

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator, 12/3/2021

River Watch and Public Education

District staff and International Water Institute staff led Clearbrook Gonvick River Watch students on a River Explorers kayaking trip down the Clearwater River. The students had an opportunity to visit with a DNR fisheries employee that was on-site.



RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

October 2021

To help the Red Lake County Central River Watch group with planning for a second group of students, District staff examined current monitoring efforts and identified locations where additional data collection would be beneficial to create a second list of sites near Oklee that could be monitored by River Watch students. The District Natural Resource Technician led Red Lake County Central and Red Lake Falls River Watch groups on water quality monitoring outings. The District Natural Resource Technician led a group of Red Lake Falls River Watch students in a day of macroinvertebrate sampling and identification in the Clearwater River.



Water Quality Monitoring

Long Lake water quality data from the most recent 10 years (including 2021) was assessed to see if the impairment status has changed. Most samples collected by the District have met water quality standards. There were some occasions in which the standards were exceeded, included some relatively poor conditions that were recorded after a storm (or lake turnover) in September 2021. The summer average total phosphorus concentration in Long Lake has decreased to 28.5 mg/L in 2012-2021 data (down from 44 mg/L in 2011-12 data) and now meets the 30 mg/L standard. Chlorophyll-a exceeds the 9 mg/L standard at 10.4 mg/L. Secchi disk transparency in Long Lake meets the 2.0 meter standard with a 2.7 meter average transparency measurement. District staff will consult with MPCA staff about either removing the lake from the list of impaired waters or collecting additional data.

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

District bookkeeping staff compiled a financial report with recent invoices and grant funding balances through September 30, 2021 for the 2018 and 2020 Red Lake River 1W1P Watershed Based Implementation Funding (WBIF) Clean Water Fund grants from the Minnesota Board of Water and Soil Resources (BWSR). Other financial tracking spreadsheets were also updated.

The construction of side water inlets and rock-check grade stabilization structures along ditches in the Black River Impoundment drainage area is mostly complete. These structures are installed to protect/improve water quality and are partially funded by grants from the Red River Watershed Management Board (Water Quality Base Funding), United States Environmental Protection Agency (319 Grant administered by the Minnesota Pollution Control Agency), 2018 Red Lake River 1W1P WBIF grant, and the Red Lake Watershed District. Houston Engineering provided some nice aerial drone photographs and created a [website](#) for the project.



**RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT**

October 2021



The Demarais-Hanson project was advertised for bids in early October. District engineering staff examined the quality of rip-rap material for the project. The Red Lake SWCD reported that Houston Engineering was planning to start surveying the Voyageurs View streambank stabilization project in October.

Thief River Falls Oxbow Restoration Project

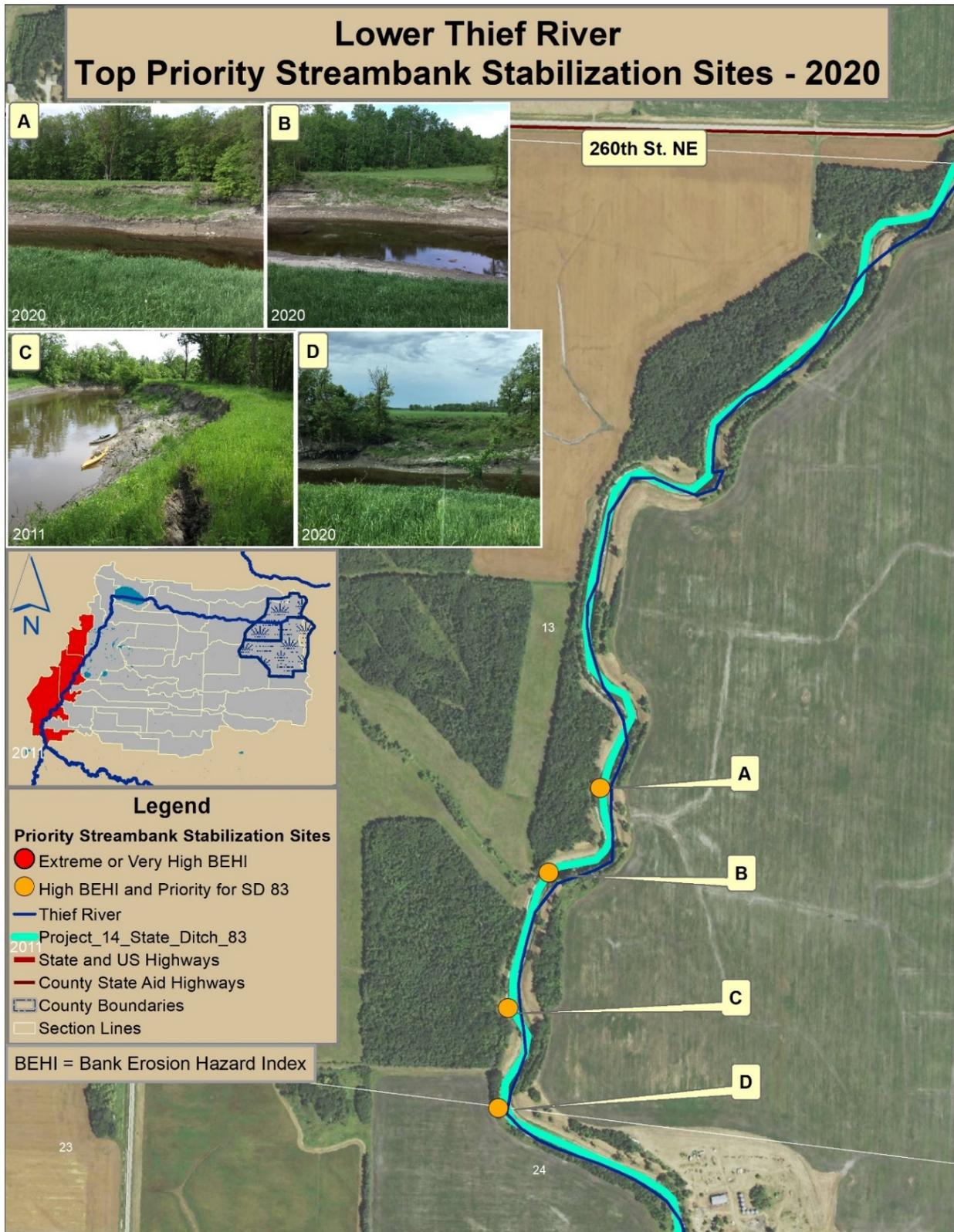
Construction of the Thief River Falls Oxbow Restoration project began in late August and was approximately 47% complete at the beginning of October. Much progress was made on excavation of sediment from the oxbow wetland (top photo). The continuous deflective separation structures were installed to remove trash, sediment, and oils from stormwater drainage that flows to the oxbow from the north and from the east. The structure on the east side of Pennington Avenue will also create a settling pool to keep sediment runoff from the city's snow dumping area out of the oxbow wetland.



