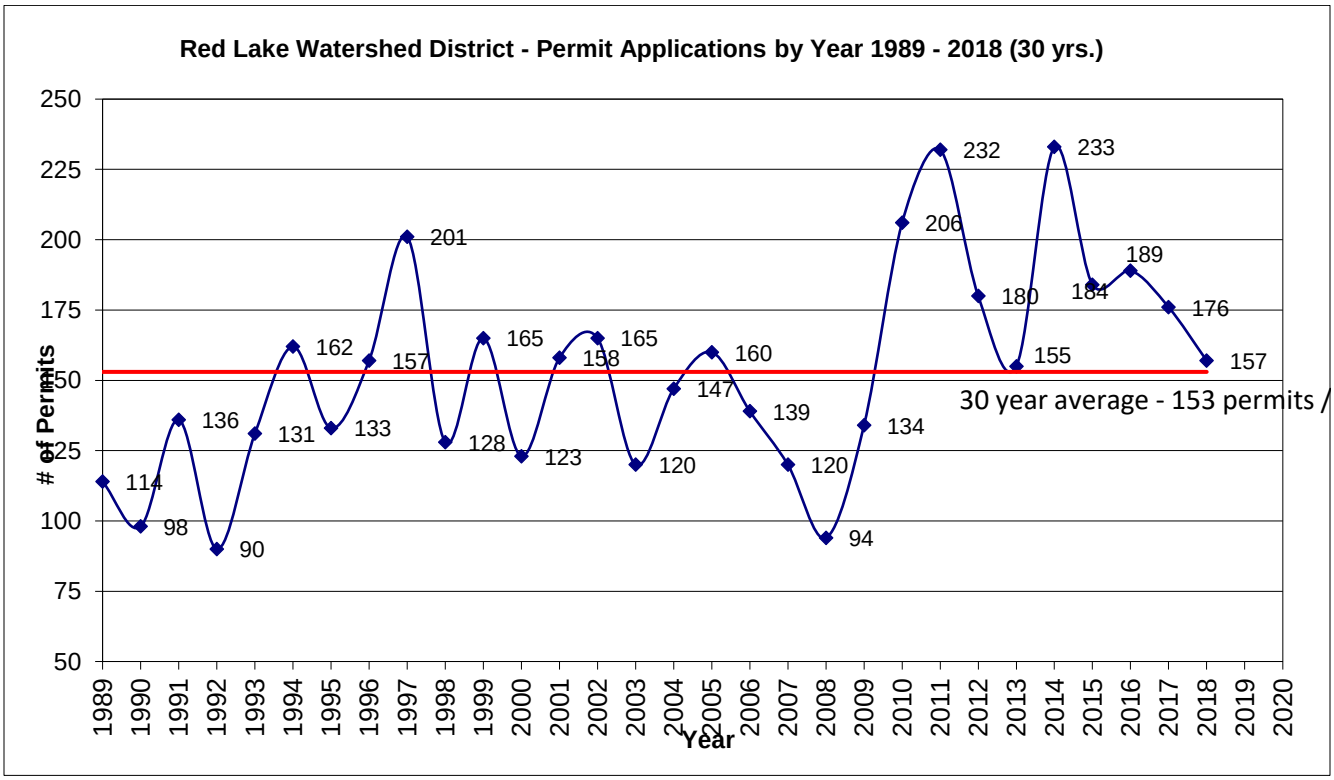
In 2018, a total of 157 permit applications were received, 34 were for subsurface tile projects. This year was the third full year of the District's subsurface drain tile permitting policy. Of the 157 permits received in 2018, four were tabled, and one was denied. The numbers listed below indicate the permits and how they are categorized within our rules for permitting:

- 4 utility
- 5 re-grade
- 90 culvert/bridge
- 21 drainage
- 34 drain tile
- 2 wetlands
- 1 dike

Applicants included state and county highway departments, railroads, townships, cities, utility & pipeline companies, State & Federal agencies, landowners, and private individuals. Permit applications are available on the District web site:www.redlakewatershed.org

Examples of permitted work consisted of road and bridge projects, wetland restorations, erosion control projects, culvert installations, and ditch cleaning. Work associated with permit review may involve, watershed delineations, detailed surveys, drainage area and culvert sizing recommendations, and meetings.

1989 – 2018 Total Permits per year (30 yr. average = 153 per yr.)
(In most recent 10 years = 184 per year)



The District also dealt with permit violations relating to unpermitted/unauthorized work. In those cases, written warnings are sent explaining that if there is a second offense, the responsible person or entity could possibly be subject to an administrative fee, re-storing the work to the original condition, and paying for any engineering and attorney's fees incurred by the District.

The largest issues relating to on-permitted/unauthorized work was installing subsurface drain tile without permits and draining non-benefitted tiled land to a ditch a legal ditch system.

The District, at times, may perform surveys and establish proposed grades/elevations when necessary. Final approval for the work will be discussed with the proper public road authorities, whether it is the state, county or township.

Wild Rice Water Allocation (RLWD Project No. 45)

As a domesticated agricultural grain crop, wild rice is grown in paddies, flooded with water to an average depth of about 1 foot.

Wild rice production along the Clearwater River began in 1968. The water allocation project was petitioned by the growers in 1984. This involves the appropriation of water from the Clearwater River, for production of wild rice on approximately 12,000 acres of paddies. Spring flood storage capacity in the paddies is substantial, and amounts to about 23,000 acre feet, which is equivalent to 1.1 inches of runoff. This storage helps to reduce downstream flood flows/peaks.

When there is substantial flow in the river, no water allocation is necessary. the growers may pump as needed. However, during periods of low flow, the District allocates water to the growers. 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.

Paddies are typically drained during July and August to facilitate harvest. Some growers partially flood paddies in the fall season through freeze up. By doing this, it helps to reduce the need of pumping activity in the spring, at which time, water supplies may not be enough to meet all of their needs.

During most of 2018, flows in the Clearwater River were above the minimum that would initiate allocation. Allocation was necessary for a short time in April in the spring and also in September and October for fall flooding of the paddies. Normal duties include correspondence with growers and recording river levels at various sites. The growers also provide valuable information on river conditions and stream gage data.

Typical pumping station

Wild rice paddy

Harvesting wild rice

Stream Flow & Pool Elevation Monitoring (RLWD Project No. 21)

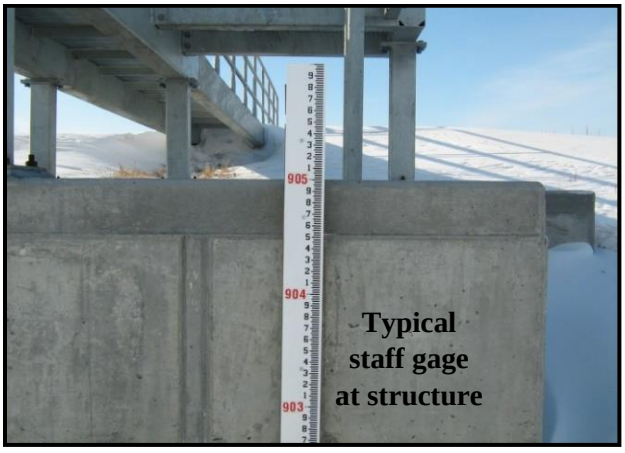
Stream flow monitoring is a vital on-going activity. The District has an active stream gauging program and local volunteers assist us in recording gauge readings and monitoring river conditions during runoff events. Approximately 160 gauges of various types (staff, wire weight, automated) are located throughout the District. Many automated river level gauges within the district can be accessed via the internet and are extremely valuable to obtain "real time" data.

High-water staff gauge – Moose River at Marshall County Highway #54

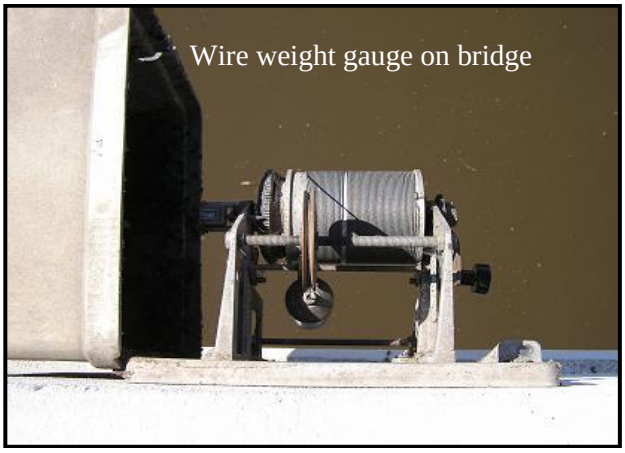
The District deploys autonomous water level loggers in tributary streams and other important locations that are not gauged by state or federal flow monitoring stations. HOBO water level loggers were deployed at 24 sites in 2017. Flow monitoring results can be viewed within monthly water quality reports.

District staff performs flow measurements and continues to develop stage (gauge height) and discharge (flow in cubic feet per second) curves at many locations. This data, in conjunction with records and cooperative efforts from other agencies such as the U. S. Geological Survey (USGS), National Weather Service, and the MnDNR will help everyone better understand drainage and runoff characteristics within the District.

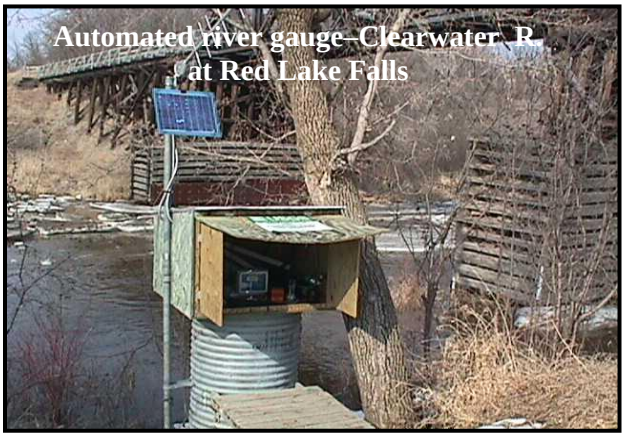
With several years of recorded data, it is increasingly valuable for the Board of Managers and staff, in the operation and maintenance of existing projects and also for the development of potential projects.



