

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator, 1/28/2022

River Watch and Public Education

District staff met with International Water Institute staff to discuss the River Watch Forum. Emails were sent to students to provide them with information about River Watch Forum projects. Emails were sent to try to schedule classroom visits with the District's River Watch teams to spend time working on the River Watch Forum projects.

The theme of the 2022 River Watch Forum will be: "2022: Together Again; Your Watershed, Your Community, Your Forum." The upcoming River Watch Forum is scheduled for March 30th, 2022 at the Alerus Center in Grand Forks. River Watch teams are tasked with planning, marketing, and executing their very own River Watch event in their community.

The District purchased jackets for its partner River Watch Teams and those jackets were distributed to students. District staff began working on cleaning up the District's website and making some improvements.

Water Quality and Flow Monitoring

Field water quality measurements from 2021 were entered into a spreadsheet and submitted to the MPCA. The results of laboratory analysis are sent directly from RMB Environmental Laboratories to the MPCA.

The District's HOBO water level loggers were all retrieved by early November, before streams began to freeze. The loggers were cleaned and data was downloaded from each logger.

While retrieving the water level loggers, District staff discovered very green water in the Poplar River, downstream of Fosston, that was being caused by wastewater discharge from the city's wastewater treatment facility. The November discharge was confirmed by the MPCA. The concentrations of pollutants allowed by the MPCA in the Fosston wastewater discharge significantly exceed the water quality standards that the MPCA expects the Poplar River to meet. Total suspended solids in the river, for example, are supposed to be lower than 30 mg/L to fully support aquatic life. The Fosston WWTF, however, is allowed to discharge water with a 45 mg/L calendar month average concentration. Water quality samples were collected from the Poplar River at CSAH 6 (upstream of Fosston) and CSAH 30 (downstream of Fosston). The permitted total phosphorus concentration (1 mg/L) is ten times higher than the river eutrophication impairment threshold that is applied to the Poplar River (0.1 mg/L). The stream met applicable water quality standards upstream, but exceeded the TSS (at 32.7 mg/L), total phosphorus (at 0.352 mg/L), and biochemical oxygen demand (at 9.5 mg/L) water quality standards downstream of Fosston, at CSAH 30. In larger rivers, WWTF discharge can be mitigated by dilution, but there is much less dilution in the Poplar River – especially during a dry year like 2021.

Poplar River at CSAH 30, during
Fosston WWTF discharge



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

The Planning Work Group (PWG) met on November 17th and reviewed and updated the list of Citizen Advisory Committee members. Project updates were shared at the PWG meeting.

- Browns Creek Township, Section 32: Two projects will be constructed. Materials have been ordered and received. Due to the weather, construction will be postponed until the spring of 2022.
- Louisville Township, Section 10: Materials have been ordered and received for this project, as well. Due to the weather, construction will be postponed until the spring of 2022.
- Lake Pleasant Township, Section 8: Materials have also been ordered and received for this project. Due to the weather, construction will be postponed until the spring of 2022.
- Voyageur's View Streambank Stabilization: Houston Engineering has been hired to design the project. They will be surveying the project area soon and will design the project over the winter. Construction should start in the summer or fall of 2022.
- Red Lake Falls Township, Section 14 and 21: Project requests has been submitted to the PWG and Houston Engineering is working on an engineering proposal. The Red Lake County SWCD Board will review the engineering proposal and decide whether to proceed with these two projects.

- Polk Centre Township, Sections 9 & 16 (Mosbeck): Construction of these grade stabilization projects will begin in 2022.
- Andover Township, Section 9: This grade stabilization project will not be completed in 2021, so construction will be planned for 2022.
- Hammond Township, Section 1: This project is not moving forward.
- Roome Township, Section 2: This grade stabilization project has been completed.
- Louisville Township, Section 26/27 (Demarais-Hanson) erosion control project: District staff completed staking. Construction of the project began but was halted after some initial brush clearing due to the weather. Construction will resume in the spring and summer of 2022.



