

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 10/25/2021

Water Quality Monitoring



The first round of water quality sampling for 2021, at the District's long-term monitoring sites, was completed in May. The water in the Clearwater River, near Bagley, was extraordinarily clean. Water in the lower Red Lake River (Grand Forks, Fisher, and Crookston) met water quality standards.

High concentrations of total phosphorus were found in:

- Bartlett Lake
- Blackduck River at Deer Trail Road NE
- Grand Marais Creek at 130th St. NW
- Heartsville Coulee at 13th St. SE in East Grand Forks
- North Cormorant River at CSAH 36
- O' Briens Creek at Harvest Road NE
- Ruffy Brook at CSAH 11
- Terrebonne Creek at State Highway 92

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

- Blackduck River at Deer Trail Road NE
- Judicial Ditch 73 at 343rd St. SE, near Rydell National Wildlife Refuge
- North Cormorant River at CSAH 36
- O' Briens Creek at Harvest Road NE

The *E. coli* concentration in Silver Creek at 159th Ave, a site that has had chronically high *E. coli* concentrations, was notably lower than the water quality standard. *E. coli* concentrations also frequently exceed the 126 MPN/100ml threshold for *E. coli* impairment at the monitoring stations in the Upper/Lower Red Lakes subwatershed. Coburn Creek and the South Cormorant River *E. coli* concentrations were notably low in the May samples.

Netting to discourage cliff swallows under the CSAH 36 bridge over the North Cormorant River



A side water inlet installation along Branch 3 of State Ditch 83 that might need more work to avoid a wash-out and lacks erosion control measures at the outlet. The field is also lacking a buffer. The bare, loosely piled soil on the embankment would be washed downstream to the Thief River during a runoff event.



Wind erosion and dust storms occurred much-too-frequently in the spring and early summer of 2021. This one was photographed 1 mile west of Agassiz National Wildlife Refuge.



Very low flow in the Thief River on May 27, 2021



Equipment was purchased and a shipping arrangement was set up for volunteer sampling of Bartlett Lake. District staff helped the volunteer collect the first sample and provide some training on monitoring methods.

Water Level and Flow Monitoring

An In-Situ VuLink remote water level logging system was purchased to give District staff the ability to check water levels in Pine Lake from a computer at the office.

River Watch

The Gold Award for the 2021 River Watch Forum was awarded to the Red Lake Falls team from Lafayette High School. They had nearly perfect scores on all three challenges of the Forum!

This year, the Forum was held virtually from March 8th to March 26th due to COVID-19. The groups that participated were asked to complete 3 challenges:

Challenge #1: The River Watch staff collected a 'snapshot' of water quality along 300 miles of the Red River by collecting field data and collecting water samples for further lab analysis. The dataset was given to each River Watch team, and they had to match the data to one of the 14 locations on a map.

Challenge #2: Requiring an in-depth understanding of a biological component of rivers and streams, each team had to identify several macroinvertebrates from five separate locations and calculate a pollution tolerance index for each location.

Challenge #3: This activity was all about sharing a fun River Watch memory for a social media contest and preparing for 2021 summer and fall activities.

River Watch is a watershed education program created for Jr. high and high school students. Students collect water quality samples from local rivers and streams, learn about their local watersheds and typically participate in a watershed-based project over the winter months. Due to COVID-19 restrictions, schools were not able to work on a watershed-based project over the winter months. Schools from Minnesota and North Dakota located in the Red River Basin participate in River Watch throughout the year.

District staff helped Win-E-Mac students complete a round of water quality measurements at their monitoring sites in May.

Red Lake County Central was one of the first schools to participate in the International Water Institute's River of Dreams program this year. After learning about watersheds and water quality, the students decorated canoes and launched them into the Lost River. Each canoe's journey can be tracked online. When a canoe is found, it's location can be logged on a website. Elementary students from Red Lake Falls (Clearwater River), Clearbrook-Gonvick (Clearwater River near Clearwater Lake), Grygla (Mud River), and Thief River Falls (Red Lake River, in April) also participated in the program throughout the spring of 2021 (March through April). The River of Dreams program involves classroom instruction about watersheds and water quality, as well as an outdoor event where the students launch trackable wooden canoes, that they have decorated, into a local river.

Thief River Watershed One Watershed One Plan (1W1P)

A meeting was held to discuss the Mud River Restoration project and the next steps that were needed to continue planning the project. The need for soil borings was discussed and plans were made to gather equipment and a team of staff from partner agencies to collect some data in early June.