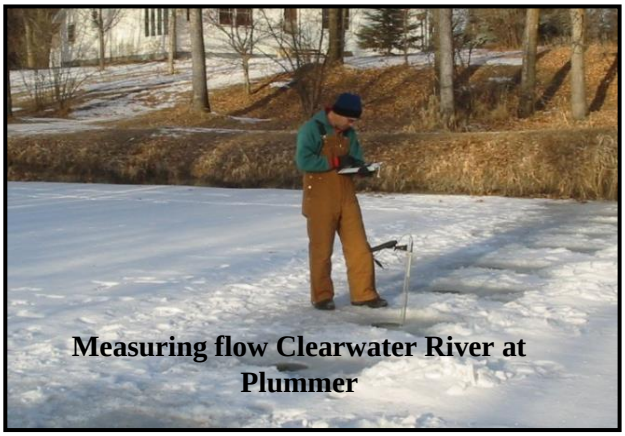
Typical staff gage at structure



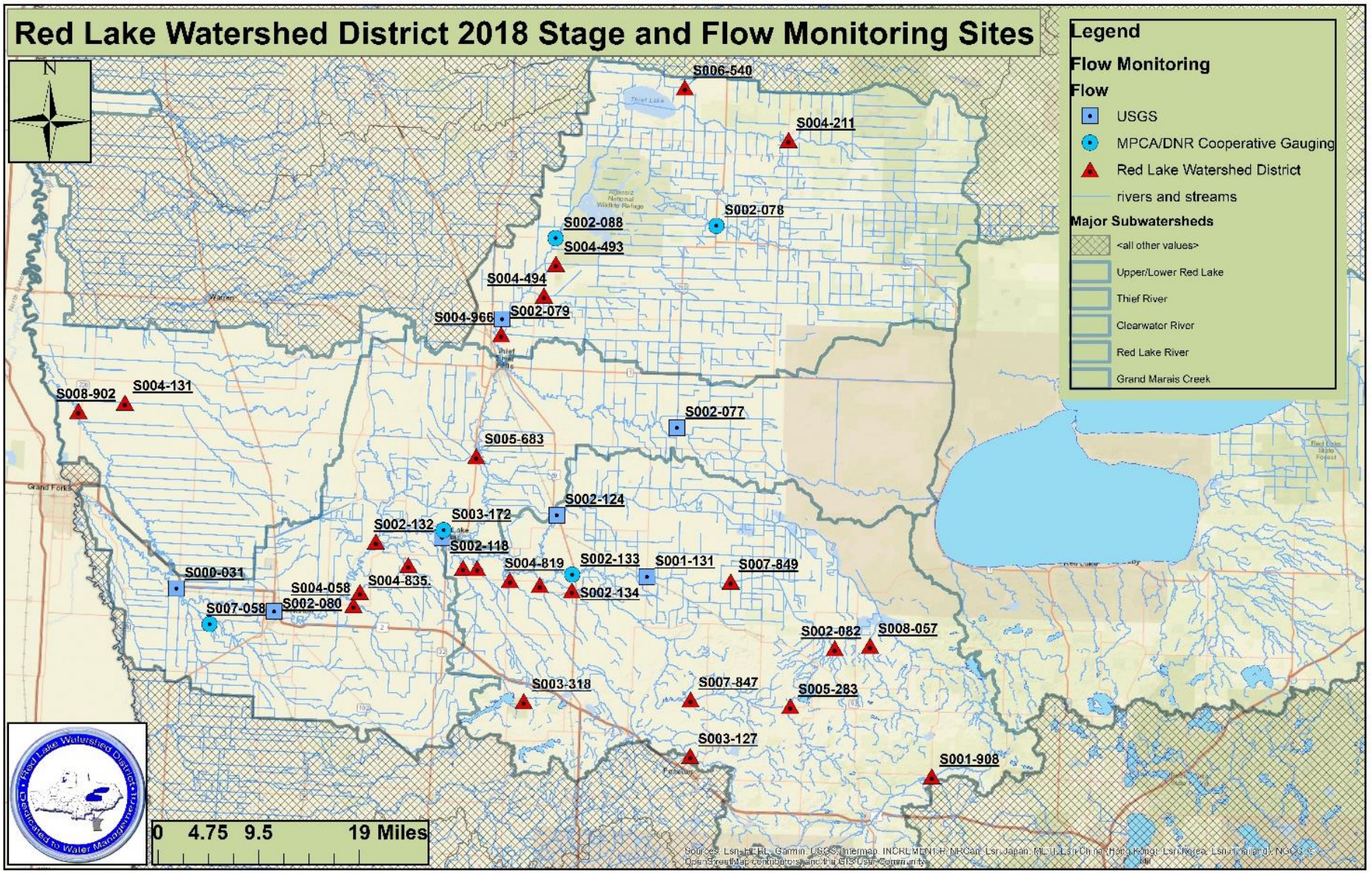
Wire weight gauge on bridge



Automated river gauge–Clearwater R. at Red Lake Falls



Measuring flow Clearwater River at Plummer


Red Lake Watershed District 2018 Stage and Flow Monitoring Sites
Legend
Flow Monitoring
Flow
USGS
MPCA/DNR Cooperative Gauging
Red Lake Watershed District
rivers and streams
Major Subwatersheds
<all other values>
Upper/Lower Red Lake
Thief River
Clearwater River
Red Lake River
Grand Marais Creek
S006-540
S004-211
S002-088
S002-078
S004-493
S004-494
S002-079
S004-966
S008-902
S004-131
S002-077
S005-683
S002-124
S003-172
S002-132
S002-118
S004-819
S002-133
S001-131
S007-849
S000-031
S004-058
S004-835
S007-058
S002-080
S002-134
S002-082
S008-057
S003-318
S007-847
S005-283
S003-127
S001-908
0 4.75 9.5 19 Miles

Snow Surveys

Each year, the District performs snow surveys which usually begin in about the middle to late February and continues through the spring melt on an as needed basis if snow conditions change. Eight sampling sites are monitored throughout the District. The locations of these sites are near impoundment facilities which are designed and operated for floodwater retention.

In 2018, due to the existing weather and snowpack conditions, only one snow survey was obtained. In early March, the average depth of the snow at our sampling sites was 12.7 inches and the water equivalent (moisture content) was 2.83 inches. This was the 7th consecutive year that the spring melt and runoff was basically "non-eventful" in the basin. In mid-April, the landscape was mostly void of snow cover and the surface water runoff was nearly gone.

Measuring Procedure: The depth of the snowpack is measured and a 'core sample' is obtained. The tube and snow core are weighed, and the "water content" of the snow is calculated. Five samples are taken at each site and averaged, for the data.

Obtaining snow depth and core sample

Establishing weight of snow sample to calculate water content

This information is forwarded to the National Weather Service, the North Central River Forecast Center and local officials. This helps them to 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 any frost?
- River ice and ice jams

Fast and slow thaws:

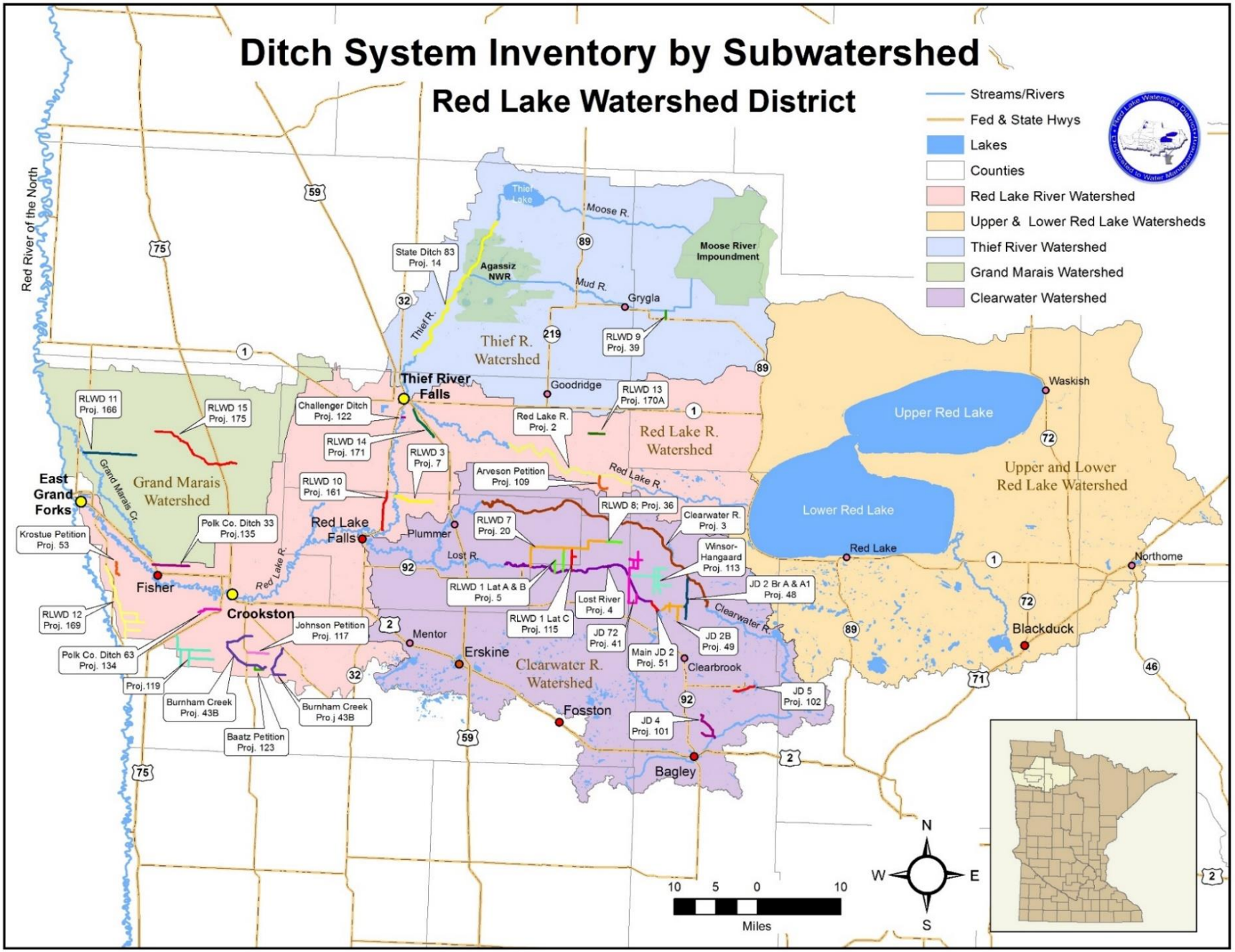
- Gradual or intermittent thawing may reduce the potential for serious flooding, especially in areas with minimal frost depths
- Flood potential usually increases with late season melting, when a rapid melt is more likely; and if additional precipitation occurs during the runoff event.

Maintenance of Drainage Systems

One of the many tasks of the staff at the RLWD is to inspect the legal drainage ditch systems that are under the jurisdiction of the District. Semi-annual or annual inspections are conducted on these legal drainage systems to determine what type of repairs or any maintenance work that may be needed to keep these ditches functioning in good working order. Some of the many things that the District are looking for: erosion around culverts, runoff event water damage to slopes or scouring of the ditch bottom, violation to the rights-of-way or buffer strips, and cattails or other weeds that may need to be sprayed.

Larson Helicopters from Perham, Minnesota was contracted this year to spray the District's ditches. A helicopter is used because a lot of our ditches are not accessible to a ground sprayer due to fences, wet ground, and some of the ditches go cross country with no right of way to drive on. Very limited cattail control was needed on the District ditches and other projects this year. There was only a total of 40.52 miles of ditch that needed to be sprayed for cattails out of the 273.51 miles of ditch that are under the jurisdiction of the Red Lake Watershed District.

Most of the District's ditches have a permanent grass buffer strip, on one or both sides, by state law the buffer strip is required to be a minimum of 16 ½ feet wide but is wider on some ditches. The District is required to inspect these grass strips and maintain them. Maintenance of these buffer strips will consist of mowing the ditch and its right-of-way at least once a year, starting around July 1st, and spraying for any noxious weeds. Four to five contractors are hired each year to mow the many watershed projects and the approximately 162 miles of ditches that have ditch right-of-way.


Ditch System Inventory by Subwatershed
Red Lake Watershed District
Streams/Rivers
Fed & State Hwys
Lakes
Counties
Red Lake River Watershed
Upper & Lower Red Lake Watersheds
Thief River Watershed
Grand Marais Watershed
Clearwater Watershed
Red River of the North
Thief Lake
Moose R.
Moose River Impoundment
Agassiz NWR
Mud R.
Grygla
State Ditch 83 Proj. 14
Thief R.
Thief R. Watershed
RLWD 9 Proj. 39
Thief River Falls
Goodridge
RLWD 13 Proj. 170A
Red Lake R. Proj. 2
Red Lake R. Watershed
Waskish
Upper Red Lake
Upper and Lower Red Lake Watershed
Lower Red Lake
Red Lake
Northome
Blackduck
RLWD 11 Proj. 166
RLWD 15 Proj. 175
Challenger Ditch Proj. 122
RLWD 14 Proj. 171
RLWD 3 Proj. 7
Arveson Petition Proj. 109
RLWD 10 Proj. 161
RLWD 8; Proj. 36
Clearwater R. Proj. 3
Grand Marais Watershed
Grand Marais Cr.
East Grand Forks
Krostue Petition Proj. 53
Polk Co. Ditch 33 Proj.135
Red Lake Falls
Plummer
RLWD 7 Proj. 20
Winsor-Hangaard Proj. 113
Lost R.
Fisher
Red Lake R.
Crookston
RLWD 1 Lat A & B Proj. 5
JD 2 Br A & A1 Proj. 48
Lost River Proj. 4
RLWD 12 Proj. 169
RLWD 1 Lat C Proj. 115
Johnson Petition Proj. 117
Mentor
JD 72 Proj. 41
JD 2B Proj. 49
Clearwater R.
Polk Co. Ditch 63 Proj. 134
Erskine
Main JD 2 Proj. 51
Clearbrook
Clearwater R. Watershed
Proj.119
Burnham Creek Proj. 43B
Burnham Creek Pro j 43B
JD 5 Proj. 102
Fosston
JD 4 Proj. 101
Baatz Petition Proj. 123
Bagley
10 5 0 10
Miles
N
W
E
S

2018 Ditch Mowing		
Project #	System	Contractor
5	Ditch 1 Lat A & B	Olson Construction
7	Ditch 3	Garry Gravel
14	State Ditch 83	Don Lunke
20	Ditch 7	Olson Construction
36	Ditch 8	Olson Construction
39	Ditch 9	Todd Stanley
41	JD 72	Olson Construction
43B	Burnham Creek	Garry Gravel
48	JD 2 Br A & A1	Olson Construction
49	JD 2B	Olson Construction
51	Main JD 2	Olson Construction
53	Krostue Petition	David Shane
109	Arveson Petition	Olson Construction
113	Winsor Hangaard	Olson Construction
115	Ditch 1 Lat C	Olson Construction
117	Kenneth Johnson Petition	Garry Gravel
119	Polk Co Ditch Improvement	Garry Gravel
122	Challenger Ditch	Garry Gravel
123	Baatz Petition	Garry Gravel
134	Polk Co Ditch 63	David Shane
135	Polk Co Ditch 33	David Shane
161	Ditch 10	Garry Gravel
166	Ditch 11	Shane Vanosek
169	Ditch 12	David Shane
170A	Ditch 13	Olson Construction
171	Ditch 14	Les Cota/Andy Anderson
175	Ditch 15	Shane Vanosek

2018 Ditch Spraying by Larson Helicopters, LLC		
Project Number	System	Miles Sprayed
5	Ditch 1	6.04
7	Ditch 3	3.06
20	Ditch 7	11.46
53	Krostue Petition	1.75
117	Johnson Petition	1
122	Challenger Ditch	0.25
134	PCD 63	0.75
135	PCD 33	3.48
161	Ditch 10	1.8
166	Ditch 11	4
169	PCD 108/ PCD 53	3
171	Ditch 14	3.13
171A	TRF FDR	0.8

State Ditch 83, Marshall County (RLWD Project No. 14)

This past year, Lunke Construction Inc. continued to spot clean. Four different locations of bank stabilization done north of County Road 7, on the west side of the ditch, due to erosion and sluffing. One 24" CSP culvert was installed with a flap gate for field drainage. Mowing of this ditch and its right-of-way was completed mid-July.