The Pennington SWCD is planning a new side water inlet project in Section 4 of Polk Centre Township.

Project partners began gathering and entering information about the projects that have been completed through 2021. The group made sure that the 2018 grant funds were spent by early December so that the grant could be closed-out with final financial reports and progress reports. District staff met with the Red Lake River 1W1P project coordinator to review financial information for the 2018 and 2020 grants and prepare for closing-out the 2018 watershed-based implementation funding grant.

The PWG prepared a draft 2022 Annual Work Plan for the next round of Watershed-Based Implementation Funding. The group applied lessons learned from previous grants to simplify budget and to add flexibility for funding beneficial projects throughout the watershed. To provide guidance for the 1W1P, District staff will use existing geomorphology data and some additional data collection to prioritize streambank stabilization sites throughout the watershed. A feasibility study for the stabilization of tall eroding riverbanks in/near the City of Red Lake Falls was added to the work plan. Those banks should rate high as a priority for stabilization based on their high bank erosion hazard index

rating and their proximity to infrastructure/homes, but successful stabilization of the tall banks could be a challenge. Instead of creating an itemized budget for individual projects, the funding for construction projects will be split into two “buckets” for “ag practices” and for “streambank and shoreline stabilization.” Project requests will be submitted to the PWG and projects that meet criteria for funding will be funded on a first come, first serve basis. Funding has been reserved, until the rest of the implementation funding has been spent, for projects that are outside of priority areas but meet certain criteria. Additional priority areas have been added along the corridor of the Red Lake River downstream of the Thief River Falls dam and along Grand Marais Creek.

Thief River Falls Oxbow Restoration Project



Construction of the project was completed, for the year, other than installation of a screw gate on the east structure. The construction has been completed except for seeding, some site grading where trucks were being loaded, and potentially some rock weir work depending on how it looks in the spring/summer and if it settles. The structures are fully functioning and have been for a few weeks along with the drain tile and all excavation of the oxbow area has been completed.





Dirt, sand and leaves will be captured in the [continuous deflective separation \(CDS\) hydrodynamic separator structure](#) that has been installed, so that it never gets to the west side of Pennington Ave in the oxbow. The City will need to skim out the floatables a few times a year, and the Contech representative said the sump should be vac'd out every few years. A cast iron screw gate will cover a 12-inch hole at ground level on the structure on the east side of Pennington Avenue. It will be used only if the water needs to be released quickly, likely in a frozen ground scenario. If the water is allowed to enter through the sluice gate it will still go through the separation chamber to help limit debris entering the pool. In addition to the structure that creates the settling pond on the east side of Pennington Avenue, the settling pond also features more than 2,000 feet of draitile covered with a geotextile sock and embedded in aggregate filter. Any debris from the stored snow will be cleaned up in the spring by the City once the snow melts and the water infiltrates into the drain tile. The City has a tractor and box scraper that they can use to pull away any sediment over time that may build up near the structure. A CDS structure has also been installed on the west side of Pennington Avenue to filter pollutants from stormwater runoff that enters the oxbow from the north.



Thief River One Watershed One Plan (1W1P)



District staff surveyed additional, potential streambank stabilization sites along the Thief River, between CSAH 7 and CSAH 12.