Thief River One Watershed One Plan (1W1P)

Priority stream bank stabilization sites were chosen where relatively high bank erosion hazard index (BEHI) ratings from the Thief River Watershed Fluvial Geomorphology study overlapped with State Ditch 83 jurisdiction (access easements) and priority stream bank stabilization sites identified by the Red Lake Watershed District ditch inspector. In late 2020, RLWD staff engineering technician and water quality staff met with Houston Engineering to tour the project area. One of the banks (Site C on the map) had begun to stabilize itself, so we decided to leave that one alone. With approval from the RLWD Board of Managers, Houston Engineering designed projects to stabilize Site A, Site B, Site D, an eroding channel between a 260th Street NE culvert and the river, and some access road repair near CSAH 7. Construction began in early September and was completed in October. In addition to re-sloping, the projects incorporated toe-wood sod mats to provide the toe protection that is important to the success of streambank stabilization projects. Separate from this project, the RLWD Ditch Inspector has been overseeing the installation of rock at the outlets of side water inlets along SD 83 to prevent future erosion.





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District staff and Houston Engineering Staff discussed different options for estimating annual sediment load reductions from streambank stabilization project.

District staff provided the plan coordinator progress summaries of projects that District staff have worked on.

The FEMA-funded portion of the Judicial Ditch 23 outlet stabilization has been completed. That includes stabilization, via rock armoring, of the outlet. Remaining work includes some work on ditch slopes and side water inlet installations. It is anticipated that work could be done in just a couple of days when conditions and the contractor's schedule align.



The RLWD Ditch Inspector has identified more potential sites for streambank stabilization work. It looks like there will be funds available in the 1W1P Lower Thief River Streambank Stabilization budget after the completion of the 2021 projects. There has also been discussion about using Red River Watershed Management Board Water Quality Base Funding to help pay for the design and construction of additional projects along the Thief River. Some initial surveying and verification of instability has begun. The Pennington SWCD has also identified a need for additional meander cut-off stabilization near their previous work upstream of the Golf Course. That would also be a good project for 1W1P/RRWMB funding because it would not only stabilize that specific erosion problem but would prevent the worsening of upstream erosion that would occur if the river increased its slope by cutting across a meander.