Construction of SD #83 Costs Since 2003		
Year	**Sites Completed**	**Construction Cost**
2003	5	$ 17,924.00
2004	High water levels	$ 0.00
2005	7	$ 39,033.00
2006	11	$ 36,004.00
2007	16	$ 42,144.00
2008	11	$ 34,450.00
2009	7	$ 41,574.00
2010	High water levels	$ 0.00
2011	6	$ 41,400.00
2012	11	$ 80,480.00
2013	5	$ 30,096.00
2014	High water levels	$ 0.00
2015	4	$ 16,040.00
2016	1	$ 2,615.00
2017	12	$ 55,330.00
2018	4	$ 14,213.00
Total	100	$ 451,303.00

Judicial Ditch No. 5, Clearwater County (RLWD Project No. 102)

A culvert on township road 233rd Avenue was replaced and lowered one foot to an elevation of 1426.0. The ditch was cleaned out about 200 feet upstream of inlet. Contractor Dyrdahl Construction was hired to lower the culvert. Culvert is located between Sections 18 and 17 of Dudley township, Clearwater County.

RLWD Ditch 1 Lateral C, Red Lake and Polk County (RLWD Project No. 115)

A detailed ditch inspection was completed in the fall. This included recording all culverts and their conditions and surveying the ditch bottom. Eleven flap gates are to be replaced, and eight outlets are damaged. The outlets will be cut and flap gates will be reattached to the new outlet. Triple D Construction started work on the culverts and will finish in the spring of 2019 due to a wet fall. To help minimize future damage, culvert markers have been installed on the outlet end of the culvert in the ditch system.

Polk County Ditch Improvement, Polk County (RLWD Project No. 119)

An apron separated from a centerline culvert in Section 6, Hammond Township, Polk County along 340th Street SW. The culvert will be fixed in Spring of 2019 due to a wet fall.

Polk County Ditch 63, Polk County (RLWD Project No. 134)

Construction of the outlet improvement in Section 9 of Andover Township, Polk County, was completed in the fall. Geotextile fabric and Rock Riprap Class III and IV were installed at the outlet of two side inlet pipes. A total of 3.18 acres were reseeded.

RLWD Ditch 10, Red Lake County (RLWD Project No. 161)

Section 18 of Gervais Township, Red Lake County, two flap gates were replaced by Triple D Construction in early October.

RLWD 12, Polk County (RLWD Project No. 169)

On March 17th snow was removed from the NE to the NW corner of Section 18 of Roome Township, Polk County, to help prevent flooding to farmsteads. A beaver dam was located in protected waters in Section 22 of Bygland Township, with a local trapper removing one beaver.

RLWD 15, Polk County (RLWD Project No. 175)

A smashed culvert was cut back, a 3-foot band of used culvert was put back on and installed a new flap gate in NE1/4, Section 31, Angus Township, Polk County.

Acronyms

The following is a list of common acronyms used by the Red Lake Watershed District.

State, Regional, and Local Government	
BWSR	Board of Water and Soil Resources
DNR	Department of Natural Resources
JPB	Joint Powers Board
LCMR	Legislative Commission on Minnesota Rivers
LGU	Local Governmental Unit
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MSTRWD	Middle Snake Tamarac Watershed District
RLWD	Red Lake Watershed District
SWCD	Soil and Water Conservation District
TAC	Technical Advisory Committee
Federal Agencies	
Corps	U.S. Army Corps of Engineers
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FSA	Farm Services Administration
NRCS	Natural Resources Conservation Service
USF&WS	U.S. Fish & Wildlife Service
USGS	U.S. Geological Survey
Organizations	
MAWD	Minnesota Association of Watershed Districts
Programs	
CLWP	Comprehensive Local Water Planning
CRP	Conservation Reserve Program
EQIP	Environmental Quality Incentive Program
FDR	Flood Damage Reduction
RIM	Reinvest in Minnesota Program
WCA	Wetland Conservation Act
SWAG	Surface Water Assessment Grant
WRAP	Watershed Restoration and Protection
WRAPS	Watershed Restoration and Protection Strategy
Terms	
CP	Conservation Practice
BMP	Best Management Practice
GIS	Geographic Information System
GPS	Geographic Positioning System
LIDAR	Laser Imaging Detection and Ranging
NPS	Nonpoint Source Pollution
TMDL	Total Maximum Daily Load
PTMApp	Prioritize Target Measure Application

RED LAKE WATERSHED DISTRICT
THIEF RIVER FALLS, MINNESOTA

AUDITED FINANCIAL STATEMENTS

FOR THE YEAR ENDED DECEMBER 31, 2018

BradyMartz

INDEPENDENT AUDITOR'S REPORT

Board of Managers
Red Lake Watershed District
Thief River Falls, Minnesota

Report on the Financial Statements

We have audited the accompanying modified cash basis financial statements of the governmental activities, each major fund, and the remaining fund information of the Red Lake Watershed District as of and for the year ended December 31, 2018, and the related notes to the financial statements, which collectively comprise the District's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with the modified cash basis of accounting described in Note 1; this includes determining that the modified cash basis of accounting is an acceptable basis for the preparation of the financial statements in the circumstances. Management is also responsible for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express opinions on these financial statements based on our audit. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes

evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinions.

Opinions

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective modified cash basis financial position of the governmental activities, each major fund, and the remaining fund information of the Red Lake Watershed District, as of December 31, 2018, and the respective changes in modified cash basis financial position for the year then ended in conformity with the basis of accounting described in Note 1.

Basis of Accounting

We draw attention to Note 1 of the financial statements, which describes the basis of accounting. The financial statements are prepared on the modified cash basis of accounting, which is a basis of accounting other than accounting principles generally accepted in the United States of America. Our opinions are not modified with respect to the matter.

Other Matters

Other Information

Our audit was conducted for the purpose of forming opinions on the financial statements that collectively comprise the Red Lake Watershed District's basic financial statements. The official directory, management's discussion and analysis, budgetary comparison schedule, statement of receipts and disbursements and changes in fund balance, statement of direct expenditures by classification, and statement of receipts and disbursements and changes in amounts due to other governmental units as shown in the table of contents are presented for purposes of additional analysis and are not a required part of the basic financial statements.

The budgetary comparison schedule, statement of receipts and disbursements and changes in fund balance, statement of direct expenditures by classification, and statement of receipts and disbursements and changes in amounts due to other governmental units are the responsibility of management and were derived from and relate directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the budgetary comparison schedule and the supplementary statements are fairly stated in all material respects in relation to the financial statements as described in the basis of accounting described in Note 1.

The official directory and the management's discussion and analysis section have not been subjected to the auditing procedures applied in the audit of the basic financial statements, and accordingly, we do not express an opinion or provide any assurance on them.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated February 16, 2019 on our consideration of the Red Lake Watershed District's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to solely describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion the effectiveness of the District's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering Red Lake Watershed District's internal control over financial reporting and compliance.

Brady Martz

BRADY, MARTZ & ASSOCIATES, P.C.
THIEF RIVER FALLS, MINNESOTA

February 16, 2019

RED LAKE WATERSHED DISTRICT
MANAGEMENT'S DISCUSSION AND ANALYSIS
FOR THE YEAR ENDED DECEMBER 31, 2018

Our discussion and analysis of the Red Lake Watershed District's financial performance provides an overview of the District's financial activities for the fiscal year ended December 31, 2018, within the limitations of the District's modified cash basis of accounting. Please read it in conjunction with the District's financial statements that begin on page 14.

FINANCIAL HIGHLIGHTS

- The District's governmental funds total revenues exceeded total expenditures, on the modified cash basis of accounting, by $127,775 for the year ended December 31, 2018.
- The general fund showed a decrease on the modified cash basis fund balance in the amount of $84,691.
- The District's General Fund ended the year with a fund balance of $242,810.
- The District's combined fund balance at the close of the current year was $4,739,851.

Overview of the Financial Statements

This annual report is presented in a format consistent with the presentation requirements of the Governmental Accounting Standards Board (GASB) Statement No. 34, as applicable to the District's modified cash basis of accounting.

Report Components

This annual report consists of five parts as follows:

Government—Wide Financial Statements: The Statement of Net Cash Position and the Statement of Activities Arising from Cash Transactions on pages 14 and 15 provide information about the activities of the District government-wide (or "as a whole") and present a longer-term view of the District's finances.

Fund Financial Statements: Fund financial statements (starting on page 16) focus on the individual parts of the District government. Fund financial statements also report the District's operations in more detail than the governmental-wide statements by providing information about the District's most significant ("major") funds. For governmental activities, these statements tell how these services were financed in the short term as well as what remains for future spending.

Notes to the Basic Financial Statements: The notes to the basic financial statements are an integral part of the government-wide and fund financial statements and provide expanded explanation and detail regarding the information reported in the statements.

Other Supplementary Information: This Management's Discussion and Analysis and the General Fund Budgetary Comparison Schedule (starting on page 32) represent other financial information. Such information provides users of this report with additional data that supplements the government-wide statements, fund financial statements, and notes (referred to as "the basic financial statements").

Other Supplementary Statements: This part of the annual report (starting on page 34) includes other supplemental financial information which is provided to address certain specific needs of various users of the District's annual report. These statements and schedules include individual Fund Statements for Governmental units.

Basis of Accounting

The District has elected to present its financial statements on a modified cash basis of accounting. This modified cash basis of accounting is a basis of accounting other than accounting principles generally accepted in the United States of America. 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 this cash basis of accounting, certain assets and their related revenues (such as accounts receivable and revenue for billed or provided services not yet collected) and certain liabilities and their related expenses (such as accounts payable and expenses for goods or services received but not yet paid, and accrued expenses and liabilities) are not recorded in the basic 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.

Reporting the District as a Whole

The District's Reporting Entity Presentation

This annual report includes all activities for which the Red Lake Watershed District Board of Managers is fiscally responsible. These activities, defined as the District's reporting entity, are operated within separate legal entities that make up the primary government. The District has no reportable component units.

The Government-Wide Statement of Net Cash Position and the Statement of Activities Arising from Cash Transactions

Our financial analysis of the District as a whole begins on page 7. The government-wide financial statements are presented on pages 14 and 15. One of the most important questions asked about the District's finances is, "Is the District as a whole better off or worse off as a result of the year's activities?" The Statement of Net Cash Position and the Statement of Activities Arising from Cash Transactions report information about the District as a whole and about its activities in a way that helps answer this question. These statements include all of the District's assets and liabilities resulting from the use of the modified cash basis of accounting.

These two statements report the District's net cash position and changes in them. Keeping in mind the limitations of the modified cash basis of accounting, you can think of the District's net cash position—the difference between assets and liabilities—as one way to measure the District's financial health or financial position. Over time, increases or decreases in the District's net cash position are one indicator of whether its financial health is improving or deteriorating. You will need to consider other nonfinancial factors, however, such as changes in the District's property tax base and the condition of the District's infrastructure, to assess the overall health of the District.

In the Statement of Net Cash Position and the Statement of Activities Arising from Cash Transactions, the District has one type of activity:

Government Activities - The District's basic services are reported here, including the general administration and capital projects. Property taxes, state aids, and state and federal grants finance most of these activities.

The Fund Financial Statements

The fund financial statements begin on page 16 and provide detailed information about the most significant funds. Some funds are required to be established by state law and by bond covenants.

However, the Board of Managers establishes certain other funds to help it control and manage money for particular purposes or to show that it is meeting legal responsibilities for using certain taxes, grants, and other money. The District's two kinds of funds—governmental and fiduciary—use different accounting approaches.

Governmental funds— Most of the District's basic services are reported as governmental funds, which focus on how money flows into and out of those funds and the balances left at year-end that are available for spending. These funds report the acquisition of capital assets and payments for debt principal as a detailed short-term view of the District's general government operations and the basic services it provides. Governmental fund information helps you to determine (through a review of changes to fund balance) whether there are more or fewer financial resources that can be spent in the near future to finance the District's programs.

