

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

Water Level and Flow Monitoring

An In-Situ VuLink remote water level logging system was deployed in Pine Lake to give District staff the ability to check water levels in the lake from a computer at the office. The logger was installed on June 1, 2021.

Water Quality Monitoring

Stormwater samples were collected from the Thief River Falls Oxbow Restoration Project area during a June 11, 2021 rain event. Total suspended solids (TSS) concentrations were high at the Pennington Ave stormwater outlets into the oxbow wetland. The TSS concentration was lower, downstream, at Columbia Ave, but still higher than the water quality standard for TSS. Total phosphorus (TP) exceeded the 0.1 mg/L water quality standard on the upstream and downstream end of the oxbow restoration project area, and the TP concentration was higher at the downstream, Columbia Avenue sampling location. Chloride concentrations were low in the stormwater inflow from the east and the north, at Pennington Avenue. Chloride concentrations were six times higher at the downstream, Columbia Avenue sampling site.



Due to the lack of runoff this summer, there were relatively few exceedances of water quality standards recorded in streams during the June round of samples for the District's long-term water quality monitoring effort. The TP and chlorophyll-a concentrations in Long Lake were low.

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

- Moose River at CSAH 54
- Mud River at State Highway 89

Proliferation of filamentous algae in the Thief River (in stagnant water at CSAH 44)



Nature Day Camp – Macroinvertebrate Day

District staff helped with the “Macroinvertebrate Day” of the Thief River Falls Nature Day Camp, organized by local teachers, in which 5th and 6th graders from area schools learned where to find aquatic insects, why they are important, and how to identify them.



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 the early summer.

A team of 6 staff from the United States Fish & Wildlife Service, Minnesota Department of Natural Resources, Natural Resource Conservation Service, and the Red Lake Watershed District collected transects of soil boring information along the old channel of the Mud River to aid in planning a restoration project. Survey data and photos from the soil boring effort were provided to the engineer.

Shells and coarse material were found in soil borings near the downstream (west) end of the old channel path. At the upstream end, however, Soil borings maxed-out at about a 5-foot depth and only produced decaying vegetation. Due to the insulating nature of the organic material, dense layers of frost remained a short distance from the surface. A flood damage reduction project team will be assembled to begin an official process of planning a restoration project.



On-the-ground view of the old meanders of the Mud River that are visible in aerial photos.



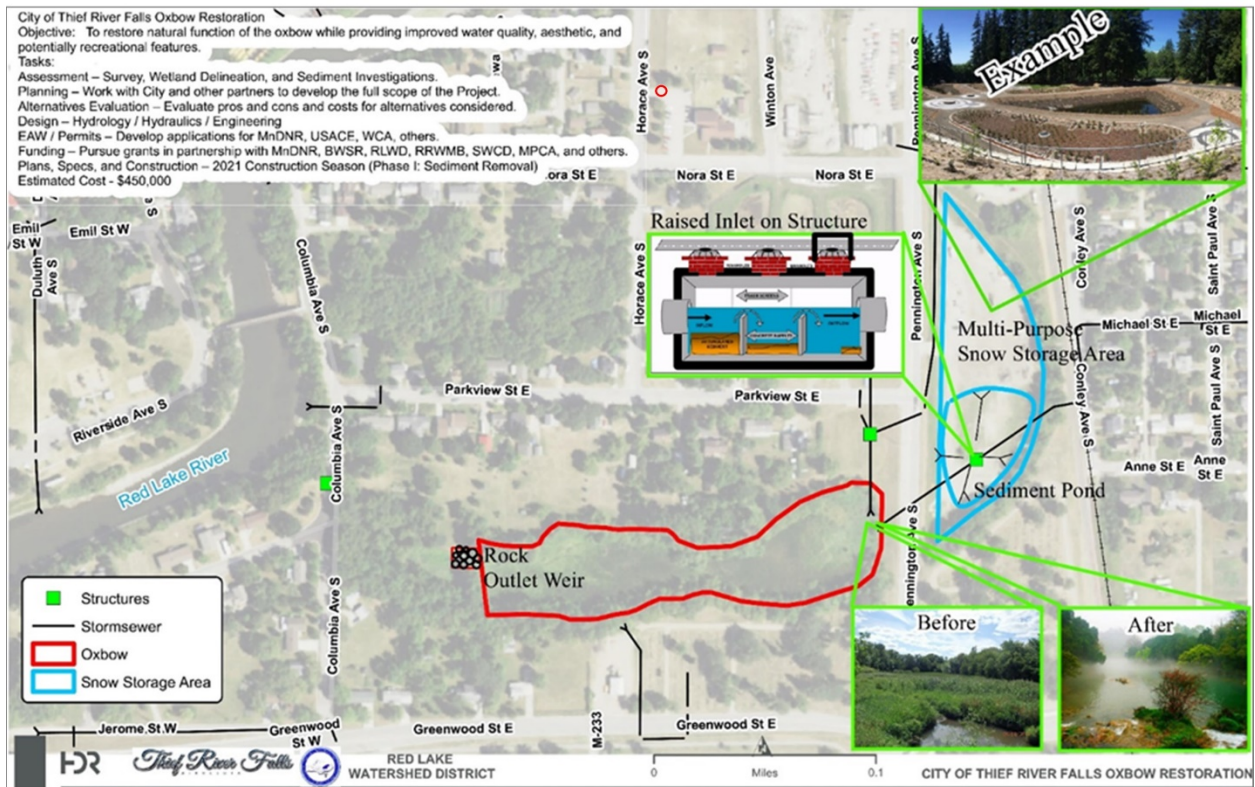
A new meander cut-off channel was identified by the Pennington SWCD as a future project.



