

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 12/2/2021

**Water Quality Monitoring**

Clear water and low water levels in the Red Lake River at CSAH 11, near Gentilly



District staff completed the third round of 2021 samples at Red Lake Watershed District long-term monitoring sites. Many sites were not sampled this month where streams had gone dry or stopped flowing.

No flow in Judicial Ditch 73, near Rydell National Wildlife Refuge



The District's new Eureka Manta 2 multi-parameter sonde was delivered in time for August water quality monitoring.

A high total suspended solids (TSS) concentration (>30 mg/L) was recorded in Polk County Ditch 14, near the outlets of Maple Lake and Pine Lake (algae).

The Red Lake River, at East Grand Forks, Fisher, and Crookston, had a relatively low concentration of TSS. Exceptionally clear water with very low total suspended solids concentrations (at or below the laboratory's minimum reporting limit) was found in:

- Branch A of Judicial Ditch 21 at CSAH 49
- Clearwater River near Plummer
- Clearwater River at CSAH 2 (north of Shevlin)
- Clearwater River at CSAH 25, near Bagley (low concentrations of all parameters at this site)

A notably low *E. coli* concentration was recorded at the 159<sup>th</sup> Avenue crossing of Silver Creek, a site that has typically had high *E. coli* concentrations. Other impaired or nearly impaired streams with notably low *E. coli* concentrations included Branch A of Judicial Ditch 21 and the Mud River at CSAH 54.

High *E. coli* concentrations (>126 MPN/100 mL) were found in:

- Clearwater River at CSAH 5
- Clearwater River at County Road 2 (Gully Road)
- Clearwater River at CSAH 2 (north of Shevlin)
- Hill River at County Road 119, near Brooks
- Hill River at CSAH 35
- Hill River at 335<sup>th</sup> Avenue SE
- Lost River at County Road 119, north of Brooks
- North Cormorant River at CSAH 36
- Polk County Ditch 14, near the outlet of Maple Lake
- Red Lake River at CSAH 13 near Red Lake Falls (Sportsman's Bridge)
- Ruffy Brook at 490<sup>th</sup> Street (large increase compared to the samples collected upstream at CSAH 4)
- Thief River at 140<sup>th</sup> Avenue NE
- Walker Brook at CSAH 19

High total phosphorus (greater than 0.5, 0.1, or 0.15 mg/L, depending on location) concentrations were found in:

- Burnham Creek at CSAH 48
- Clearwater River near Plummer
- Clearwater River at County Road 127
- Clearwater River at CSAH 5
- Clearwater River at CSAH 10
- Clearwater River at County Road 2
- Clearwater River at CSAH 2 (north of Shevlin)
- Hill River at County Road 119, near Brooks
- Hill River at CSAH 35
- Hill River at 335<sup>th</sup> Avenue SE
- Lost River at County Road 119, north of Brooks

## RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

August 2021

- Marshall County Ditch 20 at 180<sup>th</sup> Ave NE
- Mud River at Highway 89
- Mud River at CSAH 54
- Nasset Creek
- North Cormorant River at CSAH 36
- Polk County Ditch 14, near the outlet of Maple Lake
- Poplar River at 310<sup>th</sup> Street SE
- Ruffy Brook at CSAH 11

Due to the anticipated sulfate impairment of the channelized portion of the Clearwater River, sulfate analysis was added to the suite of parameters for water quality samples collected from that portion of the Clearwater River and upstream reaches/tributaries. In August, samples were collected at additional road crossings along the Clearwater River and Ruffy Brook to help determine the extent of the high sulfate problem that has been identified by the EPA and MPCA in the Clearwater River. Low sulfate concentrations were found at most sites along the Clearwater River upstream of the channelized reach (CSAH 2, CSAH 14) as well as one site on Ruffy Brook (CSAH 11). Because the samples weren't all collected on the same day, the results were inconclusive. Though a low concentration was recorded in Ruffy Brook one day, the August samples and previously collected data indicate that the high sulfate concentrations originate in Ruffy Brook and may be inconsistent. High concentrations were found in Ruffy Brook upstream of the Clearbrook wastewater treatment facility, so wastewater will not be the only source to consider. More intensive investigation would be needed to determine the specific sources (nonpoint runoff, tile drainage, natural sources, etc.). High sulfate concentrations (>10 mg/L) were found in:

- Clearwater River near Plummer
- Clearwater River at CR 127
- Ruffy Brook at CSAH 4
- Ruffy Brook at 490<sup>th</sup> Street

Low dissolved oxygen levels (<5 mg/L) were recorded in:

- Burnham Creek at CSAH 48
- Clear Brook at State Highway 92
- Clearwater River at County Road 2
- Hill River at CSAH 35
- Hill River at 335<sup>th</sup> Avenue SE
- Lost River at 109<sup>th</sup> Ave
- Marshall County Ditch 20 at 180<sup>th</sup> Ave NE
- Moose River at Highway 89
- Mud River at Highway 89
- South Cormorant River at CSAH 37
- Thief River at 380<sup>th</sup> St. NE
- Walker Brook at CSAH 19

Samples were collected from the Polk County Park marina on Maple Lake on August 3<sup>rd</sup> and August 19<sup>th</sup> for [blue-green algae](#) toxin testing. No toxins were found in the samples.



Early detection zebra mussel veliger samples were collected from the Red Lake River at 420<sup>th</sup> Ave SE (East Line monitoring site, S003-944). Thankfully, RMB labs did not find any zebra mussel veligers in the 2021 samples collected from the Red Lake River.

In August, deployments of HOBO dissolved oxygen loggers began at key sites throughout the District. The district has a long-term schedule for rotating the loggers among stream reaches to maximize the number of reaches that can be fully assessed for dissolved oxygen and stream eutrophication (dissolved oxygen fluctuation) in a ten-year period. Most of the stations on tributary streams (several in the Black River subwatershed) that were scheduled for continuous dissolved oxygen monitoring in 2021 were already dry in August 2021. The lower flow levels provided an opportunity to deploy dissolved oxygen loggers safely and inconspicuously on mainstem sites along the Clearwater River and the Thief River. The dissolved oxygen loggers were deployed at:

- Thief River upstream of Agassiz Pool (380<sup>th</sup> Street NE)
- Clearwater River near the lower end of the channelized reach (County Road 127)
- Clearwater River at Plummer (Minnesota St. N.)
- Clearwater River near Terrebonne (CSAH 12)
- Clearwater River in Red Lake Falls (Klondike Bridge)

Discrete (manual) water quality measurements were collected at the beginning, near the middle, and at the end of each deployment. At the end of each deployment period, a freshly calibrated logger was deployed to replace the recently deployed logger. After retrieval loggers were cleaned and re-calibrated in the District's laboratory. Quality assurance measurements were recorded to determine the extent of drift or calibration corrections. The quality assurance measurements are used to calculate any calibration/fouling drift corrections that are needed. Software is used to apply necessary drift corrections and compare logger data to discrete measurements.

DNR Stream Gauging System Installed along Silver Creek, near Clearbrook



**Red Lake River Watershed One Watershed One Plan (1W1P)**

District staff brainstormed and experimented with different strategies for tracking budgets and expenditures among the multiple projects, categorizations, and funding sources of the Red Lake River 1W1P. Some projects, like the Black River Impoundment side water inlets and rock-check grade stabilization structures, had multiple funding sources (2018 1W1P, 319 Grant, RRWMB Water Quality Funding, local matching funds). Finally, a matrix table with individual projects in rows and funding sources in columns and was successful in helping District staff keep track of how projects are being funded.

Houston Engineering created a [website for the Black River Impoundment](#), which included videos that describe the features of the project.

Construction of the Ditch 10 outlet stabilization project was completed. Progress was made in designing and planning the Demarais-Hanson erosion control project.