The District considers the General Fund, the Special Revenue Fund, and the Capital Project Fund as significant or major governmental funds. There are no other funds.

Fiduciary funds— These fund types are often used to account for assets that are held in a trustee or fiduciary capacity such as pension plan assets, assets held per trust agreements, and similar arrangements.

A FINANCIAL ANALYSIS OF THE DISTRICT AS A WHOLE

Net Cash Position

The District's combined government-wide Net Position, resulting from modified cash basis transactions increased by $862,888 between fiscal years 2018 and 2017. As noted earlier, net position - 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 $20,046,010 at December 31, 2018, which is an increase of $862,888 over the year ended December 31, 2017; which is more than a 4.50% increase over the prior year.

A portion of Red Lake Watershed District's net position ($15,306,159 or 76.36%) reflects its investment in capital assets. Red Lake Watershed District uses these capital assets to provide services to citizens; consequently, these are not available for future spending.

A portion of Red Lake Watershed District's net position ($129,298) reflects a portion of net position that is restricted for ditch maintenance.

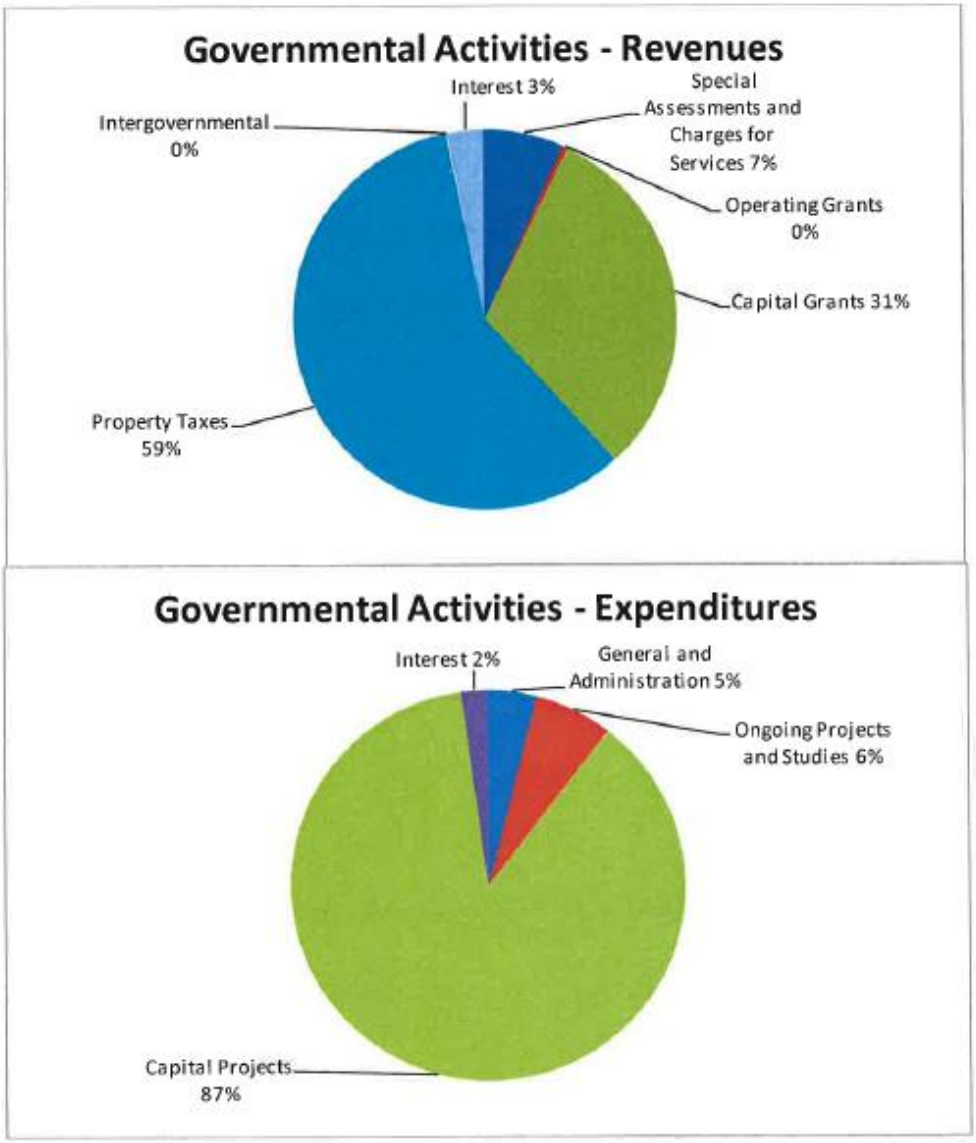
	Governmental Activities		Change
	2018	2017	17-18
ASSETS			
Total Current Assets	$ 4,739,851	$ 4,612,076	$ 127,775
Net Capital Assets	15,306,159	14,571,046	735,113
Total Assets	$ 20,046,010	$ 19,183,122	$ 862,888
Net Position	$ 20,046,010	$ 19,183,122	$ 862,888

Changes in Net Cash Position

For the years ended December 31, 2018 and 2017, Net Position of the primary government (resulting from modified cash basis transaction) changed as follows:

	Governmental Activities		Change
	2018	2017	17-18
Revenues			
Program Revenues			
Special Assessments and Charges for Services	$ 222,944	$ 235,043	$ (12,099)
Operating Grants	16,060	16,060	-
Capital Grants	1,025,877	950,015	75,862
General Revenues			
Property Taxes	1,939,947	1,468,953	470,994
Intergovernmental	1,805	1,805	-
Interest	104,215	65,441	38,774
Total Revenues	3,310,848	2,737,317	573,531
Expenses			
General and Administration	98,473	148,788	(50,315)
Ongoing Projects and Studies	158,237	268,581	(110,344)
Capital Projects	2,139,851	1,655,164	484,687
Allocated Interest	51,399	18,167	33,232
Total Expenses	2,447,960	2,090,700	357,260
Increase in Net Position	862,888	646,617	216,271
Net Position - January 1	19,183,122	18,536,505	646,617
Net Position - December 31	$ 20,046,010	$ 19,183,122	$ 862,888

Below are specific graphs which provide comparisons of the governmental activities revenues and expenditures for the year ended December 31, 2018:



Governmental Activities

To aid in the understanding of the Statement of Activities Arising from Cash Transactions on page 15, some additional explanation is given. Of particular interest is the format that is significantly different from a typical Statement of Revenues, Expenses, and Changes in Fund Balance. You will notice that expenses are listed in the first column, with revenues from that particular program reported to the right. The result is a Net (Expense)/Revenue. This type of format highlights the relative financial burden of each of the functions on the District's taxpayers. It also identifies how much each function draws from the general revenues or if it is self-financing through fees and grants or contributions. All other governmental revenues are reported as general. It is important to note that all taxes are classified as general revenue, even if restricted for a specific purpose.

A FINANCIAL ANALYSIS OF THE DISTRICT'S FUNDS

General Fund Budgetary Highlights

For the year ended December 31, 2018, General Fund expenditures were $60,853 under final budget. The budget was not amended during the year.

CAPITAL ASSET AND DEBT ADMINISTRATION

Capital Assets—Modified Cash Basis

At December 31, 2018, the District had approximately $15,306,159 (net of accumulated depreciation) invested in capital assets. 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.

	2018			2017
	Cost	Accumulated Depreciation	Cost - Less Accumulated Depreciation	Cost - Less Accumulated Depreciation
Building and Improvements	$ 775,594	$ 319,310	$ 456,284	$ 478,790
Infrastructure Improvements	12,601,966	3,361,999	9,239,967	9,740,111
Engineering Equipment	400,130	353,789	46,341	67,292
Office Equipment	179,004	144,367	34,637	35,473
Land and Permanent Easements	3,681,959	-	3,681,959	3,018,474
Construction in Progress	1,846,971	-	1,846,971	1,230,906
	$ 19,485,624	$ 4,179,465	$ 15,306,159	$ 14,571,046

ECONOMIC FACTORS AND NEXT YEAR'S BUDGET

As noted below, construction will begin on several projects as well as work on several water quality grants, flow through-grants, cooperative projects with other agencies, and investigation into a flood control project.

OTHER ITEMS OF INTEREST

Water Quality grants from the State of Minnesota, Minnesota Pollution Control Agency, for Surface Water Assessment Grants, Watershed Assessment Projects (watershed based TMDL), are ongoing for Clearwater River, Red Lake River, Thief River, and Grand Marais Creek. Expenses over and above the grants are expended from the Capital Projects Fund.

Red Lake Watershed District entered into a grant agreement with the Natural Resource Conservation Service for the study of projects which qualify for the Regional Conservation Partnership Programs (RCPP). The grant for the Pine Lake Watershed funded 70% of the cost of the study, not to exceed $500,000, which included a study for the completion of a Watershed Protection Plan. Development of the plan continued into 2018 but due to various concerns with permitting agencies and costs associated with delays in moving forward, all funds earmarked for the plan were spent without a final plan being developed. It was estimated that an additional $200,000 was needed to complete the plan. The District staff and consultant met with the Red River Retention Authority requesting additional cost share but were denied. The Board directed staff to gather additional information from the permitting agencies to determine if a final plan could be completed and what timeline it would take. A final decision on continuing the plan will be made in 2019.

Red Lake Watershed District entered into a second grant agreement with the Natural Resource Conservation Service for the study of projects which qualify for the Regional Conservation Partnership Programs (RCPP). The grant for the Four-Legged Lake Watershed funded 70% of the planning process, not to exceed $265,088, which will include a study for the completion of a Watershed Protection Plan. After various efforts to get the plan completed with obvious issues moving forward, the Red Lake Watershed District ended this grant without completing the plan. NRCS is presently evaluating the completed portion of the plan and will determine what actions will have to take place to close the grant and reissue the remaining dollars to the Red River Retention Authority.

Red Lake Watershed District and local partners entered into a grant agreement with the Board of Water and Soil Resources (BWSR) to complete a Pilot Project referred to the public as "*Red Lake River One Watershed One Plan*". The grant, administered by Pennington Soil and Water Conservation District in the amount of $127,266, was for the development of a comprehensive ten-year plan for the Red Lake River Watershed. The planning and writing of the grant were completed in 2016 with final approval by the BWSR Board in July of 2017. In 2018, funding through the BWSR Clean Water Fund in the amount of $677,551 was awarded to this planning region to complete various projects identified in the workplan approved by the BWSR. In 2019 and 2020, the District and its planning partners, will complete the proper steps to assure the approved projects are constructed.

Red Lake Watershed District and local partners entered into a grant agreement with the Board of Water and Soil Resources (BWSR) to complete a Pilot Project referred to the public as "*Thief River One Watershed One Plan*". The planning process was started in late 2017 and continued through 2018. It is expected that final draft plan will be completed in early summer 2019, public comment period and hearing completed with final approval by BWSR in late 2019.

As part of a $38,700 grant agreement applied for and approved by the Board of Water and Soil Resources, the Red Lake Watershed District developed a Drainage Database which allowed for better record maintenance with Inspection Plans and Reports. This project was finalized by December 31, 2018 and will be reconciled by BWSR in early 2019.

Red Lake Watershed District approved by motion to proceed with the investigation of developing a flood damage reduction project referred to as the Black River Impoundment. In late 2016, the RLWD has entered into agreements with three landowners and preliminary engineering was ordered. In June of 2017, options with landowners were exercised with land purchases and easements completed. In 2018, final engineering was completed and permitting was started along with an investigation of creating Wetland Banking credits within the template of the proposed project. In early 2018, the District was informed that no State funding was earmarked for this project. The Board of Managers decided that even though no funding was obtained, the RLWD would proceed with exercising the step submittals to the Red River Watershed Management Board to secure their funding for the project. The Board also elected to proceed with a public hearing which was held August 8, 2018. The District will continue to secure State cost share and to continue through the permitting process so should funding become available, project will be ready for construction.

Late 2017, the Red Lake Watershed District was petitioned by the City of Thief River Falls and Pennington County to investigate the drainage issues along the westside of the City. HDR Engineering, Inc. was hired to complete an analysis for the "Thief River Falls Westside Flood Damage Reduction Project". In 2018, the District held various landowner meetings as well as coordination with the City of Thief River Falls, Pennington County and Minnesota Department of Transportation to complete a preliminary design for the proposed project. The District officially labeled this project "Thief River Falls Westside Flood Damage Reduction Project No. 178." On September 8, 2018, the District signed a grant agreement with the State of Minnesota in the amount of $1,500,000 to assist with 50% of the cost for this project. On December 10, 2018, the RLWD was informed that the District was approved for a $400,000 Local Partnership Grant from the MnDOT. This was very good news as the Watershed District moves forward in completing the funding package for this project. It is the hopes of the District that a public hearing will be held on this project early spring 2019 with construction starting in July.