Lawn mowing to the edge of the river has had a negative effect on streambank stability



Thief River Falls Oxbow Restoration Project



HDR Engineering, the city of Thief River Falls, and District staff continued to collaborate and plan for funding and 2021 construction of the Thief River Falls Oxbow Restoration Project. HDR Engineering staff spoke with neighboring residents to keep them in-the-loop about the project.

The total estimated cost of the Thief River Falls Oxbow Restoration project is currently \$728,772. Funding for the project came in from:

- City of Thief River Falls
 - Approximately \$35,000 for early planning/engineering expenses (before grants)
 - \$50,000 for construction costs
- Red Lake Watershed District
 - \$50,000 (10% of the original total budget of \$500,000.
 - The District Board of Managers approved additional cost-share (remaining construction and engineering costs less grant funding and the \$50,000 contribution from the city to construction costs) to help fund the additional excavation, tile drainage, and additional underground structure that were recommended by the engineer.
- The Red River Watershed Management Board (RRWMB) approved an additional \$84,000 to bring the total RRWMB contribution from competitive water quality funding to \$250,000.
- A \$250,000 Clean Water Fund grant was awarded to the project by the Minnesota Board of Water and Soil Resources.

Clearwater River One Watershed One Plan (1W1P)

District staff conducted groundtruthing of Clearwater River Watershed PTMApp burnlines (representing culverts and bridges) and edited PTMApp 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. Houston Engineering staff completed a quality check on the hydroconditioning work that had been completed through May. In their opinion, the hydroconditioning work completed for the Clearwater River watershed might be the best in the state. They shared the results of an analysis that highlights portions of subwatersheds that were changed by the hydroconditioning process (comparison of USGS HUC-12 boundaries and new subwatershed boundaries delineated by PTMApp with hydro-corrected LiDAR data). They also provided a layer of points where they thought that additional ground-truthing would be beneficial. District staff used those layers to complete another desktop examination of the watershed and add points to the groundtruthing “to-do list.”



Photo of perched culverts on the trout stream reach of the Clearwater River, submitted by a landowner



The local staff of the Planning Work Group (PWG) met to coordinate public kick-off events for the Clearwater River 1W1P process. The PWG reviewed letters that were submitted in response to the 60-day comment period that marked the beginning of the planning process. Public open-house kick-off meetings were held in Brooks and Gonvick. Houston Engineering, Inc (HEI) created a flyer to help with the promotion of the public open house events. After the meetings, the consultant drafted a set of issue statements using existing information and input from letters and in-person meetings.





Clearwater River WATERSHED

JUNE
10th

Public Open House

4:30-6:00 pm at the
Brooks Community Center
(Short presentation at 5:00)

6:30-8:00 pm at
The Trap in Gonvick, MN
(Short presentation at 7:00)

Who: Anyone! We especially would like those who live in or have a vested interest in the Clearwater River Watershed.