Ditch 10 Outlet Stabilization Project



**Thief River One Watershed One Plan (1W1P)**

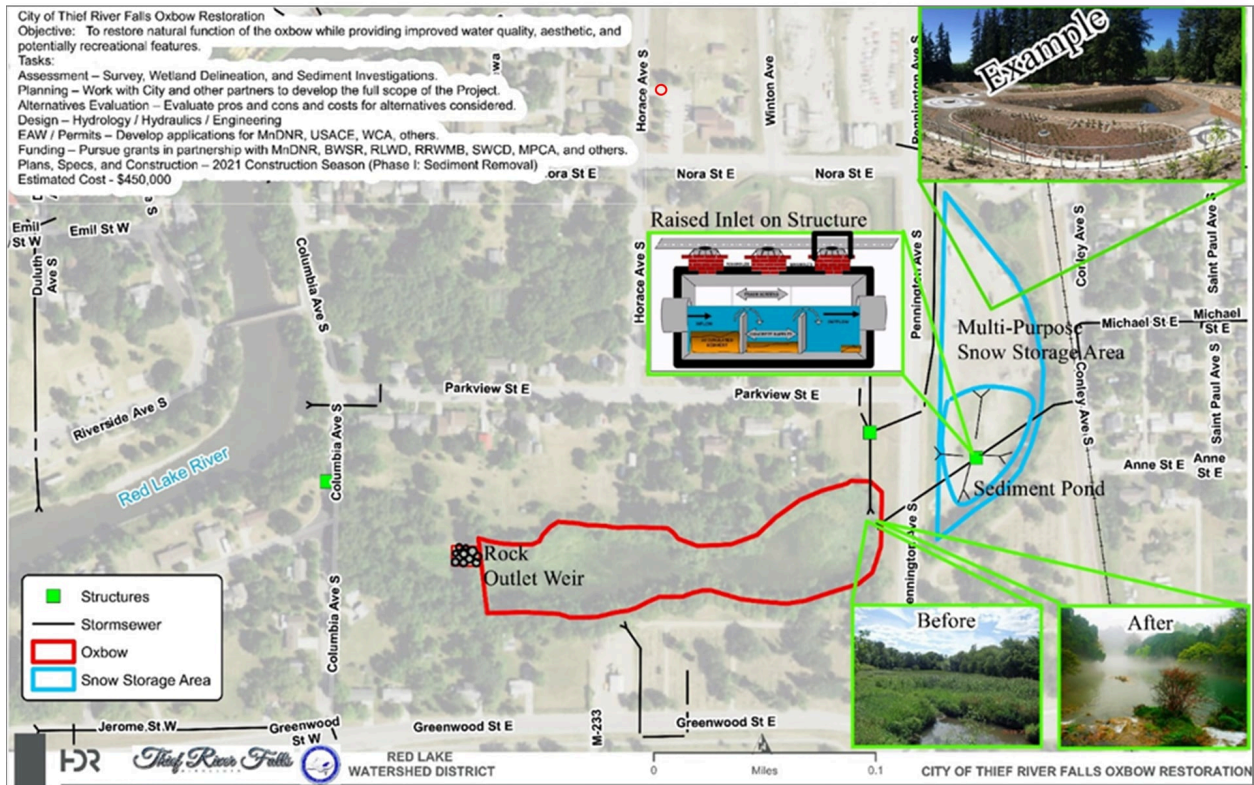
District and SWCD staff cooperated to plan an educational workshop for farmers in the watershed. The event was postponed when harvest began sooner than anticipated. Project partners began planning a Project Team meeting for the Mud River Restoration project.

**Clearwater River One Watershed One Plan (1W1P)**

District staff updated the Clearwater River Watershed 1W1P [website](#). The Planning Work Group met on August 18, 2021.



**Thief River Falls Oxbow Restoration Project**



A [website](#) and [Facebook](#) post were created to provide public information about the Thief River Oxbow Restoration and Stormwater Treatment project. Construction of the project began in the last week of August with mobilization and preparation for excavation of sediment in the oxbow wetland.



**Other Notes from August 2021**

- District staff reviewed a draft East Polk SWCD Clean Water Fund application for water and sediment control basin (WASCOB) installation upstream of impaired and nearly impaired lakes in the Clearwater River watershed and provided some suggestion for edits.

Water quality related notes and minutes from the August 12, 2021 Red Lake Watershed District Board of Managers meeting.

- Thief River One Watershed One Plan, RLWD Proj. 149A, State Ditch 83/Thief River Bank Stabilization Plans and Specifications were presented to the Board by Engineer Tony Nordby, Houston Engineering, Inc. Following discussion, motion by Ose, seconded by Dwight, to accept the plans and specifications and move forward with the project. Motion carried.
- HDR, Inc., Engineer, Nate Dalager, gave a City of TRF Oxbow Restoration and Stormwater Treatment, RLWD Project 46Q, construction update. The contractor, Spruce Valley Corporation, has staged equipment in the project area and is likely to start construction on Monday, August 16, 2021.
- East Polk County SWCD is reapplying for a competitive CWF grant like the grant that they applied for back in 2018. Part of their 2018 grant application was to earmark a 25% grant match which our Board approved the match by motion at our August 23, 2018, Board meeting. The motion approved the East Polk County SWCD's submission of a Clean Water Grant application and a 25% match from the Red Lake Watershed District's Water Quality Project, RLWD Project No. 46. It was the consensus of the Board that our motion still stands as approved. Jesme will report to the East Polk SWCD to assure they can continue to apply for their grant.