Plans for the streambank stabilization projects along the Thief River were reviewed by DNR staff.

Thief River Falls Oxbow Restoration Project

Project partners discussed three additions to the project that could improve the effectiveness of the project: 1) additional excavation within the oxbow restoration site; 2) installation of drain tile under the snow storage area settling pond; 3) an additional underground structure that will bypass high flows and prevent overloading of the eastern hydrodynamic separator.



Clearwater River One Watershed One Plan (1W1P)

Houston Engineering, Inc. (HEI) created a draft Land and Water Resources Narrative, which was reviewed by District staff and the rest of the Planning Work Group. The Planning Work Group also reviewed survey results. The consultant also created a public survey that could be distributed at the same time as the public kick-off meetings.

District staff conducted groundtruthing of Clearwater River Watershed PTMAApp burnlines (representing culverts and bridges) and edited PTMAApp input files using the findings. A section-by-section examination of flow accumulation lines and non-contributing areas (areas where water digitally “pools” instead of flowing downstream) to find locations that should be field-checked for the presence/absence of a culvert. PTMAApp files were shared with Houston Engineering, Inc. staff for a preliminary quality assurance review.



“Waterfall” at the dammed outlet of Spike Lake, discovered while ground truthing. There was a nice little stream, downstream from the dam.



Other

- A complaint was received about algae in the Thief River. District staff checked on the problem and found that it was an accumulation of filamentous green algae (annoying, but harmless) and not blue-green algae.
- District staff received a complaint about poor water quality in the Clearwater River during wild rice paddy drainage.
- A complaint was received about possible blue-green algae in a ditch south of McIntosh. Because it was in the Sand Hill Watershed District, all information about the complaint was passed along to Polk County Environmental Services.
- The Clearwater Lake Area Association shared their [Spring 2021 Dockside Newsletter](#).

Water quality related notes and minutes from the May 13, 2021 Red Lake Watershed District Board of Managers meeting.

- Nicole Bernd, West Polk SWCD, participating via Zoom, requested funding for the following two grade stabilization projects (both in Red Lake River 1W1P Management Area L7) from the District's 2021 Erosion Control Funds, RLWD Project No. 164: Hangsleben Project, Huntsville Township, Polk County, estimated project cost of \$8,500, with a request for cost share in the amount of \$6,375.00; and the Boushee Project, Huntsville Township, Polk County, estimated project cost of \$9,800, with a request for cost share in the amount of \$7,350, for a total of \$13,725. Motion by Tiedemann, seconded by Sorenson, to approve cost share in the amount of \$13,725 for the Hangsleben and Boushee Erosion Control Projects from the District's 2021 Erosion Control Funds, RLWD Project No. 164. Motion carried.
- Engineer Dillion Nelson, HDR Engineering, Inc., and Wayne Johnson, City of Thief River Falls, appeared before the Board for discussion on potential additional items for construction of the City of Thief River Falls Oxbow Restoration and Stormwater Treatment Project, RLWD Project No. 46Q. Nelson proposed the installation of 6" drain tile where the City of Thief River Falls currently uses the area as snow storage, deeper pool for longer life span, installation of a third structure to bypass high flows and make hydrodynamic separator more effective to filter out trash, sediment and pollutants. Total additional potential cost is \$170,000. Nelson indicated that they have added a condition in the Specifications that the owner will have the right to remove full bid items if the bids come in over budget. Discussion was held on requesting additional funding from the project partners. Motion by Ose, seconded by Dwight, to approve the Plans and Specifications for construction of the Thief River Falls Oxbow Project, RLWD Project No. 46Q. Motion carried.
- The Board reviewed a letter from the MnDNR regarding a domestic well interference complaint in Red Lake County that has been fully settled with the local landowners with irrigation systems.
- Staff member Corey Hanson presented a quote in the amount of \$4,869.70 from Eureka for the purchase of a water quality sonde. Hanson discussed the cost to repair the current sonde versus purchasing new equipment. Motion by Tiedemann, seconded by Ose, to approve the purchase of a water quality sonde in the amount of \$4,869.70 from Eureka. Motion carried.
- Staff member Slowinski has been working with schools on River Watch this spring.
- The Policy Committee for the Clearwater River 1W1P met on April 28, 2021. Included in the packet was the agenda for the meeting.
- Manager Ose discussed the RRWMB meeting and research the USGS is conducting on the lack of water and water quality in the Thief River 1W1P.

Water quality related notes and minutes from the May 27, 2021 Red Lake Watershed District Board of Managers meeting.