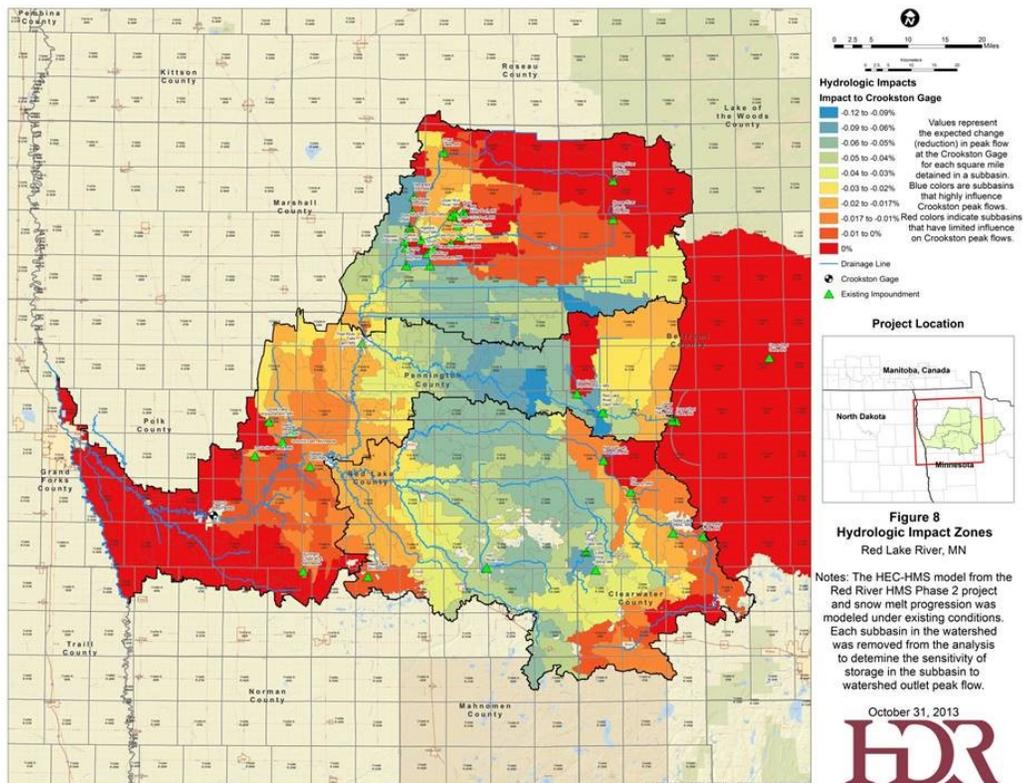


Judicial Ditch 23 outlet stabilization construction was nearly completed, though some touch-up work (slopes were let in rough shape) and buffer planting must still be completed (in the spring or summer of 2022). In addition to the rock structures at the outlet of the ditch, the last 0.6 miles of the ditch were re-sloped and two side water inlets were installed.

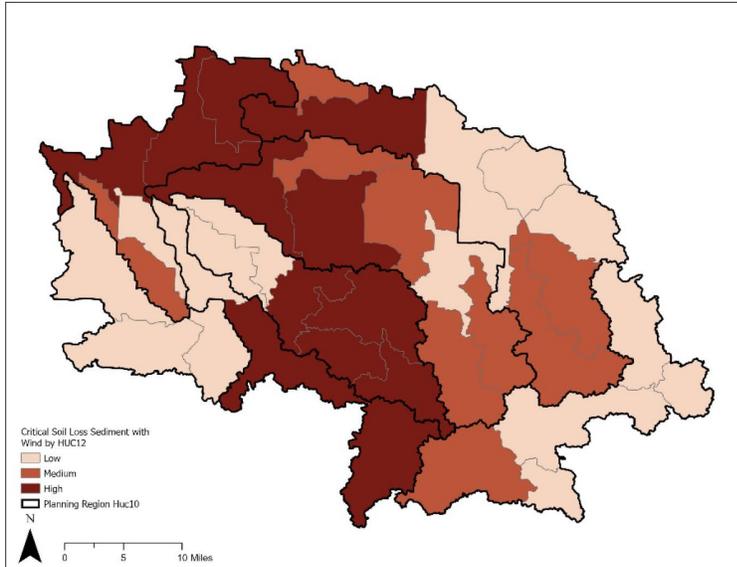


Clearwater River One Watershed One Plan (1W1P)

The Planning Work Group (PWG) reviewed a draft Section 3 of the 1W1P (Priority Issues) and draft measurable goals. District staff shared a HEC-HMS map of prioritized locations for flood damage reduction projects so that it could be used to prioritize areas in the Clearwater River Watershed for FDR projects. District staff also shared the wind erodibility layer and shapefile data that were used to create a map in the Clearwater River Watershed Restoration and Protection Strategy.