Water quality related notes and minutes from the August 26, 2021 Red Lake Watershed District Board of Managers meeting.

- Rob Sip, Executive Director for the Red River Watershed Management Board (RRWMB) presented an update on RRWMB activities. Sip discussed updating LiDAR, with the flight scheduled to occur at leaf off in the Fall of 2021. Extensive discussion was held with the Board on the areas to be collected with the potential of additional counties and watersheds participating in the LiDAR data collection.
- The Mud River Restoration Project Work Team, RLWD Project No. 149A, was presented to the Board for review. Administrator Jesme stated that the District has not heard from several of the agencies/associations regarding who will participate as a Delegate for their respective agency/association. Motion by Sorenson, seconded by Tiedemann, to approve the Mud River Restoration Project Work Team, RLWD Project No. 149A, and that any additional changes be presented to the Board. Motion carried.
- Quotes were received for the Thief River Streambank Stabilization Project. Motion by Tiedemann, seconded by Sorenson, and passed by unanimous vote to accept the apparent low quote from Quality Spray Foam/Anderson Excavating in the amount of \$93,842.34 for the Thief River Streambank Stabilization Project, RLWD Project No. 149A, contingent upon the approval by Legal Counsel Sparby, District Staff, and Project Engineer Tony Nordby Houston Engineering, Inc. in their review of the quote documents and materials.
- Administrator Jesme stated that a pre-construction meeting with the contractor and landowners for the Pine Lake Flood Damage Reduction and Fish Habitat Project, RLWD Project No. 26B, will

be held on August 31, 2021 at the project site. Manager Sorenson recommended inviting landowner Dave Dalager to participate in the meeting.

- Administrator Jesme and Manager Dwight discussed a request from the Beltrami SWCD to assist them in their efforts to purchase a no till drill for installation of buffers strips to prevent erosion and improve water quality. Motion by Tiedemann, seconded by Sorenson, to approve the request in the amount of \$5,000 to the Beltrami SWCD, for assistance in the implementation of buffer strips and water quality purposes to be funded through the District Erosion Control Funds, RLWD Project No. 164.

### **August 2021 Meetings and Events**

- **August 18, 2021** – Clearwater River 1W1P Planning Work Group meeting
  - PTMApp hydro-conditioning and a quality control review have been completed. The model is looking really good and should be done in a couple of weeks.
  - The PWG discussed Priority Issues, rankings, and consolidation of multiple, related issues into a single issue statement.
- **August 23, 2021** – CPR training
- **August 24, 2021** – Red River Watershed Management Board Water Quality Monitoring Advisory Committee meeting
  - The group reviewed a proposal for competitive RRWMB water quality funding for the Mustinka River Rehabilitation Project.
- **August 25, 2021** – Clearwater River 1W1P Advisory Committee and Policy Committee meeting
  - [Project Update #1](#)
  - [Advisory Committee Meeting Report](#)
    - Red Lake County staff talked about including septic inventory/repair funding in the 1W1P.
    - Concern was expressed by an Advisory Committee member about irrigation in respect to groundwater sustainability. DNR staff noted that there has been a record number of well interferences and complaints this year. There was discussion about whether groundwater issues should be “Priority A” or “Priority B.” It will likely be categorized as “Priority B” because there are relatively few things that local government units can do to address groundwater using 1W1P.
    - A Policy Committee member expressed disappointment that outdoor recreation was not selected as a priority for this plan. Outdoor recreation is addressed by other plans and agencies.

Red Lake Watershed District Monthly Water Quality Reports are available online:

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

Learn more about the Red Lake Watershed District at [www.redlakewatershed.org](http://www.redlakewatershed.org).

Learn more about the watershed in which you live (Red Lake River, Thief River, Clearwater River, Grand Marais Creek, or Upper/Lower Red Lakes) at [www.rlwdwatersheds.org](http://www.rlwdwatersheds.org).

“Like” the Red Lake Watershed District on [Facebook](#) to stay up-to-date on RLWD reports and activities.