What: A free event to provide input on what resources are most important to you and learn about our water resources in the area.

Why: To build community and create a shared legacy around the water in our region.

One Watershed One Plan Public Survey

We are beginning a planning process for the Clearwater River Watershed. This planning process is used to determine the best focus for our local time and funding to manage our natural resources including lakes, streams, wetlands, forests, prairie, and soil health. We want to hear from you about what you care about in the region. What important issues need attention now and, in the future, to continue the progress made in the area?

Please submit responses by June 11th.

This survey is anonymous. If you would like to be on an email list to receive updates about this project, please email Chester Powell at Clearwater SWCD:
chester.powell@mn.nacdnet.net.

Scan the QR code
to take the public survey
Survey is anonymous.



Other

- The International Water Institute shared their [Spring 2021 River Rendezvous Newsletter](#). Water quality related notes and minutes from the June 10, 2021 Red Lake Watershed District Board of Managers meeting.
- Staff member Nick Olson discussed significant erosion occurring on the west bank, downstream of the Schirrick Dam, RLWD Project No. 25. Olson stated that when the District operates the dam for a flood event, erosion is occurring downstream of the structure due to the high volume of water being released. Discussion was held on reforming the channel and removal of the sand bar. Manager Dwight suggested the use of stream barbs to direct the water away from the bank. Motion by Ose, seconded by Dwight, to proceed with the hiring of an Engineer to determine the needed repairs for downstream of the Schirrick Dam, RLWD Project No. 25. Motion carried. Olson and Manager Page discussed a request from landowner Dave Schirrick to move the access road to the impoundment, further east on an existing berm, to keep traffic away from the Schirrick home. It was the consensus of the Board, that due to the limited number of times the District needs to access the property, and the fact that the Board currently has an easement with the landowner, the District declined the request to move the access road.
- Engineer Tony Nordby, Houston Engineering, Inc., stated that R.J. Zavoral and Sons, Inc., installed the air vents last week on the Ditch 10 Outlet Repairs, RLWD Project No. 161. Nordby stated that the plan called for grouting the rock chute to lock things together. After inspecting the site, Nordby determined that there is good gradation, therefore grout would not be needed, noting that since they did not grout the project, they did extend the approach to the riprap. The District will need to monitor the area where the stumps were buried as the landowner had concerns of settling.
- Bid opening on the Thief River Falls Oxbow Project will take place on June 16th in the City Council Chambers.
- There will be a Clearwater River 1W1P Kick-off meeting on June 10th, in Brooks and Gonvick. Staff members Corey Hanson and Christina Slowinski will attend. The Policy Committee meeting will be held on June 23rd at 1:00 p.m.
- The Red Lake Falls River Watch Team won first place during the 26th Annual River Watch forum.
- Manager Ose stated that he was at the outlet of the Agassiz National Wildlife Refuge, reporting that no water is coming out of the refuge, with a small amount of water coming from Farnes Pool and Ditch 18.

Water quality related notes and minutes from the June 10, 2021 Red Lake Watershed District Board of Managers meeting.

- The Board reviewed the executed RRWMB Water Quality Program Grant Agreement 2020-12 for the Thief River Falls Oxbow Restoration and Stormwater Treatment Project, RLWD Project No. 46Q in the amount of \$166,000. Engineer Nate Dalager, HDR Engineering, Inc., discussed betterments to the project to keep the water deeper to help eliminate cattail growth, addition of a diversion structure and drain tile at a total estimated cost of \$730,000. Discussion was held on potential funding partners for the additional project costs. The District had previously committed \$50,000. Wayne Johnson, City of Thief River Falls, stated that the city is willing to contribute an additional \$50,000, adding that he has concerns about the cost of paying for maintenance over the next 25 years. Discussion was held on requesting additional funding from the RRWMB Water Quality Program. Motion by Ose, seconded by Sorenson, to request

additional funding from the RRWMB Water Quality Program Grant, with the District covering the remaining balance, less the additional \$50,000 contribution from the City of Thief River Falls. Motion carried.