March of 2017, the Red Lake Watershed District and West Polk Soil and Water Conservation District partnered in a $103,000 Board of Water and Soil Resource Conservation Legacy Grant. The grant was used to complete various items that would stabilize the outlet channel for a public drainage system referred to the RLWD as Polk County Ditch 63 Improvement, Project 134. The project was substantially completed the fall of 2017 with minor revisions to the project completed in 2018.

In March of 2018, the Red Lake Watershed District and Agassiz National Wildlife Refuge applied for and received a $242,000 MnDNR Conservation Partnership Grant. This grant will assist Agassiz National Wildlife Refuge in completing a three-phase project, designed to establish and enhance native wildlife habitat and increase biodiversity in portions of the refuge. Phase I of the grant, which included cattail spraying to approximately 1,700 acres of wetland complex, was completed in August of 2018. Phase II which included the rehabilitation of the Thief Bay Water Control Structure was completed in September of 2018.

It should also be noted that in 2017 the District received two legal drainage petitions in Polk County. One petition was for the establishment of a public drainage system referred to as Red Lake Watershed District Ditch #16, Project No. 177 and the other petition was for the improvement to Polk County Ditch #39, Project No. 179. In 2018, a preliminary hearing was had on Project No. 177 at which time viewers were hired. In 2019, it is assumed that viewing will be completed on Project 177 along with final hearing and construction. It is assumed that Preliminary Hearing, Viewing and Final Hearing will be held with construction either starting late 2019 or early 2020.

CONTACTING THE DISTRICT'S FINANCIAL MANAGEMENT

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

RED LAKE WATERSHED DISTRICT
STATEMENT OF NET CASH POSITION
AS OF DECEMBER 31, 2018

	Total
Assets	
Current Assets:	
Petty Cash	$ 100
Pooled Cash and Investments	4,739,751
Total Current Assets	4,739,851
Capital Assets:	
Property and Equipment	19,485,624
Less: Accumulated Depreciation	(4,179,465)
Net Capital Assets	15,306,159
Total Assets	20,046,010
Net Position	
Investment in Capital Assets	15,306,159
Restricted for Ditch Maintenance	129,298
Unrestricted	4,610,553
Total Net Position	$ 20,046,010

See Notes to the Basic Financial Statements

RED LAKE WATERSHED DISTRICT
STATEMENT OF ACTIVITIES ARISING FROM CASH TRANSACTIONS
FOR THE YEAR ENDED DECEMBER 31, 2018

Functions/Programs	Expenses			Program Receipts and Sources			Net Cash Sources (Uses) and Changes in Net Cash Position
	Direct	Allocated Salaries and Overhead	Total	Special Assessments and Charges For Services	Operating Grants and Contributions	Capital Grants and Contributions	Governmental Activities
Governmental Activities:							
General and Administrative	$ (767,115)	$ 668,642	$ (98,473)	$ 7,938	$ -	$ -	$ (90,535)
Ongoing Projects and Studies	(99,624)	(58,613)	(158,237)	173,972	16,060	-	31,795
Capital Projects	(1,529,822)	(610,029)	(2,139,851)	41,034	-	1,025,877	(1,072,940)
Allocated Interest	(51,399)	-	(51,399)	-	-	-	(51,399)
Total Governmental Activities	$ (2,447,960)	$ -	$ (2,447,960)	$ 222,944	$ 16,060	$ 1,025,877	$ (1,183,079)
General Receipts:							
Tax Levies							$ 1,939,947
Intergovernmental (not restricted to specific programs)							
State MV, Disparity Reduction Credits, and PERA Aid							1,805
Allocated Interest							104,215
Total General Receipts							2,045,967
Change in Net Position							862,888
Net Position - Beginning							19,183,122
Net Position - Ending							$ 20,046,010

See Notes to the Basic Financial Statements

RED LAKE WATERSHED DISTRICT
STATEMENT OF BALANCES ARISING FROM CASH TRANSACTIONS – GOVERNMENTAL FUNDS
AS OF DECEMBER 31, 2018

ASSETS	General Fund	Special Revenue Fund	Capital Project Fund	Total Governmental Funds
Petty Cash	$ 100	$ -	$ -	$ 100
Pooled Cash and Investments	242,710	129,298	4,367,743	4,739,751
Total Assets	$ 242,810	$ 129,298	$ 4,367,743	$ 4,739,851
FUND BALANCES				
Restricted for Ditch Maintenance	$ -	$ 129,298	$ -	$ 129,298
Committed for Capital Projects	-	-	4,367,743	4,367,743
Unassigned	242,810	-	-	242,810
Total Fund Balances	$ 242,810	$ 129,298	$ 4,367,743	$ 4,739,851

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

Total Fund Balance per Statement of Balances Arising from Cash Transactions, from above		$ 4,739,851
When capital assets (land, building, equipment and infrastructure) that are to be used in governmental activities are purchased or constructed, the cost of those assets are reported as expenditures in governmental funds. However, the statement of net cash position includes those capital assets among the assets of the District as a whole.		
	Cost of Capital Assets	19,485,624
	Accumulated Depreciation	(4,179,465)
Total Net Position		$ 20,046,010

See Notes to the Basic Financial Statements

RED LAKE WATERSHED DISTRICT
STATEMENT OF CASH RECEIPTS, DISBURSEMENTS, AND CHANGES IN CASH FUND BALANCES – GOVERNMENTAL FUNDS
FOR THE YEAR ENDED DECEMBER 31, 2018

RECEIPTS	General Fund	Special Revenue Fund	Capital Project Fund	Total Governmental Funds
Property Taxes	$ -	$ -	$ 1,939,947	$ 1,939,947
Special Assessments	-	166,634	-	166,634
Intergovernmental:				
Federal	-	60	243,010	243,070
State	1,805	16,000	718,686	736,491
Local	-	-	64,181	64,181
Other:				
Miscellaneous	7,938	7,338	41,034	56,310
Allocated Interest	8,848	3,441	91,926	104,215
Total Receipts	18,591	193,473	3,098,784	3,310,848
DISBURSEMENTS				
General and Administrative	98,472	-	-	98,472
Ongoing Projects and Studies	-	158,237	-	158,237
Capital Projects	-	-	2,874,964	2,874,964
Allocated Interest	4,810	1,641	44,949	51,400
Total Disbursements	103,282	159,878	2,919,913	3,183,073
Net Change in Fund Balances	(84,691)	33,595	178,871	127,775
FUND BALANCE JANUARY 1	327,501	95,703	4,188,872	4,612,076
FUND BALANCE DECEMBER 31	$ 242,810	$ 129,298	$ 4,367,743	$ 4,739,851

See Notes to the Basic Financial Statements

RED LAKE WATERSHED DISTRICT
RECONCILIATION OF CHANGES IN FUND BALANCES OF GOVERNMENTAL FUNDS TO THE STATEMENT OF ACTIVITIES
FOR THE YEAR ENDED DECEMBER 31, 2018

Net Change in Fund Balances - Total Governmental Funds	$	127,775
Governmental funds report capital outlay as expenditures, while governmental activities report depreciation expense allocating those expenditures over the life of the asset:		
Capital Additions		1,291,686
Depreciation Expense		(556,573)
Change in Net Position - Governmental Activities	$	862,888

See Notes to the Basic Financial Statements

RED LAKE WATERSHED DISTRICT
STATEMENT OF NET CASH POSITION – FIDUCIARY FUNDS
AS OF DECEMBER 31, 2018

	Agency Funds
ASSETS	
Cash	$ -
Total Assets	$ -
LIABILITIES AND FUND BALANCES	
Due To Red River Watershed Management Board	$ -
Total Liabilities	$ -

See Notes to the Basic Financial Statements

NOTE 1 SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The Red Lake Watershed District, (the "District"), was established under the Minnesota Watershed Act as an agency of the State of Minnesota. The purpose of the District is to carry out conservation of the natural resources of the State of Minnesota through land utilization, flood control, and other needs, upon sound scientific principles for the protection of the public health and welfare and the provident use of natural resources. The District serves an area in Northwestern Minnesota and includes all of Red Lake County and parts of the following counties: Beltrami, Clearwater, Itasca, Koochiching, Mahnomen, Marshall, Pennington, Polk, and Roseau. The District is governed by the Board of Managers, which is composed of seven members appointed by the county boards in accordance with Minnesota Statutes.

As discussed further in Note 1C, these financial statements are presented on a modified cash basis of accounting. This basis of accounting differs from accounting principles generally accepted in the United States of America (GAAP). Generally accepted accounting principles include all relevant Governmental Accounting Standards Board (GASB) pronouncements.

A. FINANCIAL REPORTING ENTITY

The financial statements of the District include all organizations, funds and account groups over which the District's Board exercises significant influence over and, or is financially accountable for organizations for which the nature and significance of their relationship with the District is such that exclusion would cause the Red Lake Watershed District's financial statements to be misleading. In addition, there are no component units as defined in Governmental Accounting Standards Board Statement 61 which are included in the District's reporting entity.

B. BASIS OF PRESENTATION

GOVERNMENT-WIDE FINANCIAL STATEMENTS

The Statement of Net Cash Position and Statement of Activities Arising from Cash Transactions display information about the reporting government as a whole. They include all funds of the reporting entity except for fiduciary funds. The statements distinguish between governmental and business-type activities. The District has only governmental activities which are generally financed through taxes, intergovernmental revenues, and other non-exchange revenues; because of this, all of the District's activities are reported as governmental activities.

FUND FINANCIAL STATEMENTS

Fund financial statements of the reporting entity are organized into funds, each of which is considered to be a separate accounting entity. Each fund is accounted for by providing a separate set of self-balancing accounts that constitutes its assets, liabilities, fund equity, revenues, and expenditures/expenses. Funds are typically organized into three major categories: governmental, fiduciary and proprietary. The District currently has no proprietary funds.

An emphasis is placed on major funds within the governmental categories. A fund is considered major if it is the primary operating fund of the District or meets the following criteria:

a. Total assets, liabilities, revenues, or expenditures/expenses of the individual governmental or enterprise fund are at least 10% of the corresponding total for all funds of that category or type, AND
b. Total assets, liabilities, revenues, or expenditures/expenses of the individual governmental fund or enterprise fund are at least 5% of the corresponding total for all governmental and enterprise funds combined.

The funds of the financial reporting entity are described below and are all considered major programs for financial statement purposes.

Governmental Funds

General Fund

The General Fund is the primary operating fund of the District and always classified as a major fund. It is used to account for all activities except those legally or administratively required to be accounted for in other funds.

Special Revenue Fund

The special revenue fund is used to account for the proceeds of specific revenue sources (other than capital projects) where the expenditures are legally restricted for purposes specified in the grant or project agreements. The reporting entity includes the special revenue fund as a major fund.

Capital Projects Fund

The Capital Projects Fund is used to account for resources committed for the acquisition, construction and maintenance of specific capital projects or items. The reporting entity includes the capital projects fund as a major fund.

Fiduciary Funds

Agency Funds

Agency funds account for assets held by the District in a purely custodial capacity. The reporting entity includes one agency fund. Since agency funds are custodial in nature (i.e., assets equal liabilities), they do not involve the measurement of results of operations. The agency fund is as follows:

Fund	Brief Description
Red River Water Management Board	Property Taxes are levied by the District and submitted to the Management Board.

C. MEASUREMENT FOCUS AND BASIS OF ACCOUNTING

Measurement focus is a term used to describe "how" transactions are recorded within the various financial statements. Basis of accounting refers to "when" transactions are recorded regardless of the measurement focus applied.

MEASUREMENT FOCUS

In the government-wide Statement of Net Cash Position and Statement of Activities Arising from Cash Transactions, governmental activities are presented using the economic resources measurement focus, within the limitations of the modified cash basis of accounting as defined below.

In the fund financial statements, the "current financial resources" measurement focus or the "economic resources" measurement focus, as applied to the modified cash basis of accounting, is used as appropriate.

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.

BASIS OF ACCOUNTING

In the government-wide Statement of Net Cash Position and Statement of Activities Arising from Cash Transactions and the fund financial statements, governmental activities are presented using a modified cash basis of accounting. This basis recognized assets, liabilities, net position/fund equity, revenues, and expenditures/expenses when they result from cash transactions with the provisions for capital assets, deferred inflows of resources, deferred outflows of resources, and debt and depreciation in the government wide statements. This basis is a comprehensive basis of accounting other than accounting principles generally accepted in the United States of America.

If the District utilized the basis of accounting recognized as generally accepted, the fund financial statements for governmental funds would use the accrual basis of accounting. All government-wide financials would be presented on the accrual basis of accounting.

D. ASSETS, LIABILITIES, AND EQUITY

CASH AND CASH EQUIVALENTS

For the purpose of financial reporting, "cash and cash equivalents" includes all demand and savings accounts and certificates of deposit or short-term investments with an original maturity of one year or less. Cash balances from all funds are pooled and invested to the extent available in authorized investments authorized by Minnesota statutes. Earnings from such investments are allocated to the respective funds on the basis of average cash balance participation by each fund. Funds with deficit averages are charged with the investment earnings lost in financing the deficits.