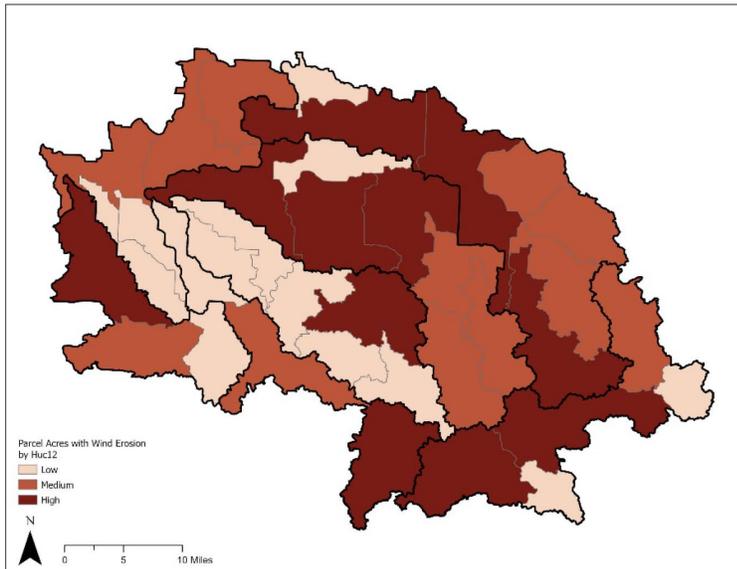
The PWG reviewed options for prioritizing subwatersheds for overland wind and water erosion (which areas should be prioritized for the implementation of agricultural best management practices).



HUC12 Level

Wind+Water Erosion

Prioritized by Sediment Load per
HUC12



HUC12 Level

Wind+Water Erosion

Prioritized by number of acres per
HUC12

2022 Draft List of Impaired Waters

The MPCA has released a Draft 2022 List of Impaired Waters. New changes for waters within the Red Lake Watershed District for the 2022 list mostly include the results of a biological assessment of channelized streams and ditches in the Thief River Watershed that had been deferred during the 2013 assessment:

1. Delisting of a chlorpyrifos (pesticide) impairment on the Grand Marais Cut-Channel (most of the flow from that watershed has been diverted into the restored channel). The Minnesota Department of Agriculture has been contacted to suggest that they may want to move their

monitoring site to the restored channel to continue to collect samples that represent runoff from that entire drainage area.

2. New sulfate impairment of the Clearwater River (channelized portion, 09020305-647). Sulfates were not assessed in 2016 (the most recent formal assessment of the Clearwater River Watershed), but the EPA forced the MPCA to apply their 10 mg/L standard, which is frequently exceeded in that portion of the Clearwater River.
3. New Fish Index of Biological Integrity (IBI) impairment of Marshall County Ditch 20 (09020304-548). The Thief River Watershed was retroactively assessed for aquatic life in 2019-2020 using data that was collected prior to the 2013 assessment. District staff helped MPCA staff with the stressor identification process and planning the next round of sampling (2022) in 2020-21.
4. New Low dissolved oxygen impairment in Branch 200 JD 11 (09020304-534, upstream of Elm Lake WMA).
5. New Fish IBI impairment of the Moose River (09020304-565, upstream of Morel Rd. NW)
6. New Benthic Macroinvertebrates Index of Biological Integrity (M-IBI) impairment of the Mud River (09020304-567)
7. New Benthic Macroinvertebrates Index of Biological Integrity (M-IBI) impairment of the Mud River (09020304-568)
8. New Fish IBI impairment of the Mud River (09020304-568)
9. New Fish IBI impairment of the Thief River (09020304-504, Thief Lake to Agassiz Pool)
10. New M-IBI impairment of Br. 200 of JD 11 (09020304-511, downstream of Farnes Pool)
11. New F-IBI impairment of Br. 200 of JD 11 (09020304-511, downstream of Farnes Pool)

Other

- Construction of the Pine Lake outlet project is mostly completed.



