

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 1/23/2019.

- ✓ Water quality sampling results
- ✓ River Watch and other educational events

Wildflowers were blooming along the Grand Marais Creek Outlet Restoration



### **Red Lake Watershed District Long-Term Monitoring Program**

A fourth round of sampling at long-term water quality monitoring sites was completed in September. Water quality was good at most of the 71 sites throughout the RLWD that were visited in this month, but high concentrations of pollutants were found in some locations.

High concentrations of *E. coli* bacteria (>126 MPN/100ml) were found:

- Branch A of Judicial Ditch 21
- Chief's Coulee at Dewey Ave in northern Thief River Falls
- Clearwater River at CSAH 24, near the Clearwater Lake inlet
- Clearwater River at CSAH 127
- Darrigan's Creek
- Heartsville Coulee at 13<sup>th</sup> St in East Grand Forks
- Judicial Ditch 73 upstream of Rydell NWR (191.8 MPN/100ml)
- Judicial Ditch 73 at the Maple Lake inlet (488.4 MPN/100ml – concentration increased from upstream of Rydell NWR to downstream of the NWR)
- Lost River upstream of Pine Lake
- Lost River at CSAH 8
- Moose River at CSAH 54
- Mud River at Hwy 89

## RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

September 2018

- North Cormorant River at CSAH 36
- O' Briens Creek
- Polk County Ditch 14 at CSAH 10 near the Maple Lake Outlet
- Poplar River at CSAH 30, near Fosston
- Ruffy Brook at CSAH 11
- Thief River at 140<sup>th</sup> Ave NE (Hillyer Bridge)

High concentrations of total phosphorus (greater than the applicable river nutrient region standards) were found:

- Darrigan's Creek
- Heartsville Coulee at 13<sup>th</sup> St in East Grand Forks
- Hill River at 335<sup>th</sup> Ave SE, upstream of Hill River Lake
- Moose River at CSAH 54
- Mud River at Hwy 89
- North Cormorant River at CSAH 36
- O' Briens Creek
- Poplar River at CSAH 30, near Fosston
- Poplar River at 310<sup>th</sup> St. SE, South of Brooks
- Poplar River at County Road 118, NE of Brooks
- Ruffy Brook at CSAH 11
- Silver Creek at CR 111

A high concentration (>15 mg/L) of total suspended solids (excess sediment, muddy water) was found in the Moose River at CSAH 54. The September total suspended solids samples from the Red Lake River near Fisher, in Crookston, and near Gentilly (impaired reaches) met (were lower than) the 65 mg/L standard. International Water Institute staff reported that they had noticed excavation along the Mud River upstream of Highway 89. They also recorded elevated concentrations of total suspended solids in their July and August samples.

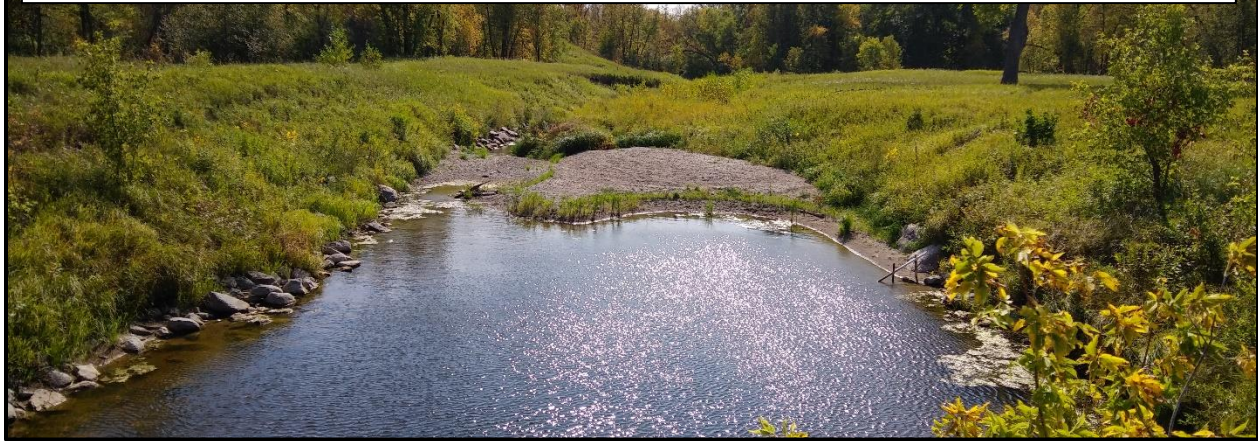
Low dissolved oxygen levels were found in:

- Clear Brook at CSAH 92
- Clearwater River at Tower Rd, south of Bagley
- Coburn Creek near Blackduck Lake.
- Heartsville Coulee at 13<sup>th</sup> St in East Grand Forks
- Judicial Ditch 30 at 140<sup>th</sup> Ave NE, north of Thief River Falls
- Judicial Ditch 73 upstream of Rydell NWR
- Judicial Ditch 73 at the Maple Lake inlet
- North Cormorant River at CSAH 36
- O' Briens Creek
- Walker Brook at CSAH 19

Dry conditions (no flow) were found in some of the smaller streams that are monitored for the RLWD long-term monitoring program. Samples were not collected at sites that had no flow. Field measurements (stage, dissolved oxygen, temperature, pH, and specific conductivity) may have been recorded if there was standing water at the sampling locations

- Beau Gerlot Creek at County Road 114
- Black River at CSAH 18
- Burnham Creek at 320<sup>th</sup> Ave SW
- Grand Marais Creek at 110<sup>th</sup> St. NW
- Hill River at CSAH 35
- Kripple Creek at 180<sup>th</sup> Ave SW
- Lower Badger Creek at County Road 114
- Pennington County Ditch 21
- Polk County Ditch 1
- Polk County Ditch 2
- RLWD Ditch 15
- Terrebonne Creek at CSAH 92

Dry conditions (look at the dry sediment bar downstream) in the Black River on 9/11/2018



### **Dissolved Oxygen Logger Deployments**

Dissolved oxygen loggers were deployed in August.

- Poplar River at CR 118 (Station S007-608 on Assessment Unit 09020305-504)
- Poplar River at 310<sup>th</sup> 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 130<sup>th</sup> St. NW (Station S008-904 on Assessment Unit 09020306-513)

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 310<sup>th</sup> St) after several days of rainfall. The dissolved oxygen levels in the Lost River at Lindberg Lake Road remained above 5 mg/L in every day of the September 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. Dissolved oxygen levels in the Mud River at Grygla regularly dropped below 5 mg/L. 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.

### **Clearwater River Watershed Restoration and Protection Strategy (WRAPS) Project**

- Objective 10 – Report Writing
  - Actions and strategies were added to a list of Clearwater River WRAPS Restoration and Protection Strategies. The list was organized into a spreadsheet and shared with members of the Clearwater River WRAPS core team (technical advisory committee). Strategies were sorted by the HUC10 subwatershed(s) in which they will be implemented. Also, there is a table for strategies that will be implemented on a watershed-wide scale.

### **River Watch**

River Watch Kick-Off events were held at the Ralph Engelstad Arena in Thief River Falls and in Grand Forks. More information about the River Watch Kick-Off events can be found in the October 2018 International Water Institute River Rendezvous newsletter:

[https://mailchi.mp/730d3bedd55d/iwi-river-rendezvous-newsletter-fall-2018?fbclid=IwAR2oZS90QrIT8--eVOMGnqQ47R1aePj4GrewybEUDdxwJh1PR-mPnHC8\\_AU](https://mailchi.mp/730d3bedd55d/iwi-river-rendezvous-newsletter-fall-2018?fbclid=IwAR2oZS90QrIT8--eVOMGnqQ47R1aePj4GrewybEUDdxwJh1PR-mPnHC8_AU).

“Schools come from all directions to attend a Kickoff event where they get to meet other River Watch teams, take notes on the Forum assignment, and enjoy a great view of the river from the seat of a canoe.” “All River Watch teams will be involved in watershed problem solving this year as they prepare for the River Watch Forum. Students will work with local groups and agencies to identify a problem in their watershed and then develop a proposal to solve that problem. This proposal will be complete with realistic action steps and will be submitted to River Watch staff in the form of an ArcGIS Story Map.”