- Administrator Jesme discussed the need to create a Project Work Team for the Mud River Restoration Project, RLWD Project No. 149A, in order to apply for a Flood Damage Reduction Work Group Acceleration Grant. Engineer Nate Dalager, HDR Engineering, Inc., discussed the Judicial Ditch 11 channel within the Agassiz National Wildlife Refuge and the alignment of the Mud River channel that was straightened. Presently, both channels are about five feet lower than the silted in historical channel. Dalager discussed the amount of sediment that moves through the system, noting this area has a large drainage area. A survey and study of the hydrology has been completed. Excavation/restoration of the original channel would be hard to complete, which is where a Project Work Team would come into play to help review the area, decide what the project goals would be and come up with alternatives to reach the goals or objectives agreed to in the Project Team process. Jesme noted that this does not commit the District to the project but would paint a clearer picture as to what funding sources could be used once the scope of the project is better defined. Motion by Tiedemann, seconded by Page, to develop a Project Work Team for the Mud River Restoration Project, RLWD Project No. 149A. Motion carried.
- The Board reviewed River Watch Agreements between the District and the Red Lake Falls School District and the Win-E-Mac School District. Motion by Tiedemann, seconded by Page, to approve the River Watch Agreement between the District and the Red Lake Falls School District and the Win-E-Mac School District. Motion carried.
- A Clearwater River 1W1P Advisory and Policy Committee meeting was held on June 23rd in Bagley.
- The Red Lake River 1W1P Planning Workgroup will meet on June 28th in preparation for the upcoming Policy Committee meeting which will be held on July 14th.
- Staff members Hanson and Slowinski participated in the Riverview Nature Camp held in Thief River Falls. Included in the packet was photos of the camp.
- Manager Ose stated that there is no water coming out of Agassiz National Wildlife Refuge and very little out of Ditch 200 and 20, noting that this would be a good year to have maintenance done on State Ditch 83, RLWD Project No. 14.

June 2021 Meetings and Events

- **June 1, 2021** – Clearwater River 1W1P Planning Work Group meeting to coordinate public kick-off events
 - The PWG discussed meeting locations, supplies, advertising, door prizes, and other details.
- **June 3, 2021** – Thief River 1W1P Planning Work Group meeting
- **June 4, 2021** – Virtual meeting to discuss the results of Houston Engineering’s quality control check of the Clearwater River Watershed PTMApp hydroconditioning data (culvert “burn lines,” lakes routing, and non-contributing areas)
- **June 10, 2021** – Clearwater River 1W1P Public Kick-Off meetings
- **June 15, 2021** – Red Lake River 1W1P presentation at an Area 1 Soil and Water Conservation District at Shooting Star Casino in Mahanomen

- **June 16, 2021** – Clearwater River 1W1P Planning Work Group meeting
 - The PWG reviewed a summary of letters received during the 60-day comment period that marked the initiation of the planning process.
 - Issues and recommendation in the letter from the Minnesota Department of Natural Resources included:
 - Erosion problems along the Hill River, Lost River, and the Clearwater River downstream of the Lost River confluence
 - Recommended a review of the Clearwater River Watershed Fluvial Geomorphology Report.
 - Improve base flows to improve dissolved oxygen levels (low dissolved oxygen impairments are mostly caused by low flows)
 - Grazing management to address *E.coli* impairments
 - Maintain mussel diversity (DNR has maps that could help identify the areas that can be prioritized for protection)
 - Wild rice paddy drainage
 - Groundwater and well interference
 - Declining water quality
 - Habitat protection (Wildlife Protection Areas, Rydell National Wildlife Refuge, and Minnesota Prairie Conservation Plan)
 - The BWSR letter reviewed plan requirements and general priorities.
 - The Clearwater Lake Area Association submitted a letter that mentioned:
 - Lake Lomond zebra mussels
 - AIS enforcement and compliance
 - Communication (improve educational efforts)
 - Wild rice paddy drainage
 - Forest/CRP
 - Erosion and sedimentation
 - Septic systems
 - Wake boat restrictions to reduce disturbance to lake sediment
 - Aquifer protection (groundwater supply and quality)
 - The Minnesota Department of Health wrote a letter to emphasize:
 - Prioritization of Drinking Waters Supply Management Areas
 - Concerns for DWSMAs include highways, railroads, pipelines, arsenic, and contaminated sites
 - Sealing of abandoned wells
 - Protection of private wells
 - Protection of Noncommunity Public water Supplies
 - GRAPS Report (Groundwater Restoration and Protection Strategies)
 - Concerns/issues/recommendations from citizen/landowner letters included:
 - Lost River flooding
 - Pollutant runoff
 - Protection of good water quality in Pine Lake
 - Aquifers
 - Ag runoff
 - Harmful chemical runoff