- District staff prepared a presentation with updated water quality trend analysis and assessment statistics for the next Mud River Restoration Project Team meeting
- A final report was submitted to the Red River Watershed Management Board for the 2020 Base Water Quality Funding. The \$100,000 of water quality funding from the RRWMB helped fund the installation of side water inlets and rock-drop structures in the Black River Impoundment drainage area (\$78,000) and side water inlet structures along Ditch 16 (\$22,000).
- The District's [website](#) now features a section on the home page that puts a spotlight on a current or recently completed District project. In November, the website featured the Thief River Falls Oxbow Restoration Project.
- The Red River Watershed Management Board featured the Black River Impoundment Project in its [December newsletter](#).
- The Clearwater SWCD is planning an effort to plant willow stakes along the banks of the Lost River in Section 20 of Winsor Township.
- Moose River Impoundment was drawn down to winter levels during the first 3 weeks in November.

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

- Gladen Construction, Inc., installed SWPP items and began clearing near the outlet end on the Demarais/Hanson Outlet Project (Red Lake River 1W1P). Tony Nordby, Houston Engineering, Inc, stated that the contractor is waiting to see what the weather does this weekend, prior to proceeding with the construction.
- Quotes were received for the Schirrick Dam Outlet Repair. This project will repair erosion downstream of the dam.
- The Board voted (motions carried) to approve and pay Change Order No. 1 in the amount of \$2,000 (extra excavation at Site B) and Pay Estimate No. 2 in the amount of \$20,494.35 to Quality Spray Foam/Anderson Excavating for the Thief River Streambank Stabilization Projects.
- Administrator Jesme stated while inspecting the slump on along County Road 16, they were made aware that a landowner along the TRF Westside Diversion Channel had made various cuts through the buffer strip, over the spoil bank as well as turning around on the ditch slope with farm equipment damaging the slopes and vegetation. Jesme drafted a letter that was submitted to the landowner, stating that the repairs to all damaged areas shall be made by May 30, 2022. The landowner is currently collaborating with a local contractor that is also repairing the slump on County Road 16, to repair the damage.
- Construction on the structure for the Pine Lake Flood Damage and Fish Habitat Project, RLWD Project No. 26B has been substantially completed. There is some concern in that the steel gates and catwalk for the structure have been on back order and have not yet arrived. At the direction of the Engineer, plywood has been placed in the bay areas and cuts will be made by District staff to assure operation and water levels in accordance to the plan can be accomplished. It is the hopes of the contractor that the steel gates and catwalk will be made available by February so they can be installed prior to Spring runoff.
- Staff member Nick Olson discussed two SCS/NRCS dams that need repair. The Knutson Dam located southeast of Red Lake Falls, has completely failed. The riser is rusted out and does not hold water. In discussion with the NRCS and Red Lake SWCD, the Red Lake SWCD has Clean Water funding available for up to 75% funding for construction costs, depended on final

construction costs, as well as \$5,000 for preliminary engineering. The Board voted and approved entering into an agreement with the Red Lake SWCD for repairs to the Knutson Dam with the District agreeing to pay all preliminary Engineering cost in excess to the \$5,000 cost share, as well as excess construction costs utilizing the Red Lake SWCD Clean Water Grant. Olson stated that the Thibert Dam, located northwest of Red Lake Falls, has severe erosion downstream of the structure. The Red Lake SWCD does not have funding for this project, as it is out of their priority area. Olson spoke to the landowner, encouraging them to sign up for NRCS EQIP funds, to help offset any costs. The NRCS has some pre-engineering funds that could be used. EQIP applications are due by November 19, 2021, but we will not find out until March 2022 if the project is funded. Discussion was held on obtaining a design and costs for replacement. Motion by Ose, seconded by Dwight, that if EQIP funds are received for repair of the Thibert Dam, RLWD Project No. 50, the District will pay for any local share required above and beyond the appropriated EQIP funding. Motion carried.