Staff from the RLWD helped the Win-E-Mac River Watch program collect water quality data on September 20, 2018. RLWD Technician, Ashley Hitt, also spoke with 4<sup>th</sup> graders from Challenger Elementary School about watersheds, where our water flows, the importance of water quality, and water quality monitoring (with some hands-on transparency measurements).

### **Grand Marais Creek Watershed Restoration and Protection Strategy (WRAPS)**

Comments were received from the MPCA and EPA on the Grand Marais Creek WRAPS report. District staff used those comments to edit the TMDL report. The TMDL edits were completed and a revised version of the report was sent to the MPCA Project Manager on September 14, 2018.

### **Thief River One Watershed One Plan (TR1W1P)**

RLWD staff reviewed a draft TR1W1P actions table and a draft version of Section 5 (Implementation Programs) of the plan. A table with 156 actions was reviewed by Planning Work Group and BWSR staff at a 9/5/2018 meeting. On 9/13/2018, the Planning Work Group met to discuss Section 5. Ideas for future capital improvement projects (projects that would cost more than \$150,000) were added to the plan. Project partners gathered information for a table that describes estimated baseline funding available for plan implementation. The Planning Work Group participated in a phone conference to discuss the October meeting.

### **2018 Blue-Green Algae Blooms**

District staff informed MPCA staff about the blue-green algae blooms that had been discovered throughout the District during the summer of 2018.

### **Mud River Blue-Green Algae Testing**

Sampling and dissolved oxygen logger deployments in the Mud River continued in response to a past dog deaths from blue-green algae. The Mud River, in Grygla, was sampled in September and tested for the presence of blue-green algal toxins. The Abraxis test kit indicated that there were no measurable algal toxins present in the sample.

### **Other Notes**

- Water quality related notes from the September 13, 2018 Red Lake Watershed District Board of Managers meeting:
  - The Red Lake River 1W1P Planning Work Group (PWG) met via telephone conference to discuss the budget for all LGU partners concerning the approved BWSR Clean Water Funds Grant. The intent of the meeting was to better develop an internal budget document for the LGU's to assist in their planning and funding in the future. A PWG meeting with BWSR and MPCA staff will be held on September 17th to discuss a potential MPCA 319 Grant application.
  - The Thief River PWG met at the Pennington SWCD to go over the Thief River 1W1P action document that was developed by Houston Engineering, Inc. This document was an attempt to put in action items from all LGU plans, into the Thief River 1W1P.
  - Staff member Hanson attended the Polk County WRAC meeting on September 11, 2018.

- Staff members Hanson, Hitt and Slowinski participated in the Pennington County SWCD Outdoor Education Day for area youth in Pennington County.
- Administrator Jesme participated in a phone conference with staff from HDR Engineering and MnDNR regarding the Burnham Creek Wildlife Management Area structure to discuss alternatives for the replacement of the outlet structure.
- Water quality related notes from the September 27, 2018 Red Lake Watershed District Board of Managers meeting:
  - Lisa Newton and Kelsey Hedlund, East Polk SWCD, presented the Shayne Munter Water and Sediment Basin project located in Section 35 of Hill River Township in Polk County. The project will reduce erosion along a private drainage system that flows directly into the Hill River. Newton stated that four berms with tile would be installed to allow for subsurface drainage instead of surface runoff and reduce erosion into the Hill River. The project's cost is estimated to be \$32,979.60. Newton stated that they have 50% of cost share funds, with the landowner contributing 25% of the project costs. Newton requested the remaining 25% from the District's 2018 Erosion Control Funds in the amount of \$8,244.90. Manager Dwight questioned the Clean Water Fund Grant application for the Clearwater River Watershed and Cameron Lake that the Board supported at their August 23, 2018 meeting. Newton stated that they did not apply for the Cameron Lake grant at this time. The Board approved a motion to contribute 25% of the project costs up to \$10,000 for the Shayne Munter Water and Sediment Basin Project, from the District's 2018 Erosion Control Funds.
- There was a complaint about filamentous algae along the shore of Red Lake and a possible connection to discharge from wild rice paddies east of the lake.
- DNR and RLWD staff began planning an October geomorphic study of the Burnham Creek watershed. 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?
- The MPCA provided an opportunity for local water managers to comment on the content and format of Watershed Restoration and Protection Reports via a survey.