CAPITAL ASSETS

The District's modified cash basis of accounting reports capital assets resulting from cash transactions and reports depreciation where appropriate.

All capital assets are valued at historical cost, or if donated, recorded at its estimated fair value. Infrastructure assets acquired prior to January 1, 2004 are not capitalized, but subsequent acquisitions are recorded at cost. Costs associated with infrastructure on property not owned by the District are immediately expensed.

In the government-wide financial statements, capital assets arising from cash transactions are accounted for as an expense in the Statement of Net Cash Position, with accumulated depreciation reflected in the Statement of Net Cash Position. Depreciation is provided over the assets' estimated useful lives using the straight-line method of depreciation. Capitalization thresholds of $500 for equipment and building improvements of $5,000 for infrastructure are used to report capital assets. Estimated useful lives being used are summarized below:

Building and Improvements	19-40 years
Equipment, Furniture and Fixtures	3-15 years

In governmental fund financial statements, capital assets arising from cash transactions acquired for use in governmental fund operations are accounted for as capital outlay expenditures of the governmental fund upon acquisition.

DEFERRED OUTFLOWS/INFLOWS OF RESOURCES

In addition to assets, the statement of net cash position will sometimes report a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to a future period(s) and so will not be recognized as an outflow of resource (expense/expenditure) until then. In addition to liabilities, the statement of net cash position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, *deferred inflows of resources*, represents an acquisition of net position that applies to a future period(s) and so will *not* be recognized as an inflow of resources (revenue) until that time. The District does not have any items that qualify for reporting in these categories.

LONG-TERM DEBT

All long-term debt arising from cash transactions to be repaid from governmental fund resources is reported as a liability only in the government-wide statements.

Long-term debt arising from cash basis transactions of governmental funds is not reported as liabilities in the fund financial statements. The debt proceeds are reported as other financing sources and the payment of principal and interest are reported as expenditures.

Currently the District does not have long-term debt.

COMPENSATED ABSENCES

Full-time employees starting on the date of employment will accrue 80 hours per year of vacation for the first five years of employment. During the next five years of employment, an employee accrues 120 hours per year, after ten years of employment but less than twenty, an employee accrues 160 hours per year of vacation, and after 20 years of employment an employee accrues 200. Qualifying part-time employees are entitled to vacation based on the percentage of hours worked per pay period. The maximum accumulation of vacation leave is 200 hours. Unused vacation leave is paid only upon termination of employment.

Full-time employees employed with the District accrue eight hours of sick leave per month. Part-time employees who have worked 60% of the time for a period of nine months shall be entitled to sick leave based on the percentage of hours worked per pay period. The maximum accumulation of sick leave is 400 hours and does not vest upon termination of employment. As of January 1, 2014, half of the employee's remaining sick leave will be paid at the employee's current hourly rate to the employee upon retirement. If the employee quits or is terminated for any reason, no payment shall be made to the employee. District Office shall maintain leave records by posting leave earned and taken, and calculating a current balance for each employee. There will be no payment in lieu of sick leave, except when retirement of employment occurs. No vested or accumulated liability has been recorded for accumulated compensated absences.

PENSIONS

Plan contributions are recognized as of employer payroll paid dates and benefit payments and refunds are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

EQUITY

Government-Wide Statements

Equity is classified as Net Position and displayed in three components:

a. Restricted Net Position – Consists of Net Position with constraints placed on the use either by (1) external groups such as creditors, grantors, contributors, or laws and regulations of other governments; or (2) law through constitutional provisions or enabling legislation.
b. Unrestricted Net Position – All other Net Position that does not meet the definition of "restricted" or "invested in capital assets, net of related debt."

c. Investment in Capital Assets – Consists of capital assets including restricted capital assets, net of accumulated depreciation.

It is the District's policy to first use restricted Net Position prior to the use of unrestricted Net Position when an expense is incurred for purposes for which both restricted and unrestricted Net Position are available.

EQUITY CLASSIFICATION

Fund Financial Statements

Governmental fund equity is classified as fund balance.

E. REVENUES, EXPENDITURES AND EXPENSES

PROGRAM REVENUES

In the Statement of Activities Arising from Cash Transactions, modified cash basis revenues that are derived directly from each activity or from parties outside the District's taxpayers are reported as program revenues. The District has the following program revenues: direct project cost reimbursements and project special assessments, rental income and operating and capital grants specific to projects. All other governmental revenues are reported as general revenue. All taxes are classified as general revenue even if restricted for a specific purpose.

F. USE OF ESTIMATES

The preparation of financial statements in conformity with the other comprehensive basis of accounting (OCBOA) used by the District required management to make estimates and assumptions that affect certain reported amounts and disclosures. Accordingly, actual results could differ from those estimates.

G. FUND BALANCE CLASSIFICATIONS

In the fund financial statements, governmental funds report fund balance in classifications that disclose constraints for which amounts in those funds can be spent. These classifications are as follows:

Nonspendable – consists of amounts that are not in spendable form, such as inventory and prepaid items.

Restricted – consists of amounts related to externally imposed constraints established by creditors, grantors or contributors; or constraints imposed by state statutory provisions.

Committed – consists of internally imposed constraints. These constraints are established by the Board of Managers.

Assigned – consists of internally imposed constraints. These constraints reflect specific purpose for which it is the District's intended use. These constraints are established by the Board of Managers and/or management.

Unassigned – is the residual classification for the general fund and also reflects negative residual amounts in other funds.

When both restricted and unrestricted resources are available for use, it is the District's policy to first use restricted resources, and then use unrestricted resources as they are needed.

When committed, assigned or unassigned resources are available for use, it is the District's policy to use resources in the following order; 1) committed, 2) assigned and 3) unassigned.

INTERFUND BALANCES

In the process of aggregating the fund information for the government-wide Statement of Net Cash Position and Statement of Activities Arising from Cash Transactions, some amounts reported as interfund activity and balances in the fund financial statements have been eliminated or reclassified.

H. NET POSITION

Net position represents the difference between (a) assets and deferred outflows of resources and (b) liabilities and deferred inflows of resources in the District's financial statements. Net investment in capital assets consists of capital assets, net of accumulated depreciation, reduced by the outstanding balances of any long-term debt attributable to the acquisition, construction, or improvement of those assets. Restricted net position consists of restricted assets reduced by liabilities and deferred inflows of resources related to those assets. Unrestricted net position is the net amount of assets, deferred outflows of resources, liabilities, and deferred inflows of resources that are not included in the determination of net investment in capital assets or the restricted component of net position.

NOTE 2 STEWARDSHIP, COMPLIANCE AND ACCOUNTABILITY

By its nature as a local government unit, the District is subject to various federal, state, and local laws and contractual regulations. There are no instances of noncompliance that are considered material to the financial statements.

NOTE 3 DETAIL NOTES-TRANSACTION CLASSES/ACCOUNTS

The District maintains a cash account at its depository bank. Investments are carried at fair value. The District considers Certificates of Deposit to be cash.

Interest Rate Risk

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

Credit Risk

The District may invest idle funds as authorized in Minnesota Statutes, as follows:

a. Direct obligations or obligations guaranteed by the United States or its agencies.
b. Shares of investment companies registered under the Federal Investment Company Act of 1940 and whose only investments are in securities described in (a) above.

c. General obligations of the State of Minnesota or any of its municipalities.
d. Bankers Acceptance of United States banks eligible for purchases by the Federal Reserve System.
e. Commercial paper issued by United States corporations or their Canadian subsidiaries, of the highest quality, and maturing in 270 days or less.
f. Repurchase or reverse repurchase agreements with banks that are members of the Federal Reserve System with capitalization exceeding $10,000,000, a primary reporting dealer in U.S. government securities to the Federal Reserve Bank of New York, or certain Minnesota securities broker-dealers.
g. Futures contracts sold under authority of Minnesota Statutes 471.56, Subd. 5.

The District has no investment policy that would further limit its investment choices.

Concentration of Credit Risk

The District places no limit on the amount the District may invest in any one issuer.

Custodial Credit Risk - Deposits

In accordance with Minnesota Statutes, the District maintains deposits at those depository banks authorized by the District's Board, all of which are members of the Federal Reserve System.

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

At December 31, 2018, the carrying amount of the District's deposits was $4,739,851 and the bank balance was $4,892,072. The bank balance was covered by Federal Depository Insurance and by collateral held by the District's agent in the District's name at December 31, 2018.

Related-Party Investments

As of December 31, 2018, the District held no related-party investments.

NOTE 4 PROPERTY TAXES

The District levies property taxes on property owners within the District, which becomes an enforceable lien as of January 1. Taxes are levied in September and are payable to counties on May 15 and October 15 (November 15 for farm property) of the following year. The District levies the tax, while the respective counties collect and remit the tax collections to the District. Property taxes are recognized when received from the counties under the modified cash basis of accounting.

The District also levies special assessments through the counties against property owners who obtain direct benefits from projects or property owners who request, through the petition process, to have a project undertaken. The special assessment collections are recorded in a manner similar to that for property taxes.

NOTE 5 DEFINED BENEFIT PENSION PLANS

Plan Description

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

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

PERA provides retirement benefits as well as disability benefits to members and survivor benefits upon death of eligible members. Benefits are established by state statute. Benefits for members of the General Employees Plan vest after five years of credited service.

Two methods are used to compute benefits for PERA's Coordinated Plan members. Members hired prior to July 1, 1989, receive the higher of Method 1 or Method 2 formulas. Only Method 2 is used for members hired after June 30, 1989. Under Method 1, the accrual rate for Coordinated members is 1.2% for each of the first 10 years of service and 1.7% for each additional year. The rates are 2.2% and 2.7%, respectively, for Basic members. Under Method 2, the accrual rate for Coordinated members is 1.7% for all years of service, and 2.7% for Basic members. The accrual rates for former MERF members is 2.0% for each of the first 10 years of service and 2.5% for each additional year. For members hired prior to July 1, 1989 a full annuity is available when age plus years of service equal 90 and normal retirement age is 65. For members hired on or after July 1, 1989 normal retirement age is the age for unreduced Social Security benefits capped at 66.

For all General Employees Plan members hired prior to July 1, 1989 whose annuity is calculated using Method 1, a full annuity is available when age plus years of service equal 90. Method 2 provides for unreduced retirement benefits at age 65 for members first hired prior to July 1, 1989 or age 66 (the age for unreduced Social Security benefits), for those first hired on or after that date. Early retirement may begin at age 55 with an actuarial reduction (about six percent per year) for members retiring prior to full retirement age.

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

The benefit provisions stated in the preceding paragraphs of this section are current provisions and apply to active plan participants.

PERA issues a publicly available financial report that includes financial statements and required supplementary information for the General Employees Plan. That report may be obtained on the PERA's website at www.mnpera.org.

Funding Policy

Minnesota Statutes Chapter 353 sets the rates for employer and employee contributions. These statutes are established and amended by the state Legislature. The Red Lake Watershed District makes annual contributions to the pension plans equal to the amount required by state statutes. General Employees Basic Plan members and Coordinated Plan members were required to contribute 9.1 percent and 6.5 percent, respectively, of their annual covered salary in 2018. In 2018, the Red Lake Watershed District was required to contribute the following percentages of annual covered payroll: 11.78 percent for Basic Plan members, 7.5 percent for Coordinated Plan members. The Red Lake Watershed District's contributions to the General Employees Fund for the years ended December 31, 2018, 2017 and 2016 were $33,961, $30,223, and $27,201, respectively.

NOTE 6 RISK MANAGEMENT

The District is exposed to various risks of loss related to torts; theft of, damage to, or destruction of assets; errors and omissions; injuries to employees; employees' health and life; and natural disasters. The District manages these various risks of loss with the purchase of insurance through commercial insurance providers. The District carries commercial insurance coverage on its commercial property and for liability, personal and advertising injury, non-owned auto and a miscellaneous floater.

Management believes such coverage is sufficient to preclude any significant uninsured losses to the District. Settled claims have not exceeded this insurance coverage in any of the past three fiscal years.

NOTE 7 CAPITAL ASSETS

Capital assets activity resulting from modified cash basis transactions for the year ended December 31, 2018 was as follows:

	Beginning Balance	Additions	Deletions	Ending Balance
Capital Assets				
Building and Improvements	$ 775,594	$ -	$ -	$ 775,594
Infrastructure Improvements	12,601,966	-	-	12,601,966
Engineering Equipment	426,170	2,455	28,495	400,130
Office Equipment	169,323	9,681	-	179,004
Land and Permanent Easements	3,018,474	663,485	-	3,681,959
Construction in Progress	1,230,906	616,065	-	1,846,971
Total	$ 18,222,433	$ 1,291,686	$ 28,495	$ 19,485,624

	Beginning Balance	Additions	Deletions	Ending Balance
Accumulated Depreciation				
Building and Improvements	$ 296,804	$ 22,506	$ -	$ 319,310
Infrastructure Improvements	2,861,855	500,144	-	3,361,999
Engineering Equipment	358,878	23,406	28,495	353,789
Office Equipment	133,850	10,517	-	144,367
Total	3,651,387	556,573	28,495	4,179,465
	$ 14,571,046	$ 735,113	$ -	$ 15,306,159

Depreciation expense of $556,573 for the year ended December 31, 2018 is included in general and administrative program costs.