Water quality related notes and minutes from the November 24, 2021 Red Lake Watershed District Board of Managers meeting.

- Gladen Construction, Inc., completed some clearing and grubbing of trees on the Demarais/Hanson Outlet Project, Red Lake River 1W1P, RLWD Project No. 149. Engineer Tony Nordby, Houston Engineering, Inc, stated that after receiving rain and snow at the project site, the contractor decided to suspend work until the Spring.
- Engineer Dillion Nelson, HDR Engineering, Inc. reviewed project construction on the Thief River Falls Oxbow Project, RLWD Project No. 46Q. Nelson informed the Board that work is substantially completed with minor site grading, seeding and the addition of a screw gate on the east structure to be completed. Two flap gates at the outlet, near the river were replaced. Water will be approximately 3-4 feet deep in the pond. Nelson presented a video on the operation of how the hydrodynamic separators work to remove debris and infiltration from the drain tile to help with water quality. The City of Thief River Falls will be responsible for debris removal from the hydrodynamic separator.
- The Board reviewed a request from the Red Lake SWCD for the Weiss/Knott Grade Stabilization Project located in Sections 8 and 9, Lake Pleasant Township, Red Lake County. The project consists of an earthen embankment, a drop structure, pipe (under the embankment), and rip-rap armoring around the outlet of the pipe. The total project construction cost is \$32,340.21, with the Red Lake SWCD requesting a cost share of \$4,885 from the District's 2021 Erosion Control Funds, RLWD Project No. 164. The Board voted and approved the Weiss/Knott cost share request in the amount of \$4,885.

November 2021 Meetings and Events

- **November 3, 2021** – Clearwater River 1W1P Advisory Committee and Policy Committee meeting
 - [August Policy Committee Meeting Minutes](#)
 - [November 2021 Project Update Newsletter](#)
 - Groundwater presentation by Bob Guthrie of the MN DNR
 - Well permitting process (MPARS Application)
 - Addressing high risk domestic wells and water dependent features
 - Discussed well interference

- Large volume users of groundwater, like irrigators, have been drawing down aquifers enough to interfere with domestic wells.
- Rather than limiting the amount of water that offending operations consume, offenders are allowed to “fix” the problem by paying for the lowering of the domestic well pump or replacement of the domestic well. This raised concern about why the solution is to force victims to adapt to a depleted resource rather than putting limits on the operations that are depleting the resource. Advisory committee members noted that deeper wells have more dissolved minerals and potential taste issues compared to shallow, flowing wells.
- The DNR has set base levels for how low aquifers can go. So, the agency has established a limit to how much the resource can be depleted.
- During the 2021 drought, conservation officers issued cease and desist orders to irrigators that continued to operate.
- There was a question about how tile drainage affects discharge. This is not yet known (inconclusive information). Aquifers in the area are being recharged, as evidenced by the way wells rebound after pumping.
 - Implementation administration: Consensus that a memorandum of agreement is the “way to go.”
- **November 17, 2021** – Clearwater River 1W1P Planning Work Group meeting
 - Lake prioritization
 - Discussion about how to prioritize lakes and streams for protection
 - Soil health goal map
 - PTMAApp decisions (costs and preferred practices)
 - Funding (drafting budget expectations that can be used during PTMAApp analysis to determine whether goals are achievable)
 - Goal review
- **November 17, 2021** – Red Lake River 1W1P Planning Work Group meeting
 - 2018 Project Updates
 - 2018 Grant Reporting
 - 2022 Annual Plan – Working Draft
 - Policy Committee Agenda Items
 - Planning for Advisory Committee meeting

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.