- AIS (multiple letters)
- *E. coli* (cattle in streams)
- Lack of buffers
- Streambank erosion
- Septic tanks
- Cattails
- Education (shoreline restoration) for residents and businesses
- Accessible and understandable summaries of reports
- The Minnesota Department of Agriculture's (MDA) letter noted plans and programs that may be relevant to the Clearwater River Watershed:
 - Nitrogen Fertilizer Management Plan
 - Groundwater Protection Rule
 - Vulnerable Groundwater Areas
 - Mitigation level determination
 - Minnesota Agricultural Water Quality Certification Program (MAWQCP)
 - Cropland Grazing Exchange
 - Agricultural Growth, Research, and Innovation (AGRI) program
 - MDA pesticide monitoring
- The MPCA letter mentioned:
 - Information about impaired waters can be found in the WRAPS and TMDL documents.
 - Chloride reduction (no chloride problems have been identified in this watershed)
 - Stormwater
 - Feedlots
 - Septic systems
 - Ag practices
 - Streambank erosion
 - Ditch maintenance
 - Restore stream meanders
 - Restore base flow in streams
 - Revegetation of ditches
 - Wild rice farming
 - Nutrient loading reductions
- Draft issue statements, Land and Water Resources Narrative comments, and the agenda for the upcoming meeting of Advisory and Policy Committees were reviewed.
- **June 21, 2021** – Nature Day Camp at LaFave Park in Thief River Falls
- **June 23, 2021** – Clearwater River 1W1P Advisory Committee and Policy Committee meeting in Bagley
- **June 25, 2021** – Thief River 1W1P Policy Committee meeting
 - Judicial Ditch 23 plans and specifications have been provided to the county. The county will handle bids and bid opening. The RLWD will handle inspections.
 - There was discussion about the planning of an educational workshop.
 - There hasn't been much interest in cover crops, so far.

- The Pennington SWCD has found that another meander cut-off has started forming near their previous meander cut-off stabilization project.
- The Pennington SWCD is working on a project that was funded by a competitive Clean Water Fund grant and will install ag practices in the Lower Thief River and Judicial Ditch 30 subwatersheds.
- **June 28, 2021** – Red Lake River 1W1P Planning Work Group meeting
 - The next round of 1W1P watershed-based funding (2022) goes to the Minnesota Board of Water and Soil Resources (BWSR) Board for approval in September. It will be important to close-out the first grant (2018) before applying for the next round.
 - Project updates were shared for 2018 work plan projects: Pennington County side water inlet construction, the Thief River Westside outlet stabilization (final hearing), Ditch 16 side water inlets, Black River Impoundment side water inlet and rock-check construction. The West Polk SWCD provide updates on grade stabilization projects in the Burnham Creek subwatershed. The Red Lake SWCD has hired Houston Engineering, Inc. to design 4 grade stabilization projects in Red Lake County. Construction on those projects is planned for Fall 2021 (Seeger x 2, Beyer, and Weiss projects). The RLWD Board of Managers has approved moving forward with the Demarais-Hanson project construction.
 - Project updates were shared for 2020 work plan tasks. There may be sufficient funding for both proposed Red Lake River streambank stabilization projects. Construction is being completed on the Ditch 10 outlet stabilization project. The RLWD has applied for a FEMA grant to help pay for stabilization of erosion at the Ditch 10 outlet. The Pennington SWCD has identified two large grade stabilization projects along the Black River. There was a discussion about landowner cost-share requirements for ag practices. There was discussion about how it can be helpful to find other sources of funding to help pay a portion of the 25% cost-share requirement, but the landowner should contribute at least 10% of the project cost.

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](https://www.facebook.com/redlakewatershed) to stay up-to-date on RLWD reports and activities.