NOTE 8 OVERHEAD COST ALLOCATION

Overhead costs are allocated to all projects at 150% of direct salaries to projects. Overhead costs represent those costs incurred by the District for administration, employee benefits, engineering, and related operating expenditures, which are not charged directly to the project. The total overhead costs charged to projects in 2018 was $668,642.

NOTE 9 CONTINGENCIES

Grants

The District participates in state and federal grant programs, which are governed by various rules and regulations of the grantor agencies. Costs charged to the respective grant programs are subject to audit and adjustment by the grantor agencies; therefore, to the extent that the District has not complied with the rules and regulations governing the grants, refunds of money received may be required and the collectability of any related receivable at December 31, 2018, may be impaired. The District is not aware of any significant contingent liabilities relating to compliance with the rules and regulations governing the respective grants.

Claims and Litigation

The District is not presently involved in any legal actions relating to projects undertaken or attempted to be undertaken.

NOTE 10 NEW PRONOUNCEMENTS

GASB Statement No. 83, *Certain Asset Retirement Obligations,* addresses accounting and financial reporting for certain asset retirement obligations (AROs). This Statement establishes criteria for determining the timing and pattern of recognition of a liability and corresponding deferred outflow of resources for AROs. It also establishes disclosure of information about the nature of a government's AROs, the methods and assumptions used for the estimates of the liabilities, and the estimated remaining useful life of the associated tangible capital assets. The requirements of this Statement are effective for reporting periods beginning after June 15, 2018. Earlier application is encouraged.

GASB Statement No. 84, *Fiduciary Activities*, provides guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. This Statement establishes criteria for identifying fiduciary activities of all state and local governments. The focus of the criteria generally is on (1) whether a government is controlling the assets of the fiduciary activity and (2) the beneficiaries with whom a fiduciary relationship exists. Separate criteria are included to identify fiduciary component units and postemployment benefit arrangements that are fiduciary activities. The requirements of this Statement are effective for reporting periods beginning after December 15, 2018. Earlier application is encouraged.

GASB Statement No. 87, *Leases*, establishes a single model for lease accounting based on the foundational principle that leases are financings of the right to use an underlying asset. This Statement requires recognition of certain lease assets and liabilities for leases that were

previously classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. Under this Statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset, and a lessor is required to recognize a lease receivable and a deferred inflow of resources, thereby enhancing the relevance and consistency of information about governments' leasing activities. This Statement is effective for reporting periods beginning after December 15, 2019. Earlier application is encouraged.

GASB Statement No. 88, *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements*, improves the information that is disclosed in notes to government financial statements related to debt, including direct borrowings and direct placements. It also clarifies which liabilities governments should include when disclosing information related to debt. This Statement requires that additional essential information related to debt be disclosed in notes to financial statements, including unused lines of credit; assets pledged as collateral for the debt; and terms specified in debt agreements related to significant events of default with finance-related consequences, significant termination events with finance-related consequences, and significant subjective acceleration clauses. This Statement is effective for reporting periods beginning after June 15, 2018. Earlier application is encouraged.

GASB Statement No. 89, *Accounting for Interest Cost Incurred before the End of a Construction Period*, establishes accounting requirements for interest cost incurred before the end of a construction period. This Statement requires that interest cost incurred before the end of a construction period be recognized as an expense in the period in which the cost is incurred for financial statements prepared using the economic resources measurement focus. As a result, interest cost incurred before the end of a construction period will not be included in the historical cost of a capital asset reported in a business-type activity or enterprise fund. The requirements of this Statement are effective for reporting periods beginning after December 15, 2019. Earlier application is encouraged.

GASB Statement No. 90, *Majority Equity Interests*, provides guidance for reporting when a government has majority equity interest in legally separate organizations. An equity interest is explicit and measurable if the government has a present or future claim to the net resources of the entity and the method for measuring the government's share of the entity's net resources is determinable. If government's holding of that equity interest meets the definition of an investment, as defined by GASB No. 72, the equity interest should be reported as an investment and measured using the equity method and not as a component unit of the government. If a government's holding of a majority interest in a legally separate organization does not meet the definition of an investment, the holding of the majority equity interest results in the government being financially accountable for the organization and therefore, the government should report the legally separate organization as a component unit. The requirements of this Statement are effective for reporting periods beginning after December 15, 2018. Earlier application is encouraged.

Management has not yet determined what effect these statements will have on the District's financial statements.

NOTE 11 SUBSEQUENT EVENTS

No significant events occurred subsequent to the District's year end. Subsequent events have been evaluated through February 16, 2019, which is the date these financial statements were available to be issued.

RED LAKE WATERSHED DISTRICT
BUDGETARY COMPARISON SCHEDULE - GENERAL FUND
FOR THE YEAR ENDED DECEMBER 31, 2018

	Original and Final Budget	Actual 2018	Variance
REVENUES			
Intergovernmental			
State	$ -	$ 1,805	$ 1,805
Miscellaneous	7,000	7,938	938
Allocated Interest	-	8,848	8,848
Total Revenues	7,000	18,591	11,591
EXPENDITURES			
General and Administrative	164,135	98,472	(65,663)
Interest	-	4,810	4,810
Total Expenditures	164,135	103,282	(60,853)
Expenditures Exceed Revenues	(157,135)	(84,691)	72,444
FUND BALANCE JANUARY 1	327,501	327,501	
FUND BALANCE DECEMBER 31	$ 170,366	$ 242,810	

See Note to the Budgetary Comparison Schedule

RED LAKE WATERSHED DISTRICT
NOTE TO THE BUDGETARY COMPARISON SCHEDULE
FOR THE YEAR ENDED DECEMBER 31, 2018

NOTE 1 – BUDGETARY COMPARISON

The budget is prepared using the same method of accounting as the financial statements. The annual adopted budget is not legally binding on the District, with the exception of the revenue budget for the general fund, which is limited by state statute at $250,000 and set by the Board for 2018 at $7,000. All appropriations lapse at year-end.

RED LAKE WATERSHED DISTRICT
STATEMENT OF RECEIPTS AND DISBURSEMENTS AND CHANGES IN FUND BALANCE – ALL FUNDS – MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2018

		Revenues				Expenses			Transfer	
	Fund Balance (Deficit) January 1	Assessments and Other Charges for Services	Operating/ Capital Grants and Contribution	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Allocated Salary and Overhead	In (Out)	Fund Balance (Deficit) December 31
GENERAL FUND	$ 327,501	$ 7,938	$ 1,805	$ 8,848	$ -	$ 767,115	$ 4,809	$ (668,642)	$ -	$ 242,810
SPECIAL REVENUE FUND JOBS:										
Red Lake River Project	54,046	3,814	-	733	-	-	-	719	-	57,874
Clearwater River Project	13,197	7,762	-	250	-	450	-	156	-	20,601
Lost River Project	4,850	2,228	-	80	-	-	-	325	-	6,833
RLWD Ditch #1	5,163	674	-	58	-	2,114	-	463	-	3,318
RLWD Ditch #3	5,425	491	-	58	-	2,448	-	413	-	3,113
State Ditch #83	(13,475)	35,834	16,080	94	-	17,286	-	2,036	-	19,191
RLWD Ditch #7	6,382	4,106	-	81	-	4,255	-	2,438	-	3,875
Pine Lake Maintenance	(2,373)	4,022	-	-	-	162	37	4,687	-	(3,237)
RLWD Ditch #8	2,789	230	-	37	-	-	-	28	-	3,028
RLWD Ditch #9	735	-	-	3	-	-	-	916	-	(178)
J.D. Ditch #72	(30,896)	3,847	-	-	-	1,784	481	4,565	-	(33,881)
Clearwater/Wild Rice River	697	8,933	-	55	-	-	-	2,816	-	6,869
Branch A & 1, J.D. #2	1,043	1,011	-	16	-	170	-	381	-	1,519
Main J.D. #2 and Branch B&C	1,353	2,672	-	32	-	-	-	193	-	3,864
Main J.D. 2C. Eck	(2,730)	4,748	-	-	-	-	11	370	-	1,637
Krostue Petition	(4,196)	194	-	-	-	1,873	71	1,341	-	(7,287)
Clearwater County Joint Ditch #4	1,421	500	-	20	-	-	-	138	-	1,803
Clearwater County Joint Ditch #5	(799)	983	-	-	-	5,006	37	3,757	-	(8,616)
Clearwater County Ditch #1	796	-	-	8	-	-	-	450	-	354
Clifford Arneson Ditch	5,783	529	-	79	-	-	-	135	-	6,256
Winsor/Hangaard/Clearwater County Petition	8,357	5,022	-	131	-	-	-	318	-	13,192
Equality RLWD Ditch #1, lat C	2,311	898	-	15	-	2,913	-	2,380	-	(2,069)
K. Johnson Petition	2,778	801	-	33	-	1,100	-	596	-	1,916
Polk County Ditch #'s 104, 61, 47, 94	(2,364)	6,009	-	-	-	3,760	38	2,900	-	(3,053)
TRF Drainage Ditch (Challenger Ditch)	1,128	91	-	10	-	88	-	589	-	552
Scott Saatz Petition	1,136	168	-	10	-	450	-	321	-	543
Polk County Ditch #63 Improvement	(62,404)	332	-	43	-	(64,864)	-	1,505	-	1,330
Polk County Ditch #33 Improvement	3,187	563	-	24	-	2,718	-	825	-	231
RLWD Ditch #10	20	7,618	-	32	-	2,890	-	1,481	-	3,299
RLWD Ditch #11	26,933	726	-	325	-	3,245	-	963	-	23,776
RLWD Ditch #12	5,029	11,619	-	39	-	10,330	-	2,258	-	4,099
RLWD Ditch #14	(3,371)	2,940	-	-	-	3,396	53	507	-	(4,387)
RLWD Ditch #15	84,162	1,513	-	1,012	-	11,009	-	2,141	-	73,537
Burnham Creek Channel	5,780	21,672	-	134	-	7,500	-	444	-	19,642
RLWD Ditch #13	1,891	412	-	29	-	-	-	165	-	2,167
Thief River Falls Flood Damage Reduction Project	(23,378)	31,011	-	-	-	1,560	248	2,379	-	3,416
RLWD Ditch #16	(1,280)	-	-	-	-	56,311	475	11,931	-	(69,997)
Improv to Polk Co. #39	(3,421)	-	-	-	-	21,640	190	581	-	(25,832)
TOTAL SPECIAL REVENUE	95,703	173,972	16,080	3,441	-	99,624	1,641	58,613	-	129,298

RED LAKE WATERSHED DISTRICT
STATEMENT OF RECEIPTS AND DISBURSEMENTS AND CHANGES IN FUND BALANCE – ALL FUNDS – MODIFIED CASH BASIS – CONTINUED
FOR THE YEAR ENDED DECEMBER 31, 2018