- Sealed bids for the construction of the Thief River Falls Oxbow Restoration and Stormwater Treatment Pond, RLWD Project No. 46Q, will be publicly opened at 10:00 a.m. on June 16, 2021, in the City of Thief River Falls Council Chambers.
- Engineer Tony Nordby, Houston Engineering, updated that Board on the Demarais/Hanson Bank Stabilization Project, RLWD Project No. 149. Nordby stated that since this is a Red Lake River 1W1P Project, BWSR had requested that the Engineer determine the approximate cost of extending the project downstream from the “tree row to the oxbow”, approximately an additional 150 feet. Nordby stated that the preliminary design shows that the area flattens out about 150 feet downstream, which would then enter a plunge pool. The original estimated cost of the project was \$210,000 and the additional work was estimated to cost an additional \$30,000 for a total approximate cost of \$240,000. Motion by Tiedemann, seconded by Dwight, to move forward with the Demarais/Hanson Bank Stabilization Project, RLWD Project No. 149, with the additional 150 feet to the oxbow. Motion carried.
- Staff member Christina Slowinski reviewed the Pennington Cooperative Weed Management Area Memorandum of Agreement for the management and control of invasive plants and noxious weeds on public and private lands in Pennington County. Motion by Dwight, seconded by Anderson, to authorize Administrator Jesme and grant the authority to sign the Pennington Cooperative Weed Management Area Memorandum of Agreement and to have Slowinski continue to attend these meeting on behalf of the District. Motion carried.
- A Clearwater River 1W1P Planning Work Group met on May 19, 2021, to review information for the Advisory Committee meeting held on May 26th. The first kickoff meeting will be held on June 10th.
- Staff member Christina Slowinski has been meeting with several River Watch Schools.

May 2021 Meetings and Events

- **May 7, 2021** – Red River Watershed Management Board – Water Quality Monitoring Advisory Committee meeting
 - The committee reviewed a funding proposal for the Lake Traverse Water Quality Improvement Project – Phase 2. The multi-phased project is stabilizing a severely eroding waterway that flows into Lake Traverse. The planning of this project was impressively detailed. The extreme erosion problems made this project a high priority. While stabilizing the steep channel slope, a lot of design features have been incorporated to facilitate fish passage.
- **May 17, 2021** – Mud River Restoration Project meeting
 - Geomorphology, river ecology, and fisheries staff are interested in helping with this project. The DNR has limited funding for projects, though, other than the Outdoor Heritage Fund. Due to the size of the project, Lessard-Sams might be the funding source to target.
 - USFWS staff have reached out to DNR staff to get advice on the project. There is a lot for us to “wrap our head around” in terms of the kind of project that will be needed and what kind of benefits it can provide.
 - What is the current bed load of sediment in the Mud River?

- Soil borings are recommended to find elevations of the old stream bed. DNR, USFWS, and RLWD staff will team-up to collect soil boring data.
- **May 19, 2021** – Clearwater River 1W1P Planning Work Group meeting.
 - The Advisory Committee will review the draft Land and Water Resources Narrative at their next meeting.
 - The Trap bar in Gonvick and the Brooks Community Center were chosen as the locations of public kick-off meetings.
 - Priority resource points (for PTMApp development and utilization) will be located at HUC 10/12 outlets, monitoring stations at which total maximum daily loads (TMDLs) were established, and lake outlets.
- **May 19, 2021** – Meeting to discuss the creation of an educational video to showcase the Clearwater River Watershed
 - Dain Erickson ([Red Canoe Cre8tive](#)) can help with the production of the video. He has a contract for services within Technical Service Area 8.
 - The video concept is a virtual tour of the Clearwater River Watershed that highlights unique aspects and identifies problem areas.
 - Collect drone footage (MPCA or consultant)
 - DNR staff have looked at the river and started writing a preliminary script.
 - Highlight past projects and talk about how they connect to resource priorities and future projects.
 - Interview landowners
- **May 26, 2021** – Clearwater River 1W1P Advisory Committee Meeting
 - Planning Work Group staff gave presentations on the types of projects their agencies have completed in the Clearwater River watershed.
 - Additional issues identified by Advisory Committee members included sturgeon spawning (DNR), erosion (DNR), floodplain connectivity (DNR), the Lost/Clearwater confluence (DNR), mussel diversity (DNR), wild rice BMPs (DNR & MPCA), *E. coli* bacteria (DNR), groundwater (DNR), well-interference (DNR), sulfate impairments (MPCA), feedlots (MPCA), septic systems (MPCA)

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.

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.

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