**September 2018 Meetings and Events**

- **September 5, 2018** – Thief River One Watershed One Plan Planning Workgroup meeting to discuss the Section 4 actions table.
- **September 10, 2018** – Pennington County Water Resources Advisory Committee meeting
  - SSTS Grants: Two systems are left to be upgraded along Chief’s Coulee. A portion of Chief’s Coulee between Dewey and Atlantic Avenues will be televised (inspected with a robotic camera system).
  - Ditch outlet analysis: Drone flights have been completed for the inspection of all but a “handful” of ditch outlets
  - The Pennington SWCD submitted a grant application of streambank stabilization projects along the Red Lake River within Thief River Falls and for a culvert inventory along Pennington County Ditch 96
  - Pennington SWCD staff reported that 2018 was a busy summer for the Wetland Conservation Act (WCA) program. They are working on a wetland replacement plan for the Black River Impoundment. They are going to hire a Conservation Planner and have placed an advertisement for the job opening in the newspaper. Matt Sorvig, a new technician at the SWCD, has been working on staking buffers and finding alternative practices. SWCD staff helped with a “Dirt Rich” soil health event.
  - RLWD staff gave an update on monitoring results, blue-green algae, WRAPS projects, and Clean Water Fund grant applications.
  - The City of Thief River Falls is working with engineers to include some enhancements like sedimentation ponds for the Westside Flood Damage Reduction Project. Mayor Holmer was appointed to the Red River Basin Commission.
- **September 11, 2018** – Polk County Water Resources Advisory Committee
  - East Grand Forks applied for a grant to plant windbreaks along a ditch on the north side of the city.
  - The MPCA 319 Small Watersheds Program was discussed.
  - The Sand Hill Watershed District (SHWD) is officially pulling out of the Red River Watershed Management Board (RRWMB). There was discussion about the manner in which the exit occurred and potential reasons for the departure. RLWD staff did not comment on the issue.
  - Polk County Environmental Services is looking for help on how to do rain collection projects (technical aspects like rain garden design). The technical service area Conservation Engineer, Jim Hest, was recommended as a potential source of assistance in project design.
  - Well interference was discussed. Thirty-two verbal and formal complaints have been submitted. Twelve have been investigated. Eight of those have been resolved. The other four are still being actively investigated. Funding for geological surveys, which would help with managing groundwater resources in the county, has been cut.

- Clifford Lake, within Rydell National Wildlife Refuge, has experienced a blue-green algae bloom.
- Updates on the Red Lake River, Clearwater, and Grand Marais Creek TMDLs were provided by the MPCA and RLWD.
- A WASCOD is being installed near the Hill River, upstream of Hill River Lake (see notes from the 9/27/2018 Board of Managers meeting in this report)
- As of the end of August 2018, more than 5,000 parcels have been reviewed for Buffer Law compliance
- Polk County Environmental Services deployed PVC pipe zebra mussel test kits in the Red River and in lakes. A bunch of zebra mussels were found on the East Grand Forks side of the river near the access. No zebra mussels have been found in Polk County lakes so far.
- **September 12, 2018** – Pennington SWCD Outdoor Education Day at Oakland Park in Thief River Falls. RLWD staff helped with the water cycle, aquatic invasive species, and minnow racing stations



- **September 13, 2018** – Thief River One Watershed One Plan Planning Work Group meeting to discuss Section 5: Implementation Programs
- **September 17, 2018** – Red Lake River One Watershed One Plan Planning Work Group meeting to prepare for a meeting with the MPCA to discuss potential EPA funding for a targeted watershed restoration effort
  - This project will focus on a smaller watershed with near-field-scale comprehensive planning to achieve a measurable change in water quality in the Red Lake River between CD 96 and Red Lake Falls (Assessment Unit 09020303-504). Only a few watersheds in the state are being selected for this funding. If the Red Lake River is chosen, a detailed plan will be developed.
- **September 17, 2018** – Meeting with the MPCA to discuss potential 319 grant funding for the Red Lake River
- **September 25, 2018** – Northwest Minnesota Water Festival in Warren
- **September 26, 2018** – Northwest Minnesota Water Festival in Fertile





Northwest Minnesota Water Festival in Warren

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).

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