		Revenues				Expenses			Transfer	
	Fund Balance (Deficit) January 1	Assessments and Other Charges for Services	Operating/ Capital Grants and Contribution	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Allocated Salary and Overhead	In (Out)	Fund Balance (Deficit) December 31
CAPITAL PROJECT FUND JOBS:										
Moose River Project	$ -	$ -	$ -	$ -	$ -	$ 8,515	$ 108	$ 6,979	$ 15,602	$ -
Lost River Impoundment	-	-	-	-	-	-	-	96	96	-
Stream Gauging	-	-	-	-	-	-	178	20,930	20,905	-
Culvert Sizing	-	-	-	-	-	-	51	8,531	8,582	-
Schirrick Dam	-	-	-	-	-	440	4	611	1,055	-
Pine Lake PWT	(336,147)	-	178,082	-	-	180,594	4,810	8,410	-	(351,879)
Little Pine Lake WMA	-	-	-	-	-	151,479	690	5,796	157,965	-
Hydrologic Analysis	-	-	-	-	-	-	62	8,666	8,728	-
Emergency Maintenance	110,812	-	-	1,418	-	-	-	-	-	112,230
RRWMB - Technical Com	-	-	593	-	-	593	3	1,320	1,323	-
Water Quality	-	-	-	-	-	36,759	903	103,505	141,167	-
Maintenance Dams	-	-	-	-	-	-	4	837	841	-
Odney Flaat Dam	-	-	-	-	-	2,310	14	691	3,015	-
Latundresse Dam	-	-	-	-	-	288	3	284	575	-
Miller Dam	-	-	-	-	-	-	1	203	204	-
Seeger Dam	-	-	-	-	-	-	2	284	286	-
Blackduck Lake Structure	(50,000)	-	50,000	-	-	2,257	128	1,644	4,029	-
Elm Lake	-	-	-	-	-	-	4	628	632	-
Red Lake Res./Good Lake	-	-	-	-	-	2,899	34	2,247	5,180	-
Pamell Impoundment	-	6,818	-	-	-	5,754	85	12,049	11,070	-
Permits	-	-	-	-	-	3,357	568	89,768	93,693	-
Project Development	-	-	-	-	-	1,113	315	39,541	40,969	-
Louisville/Pamell Project	-	-	-	-	-	3,698	28	935	4,661	-
Ring Dike Program - General	-	-	-	-	-	-	2	211	213	-
G.I.S.	-	-	-	-	-	-	266	37,101	37,367	-
Wetland Banking	-	-	-	-	-	1,378	29	2,007	3,414	-
Ten Year Overall Plan	-	-	338,776	1,738	-	1,493	-	13,284	12,121	337,858
Thief River 1W1P	50,293	-	101,872	-	-	125,198	74	46,523	-	(19,630)
PTMAPP Grant	602	-	-	-	-	18,063	208	11,180	-	(28,849)
North Pamell Storage Site	-	-	-	-	-	-	-	83	83	-
Clearwater River - TMDL	-	-	-	-	-	91	26	2,651	2,768	-
Red River Corridor	-	-	-	-	-	-	-	70	70	-
Erosion Control Projects	-	-	18,510	-	-	109,687	1,141	28,278	120,606	-
WS Ditch System Inventory & Mapping	(9,567)	-	-	-	-	-	1	83	83	(9,568)
Drainage- Inv & Insp	-	-	15,480	-	-	4,698	95	22,201	-	(11,513)
FEMA D-Firm Grant	-	-	-	-	-	-	6	528	534	-
Black River Impoundment	(365,266)	28,529	35,645	-	-	361,638	7,489	15,793	-	(686,012)
Web Page Development	(1,438)	-	1,437	-	-	1,272	21	1,640	1,477	(1,457)
Administrative Construction	6,053,092	-	82,472	88,720	1,939,947	-	-	-	(751,117)	7,413,114
Burnham Creek - BR6	-	-	-	-	-	3,181	40	3,914	7,135	-
Burnham Creek - Fish Habitat	-	-	-	-	-	-	-	106	106	-
Euclid East Impoundment	-	5,585	-	-	-	8,618	81	6,649	9,763	-
Brandt Impoundment	-	102	-	-	-	284	27	2,807	3,016	-

RED LAKE WATERSHED DISTRICT
STATEMENT OF RECEIPTS AND DISBURSEMENTS AND CHANGES IN FUND BALANCE – ALL FUNDS–
MODIFIED CASH BASIS – CONTINUED
FOR THE YEAR ENDED DECEMBER 31, 2018

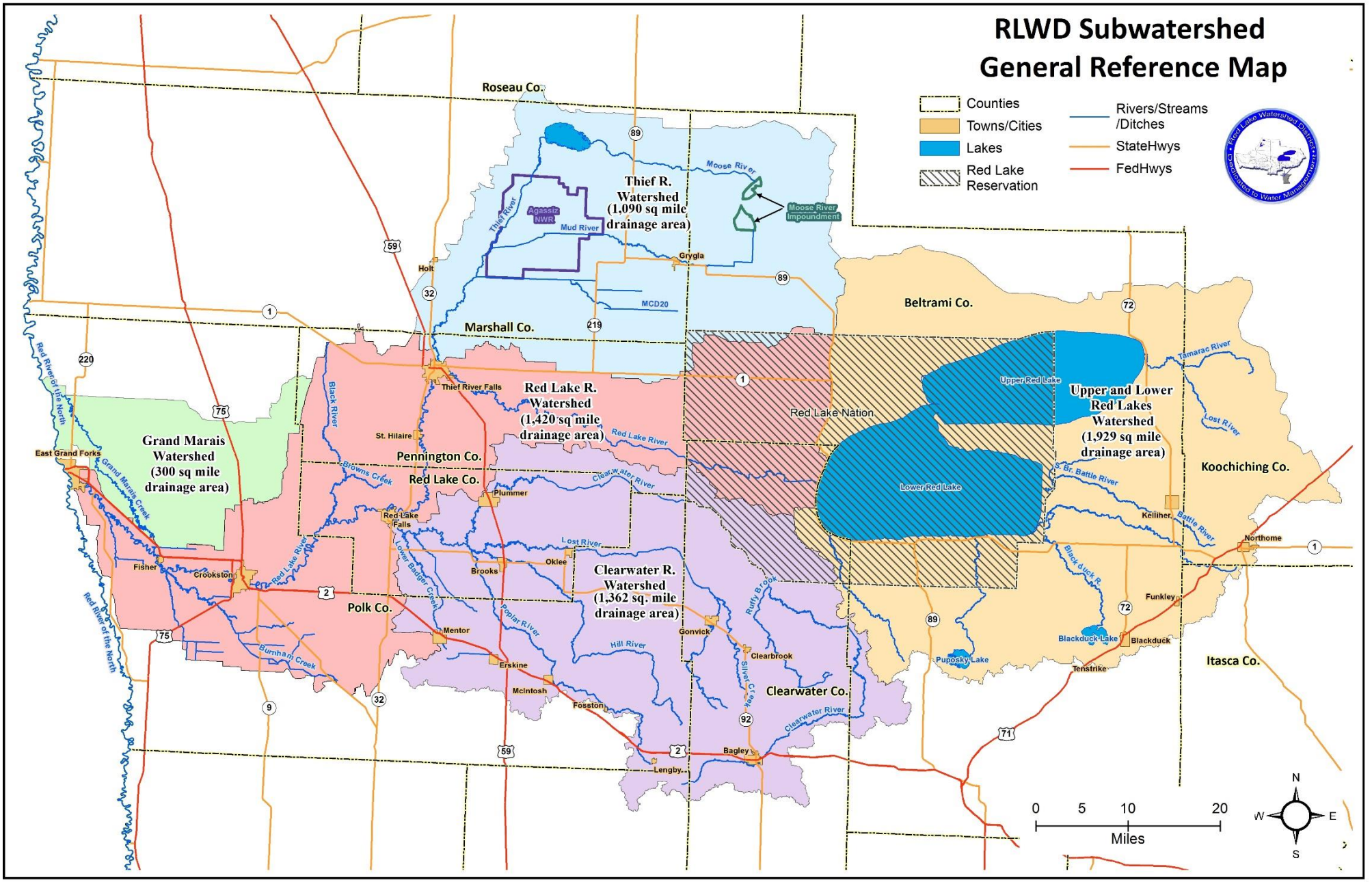
		Revenues				Expenses			Transfer	
	Fund Balance (Deficit) January 1	Assessments and Other Charges for Services	Operating/ Capital Grants and Contribution	Allocated Interest Earned	Taxes	Direct	Allocated Interest Charged	Allocated Salary and Overhead	In (Out)	Fund Balance (Deficit) December 31
Brandt Channel Restoration	$ -	$ -	$ -	$ -	$ -	$ 2,875	$ 25	$ 392	$ 3,292	$ -
Grand Marais - Restoration	-	-	-	-	-	720	46	5,302	6,068	-
Grand Marais Cut Channel Stabilization	-	-	-	-	-	-	-	83	83	-
Clearwater Public Education (River Watch)	-	-	-	-	-	3,329	173	20,820	24,322	-
Red River Basin Long Term Flood Control	(1,113,620)	-	-	-	-	670,205	22,839	3,750	-	(1,810,414)
Four Legged Lake PWT	(146,316)	-	72,924	-	-	82,266	2,196	8,043	-	(165,917)
BWSR Flood Storage Pilot Project	-	-	-	-	-	20	2	515	537	-
Glacial Ridge	-	-	-	-	-	-	3	330	333	-
Thief River TMDL	-	-	6,406	50	-	-	-	2,690	(3,765)	-
Red Lake River Watershed Assessment	(330)	-	863	-	-	-	12	6,577	-	(6,056)
Grand Marais WRAP	-	-	3,196	-	-	-	9	4,232	-	(1,045)
Clearwater River WRAP	(193)	-	18,820	-	-	-	65	25,602	-	(7,040)
TRF Westside FDR	(3,050)	-	-	-	-	347,720	1,928	17,611	-	(370,309)
State/Local/Federal Grants	-	-	-	-	-	-	8	1,004	1,012	-
Agassiz NWR Wetland	-	-	100,802	-	-	122,115	143	4,314	-	(25,770)
Total Capital Projects	4,188,872	41,034	1,025,877	91,926	1,939,947	2,264,935	44,949	610,029	-	4,367,743
Total All Funds	$ 4,612,076	$ 222,944	$ 1,043,742	$ 104,215	$ 1,939,947	$ 3,131,674	$ 51,399	$ -	$ -	$ 4,739,851

RED LAKE WATERSHED DISTRICT
STATEMENT OF DIRECT EXPENDITURES BY CLASSIFICATION –
GOVERNMENTAL FUNDS - MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2018

DIRECT EXPENDITURES:	2018
Salaries -	
Inspection	$ 12,710
Survey - Preliminary	422
Survey - Construction	1,227
Drafting	12,785
Engineering	51,607
Project Administration	260,442
Field Work - Water Programs	36,853
Other	55,498
Compensated Absences	46,508
Payroll Taxes and Benefits	100,530
Manager's Expense	27,167
Travel, Mileage, Meetings and Per Diems	8,723
Audit	9,000
Legal	32,266
Appraisal and Viewers	2,885
Other Professional Fees	106,574
Office Supplies	20,236
Office Equipment	9,681
Dues and Subscriptions	10,727
Insurance and Bonds	22,286
Repairs and Maintenance	12,832
Utilities	9,604
Telephone	9,907
Advertising and Publications	7,649
Truck Expense	11,161
Land Acquisition and Easements	663,485
Construction	407,233
Engineering Costs and Fees	15,170
Engineering Fees	1,164,051
Engineering Equipment	2,455
Total Expenditures	$ 3,131,674

RED LAKE WATERSHED DISTRICT
STATEMENT OF RECEIPTS AND DISBURSEMENTS AND CHANGES IN AMOUNTS
DUE TO OTHER GOVERNMENTAL UNITS –
TRUST AND AGENCY FUND – MODIFIED CASH BASIS
FOR THE YEAR ENDED DECEMBER 31, 2018

RECEIPTS		
Property Taxes		
Beltrami County	$	123,730
Clearwater County		261,534
Itasca County		1,099
Koochiching County		2,017
Mahnomen County		2,473
Marshall County		73,082
Pennington County		376,667
Polk County		918,499
Red Lake County		180,656
Roseau County		190
State - MV		82,472
TOTAL RECEIPTS		2,022,419
DISBURSEMENTS		
Red River Watershed Management Board		2,022,419
EXCESS OF RECEIPTS OVER (UNDER) DISBURSEMENTS		-
AMOUNT DUE TO OTHER GOVERNMENTAL UNITS, JANUARY 1		-
AMOUNT DUE TO OTHER GOVERNMENTAL UNITS, DECEMBER 31	$	-


RLWD Subwatershed
General Reference Map
Counties
Towns/Cities
Lakes
Red Lake Reservation
Rivers/Streams /Ditches
StateHwys
FedHwys
Roseau Co.
Thief R. Watershed (1,090 sq mile drainage area)
Moose River
Moose River Impoundment
Thief River
Agassiz NWR
Mud River
Grygla
Holt
MCD20
Marshall Co.
Beltrami Co.
Red River of the North
Thief River Falls
Red Lake R. Watershed (1,420 sq mile drainage area)
Black River
Red Lake Nation
Upper Red Lake
Upper and Lower Red Lakes Watershed (1,929 sq mile drainage area)
Tamarac River
Lost River
Grand Marais Watershed (300 sq mile drainage area)
East Grand Forks
Grand Marais Creek
St. Hilaire
Pennington Co.
Red Lake River
Browns Creek
Red Lake Co.
Clearwater River
Lower Red Lake
S. Br. Battle River
Koochiching Co.
Plummer
Red Lake Falls
Kelliher
Battle River
Northome
Fisher
Crookston
Lost River
Oklee
Brooks
Clearwater R. Watershed (1,362 sq. mile drainage area)
Lower Badger Creek
Rutty Brook
Black duck R.
Funkley
Polk Co.
Poplar River
Mentor
Gonvick
Hill River
Blackduck Lake
Blackduck
Puposky Lake
Tenstrike
Itasca Co.
Burnham Creek
Erskine
Clearbrook
Silver Cr.
McIntosh
Fosston
Clearwater Co.
Clearwater River
Bagley
Lengby
0 5 10 20
Miles
N
W
E
S