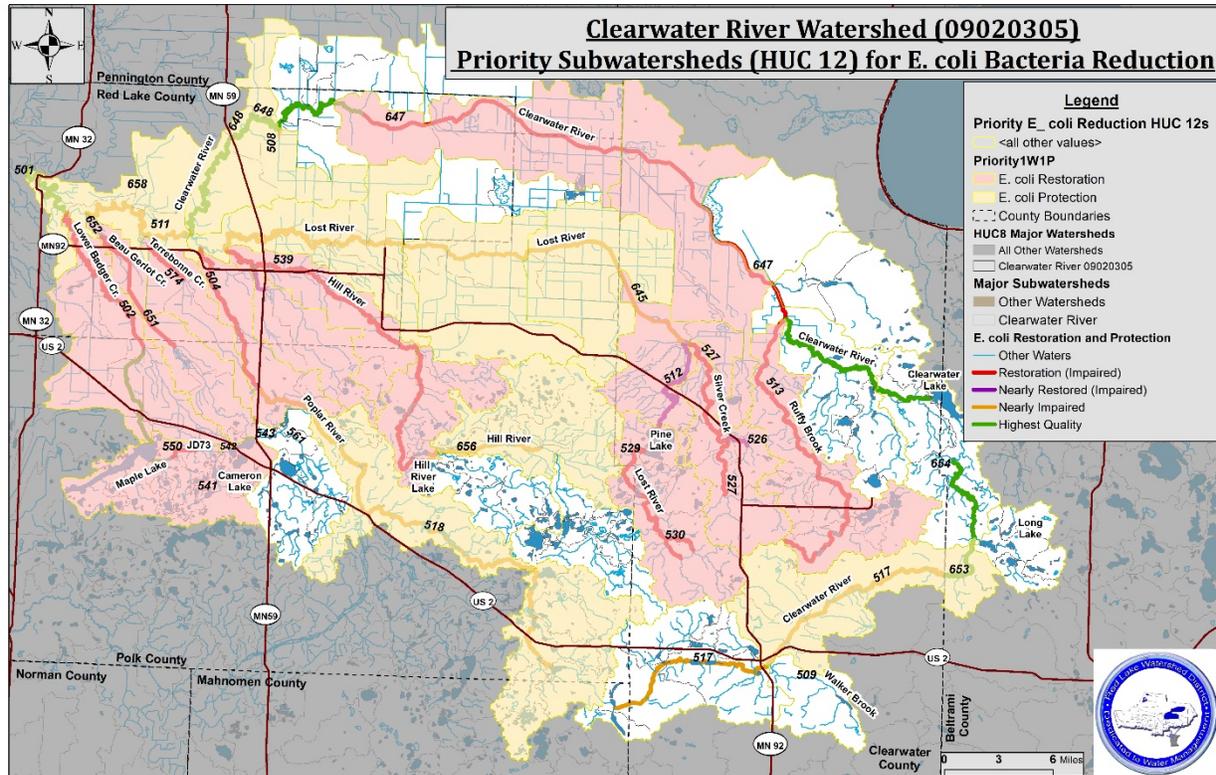


Clearwater River One Watershed One Plan (1W1P)

District staff mapped known in-channel erosion problems in the Clearwater River watershed (streambank erosion, unstable ditches and ditch outlets, etc.). Information and assessments collected during the fluvial geomorphology study, ditch inspections, PTMApp groundtruthing, windshield surveys during the Watershed Restoration and Protection Strategy project, and examination of aerial photos were used to compile the map of erosion problems. District staff used the HSPF Scenarion Application

Manager tool to create a spreadsheet that calculated load reduction goals for each anthropogenic source in each HUC 10 subwatershed of the Clearwater River Watershed.

District staff created map of prioritized HUC 12 subwatersheds for projects that will reduce *E. coli* runoff. The priority subwatersheds were those that contained waters impaired by *E. coli*, waters that were nearly impaired by *E. coli*, and monitoring stations that exceeded water quality standards.



Planning Work Group (PWG) staff completed a baseline funding worksheet, which estimates and summarizes existing funding for projects in the Clearwater River Watershed. Project partners also reviewed a draft [Priority Issues document](#). District staff met with the consultant to discuss calculation of numerical pollutant reduction goals.

Other

- Flow was measured at two locations along the Clearwater River to improve flow rating curves at those sites. There is a possibility that continuous, real-time stage/flow monitoring equipment could be installed at two key sites along the Clearwater River in 2022 to help inform water allocations to wild rice paddies
- District staff toured potential 2022 biological sampling stations throughout the Thief River Watershed with MPCA staff. Intensive Watershed Monitoring of the Thief River is scheduled to begin in 2022. Staff from the MPCA will sample fish and macroinvertebrates. Water quality sampling will likely be conducted by staff from local agencies. District staff also provided MPCA staff with GIS layers, including ditch inventory layers (ditch names).

- District staff provided maps and GIS layers to MPCA staff to help with linework edits to MPCA maps that are used to identify waterbodies during water quality assessments. The alignment Ditch 200 upstream of Elm Lake and the new Westside Flood Damage Reduction project's diversion channel were edited. The Pennington SWCD will be collecting water quality samples near the outlet of the "Westside" diversion channel.
- Some of the District's water level loggers, streams that had gone dry during the summer, were retrieved near the end of October so that they would not be damaged by freezing temperatures.
- Monthly water quality reports for the months of [January](#), [February](#), [March](#), [April](#), [May](#), [June](#), and [July](#) of 2021 were completed and posted on the [RLWD website](#).

Water quality related notes and minutes from the October 14, 2021 Red Lake Watershed District Board of Managers meeting.

- Matt Fischer, Board of Water and Soil Resources, presented a Legislative Summary and explained in detail the funding sources and which agency the funding sources were for. The Clean Water fund dollars projected for the next biennium for the Red Lake and Thief River One Watershed One Plan were approximately \$1,071M for Red Lake and \$500,000 for Thief River. Manager Dwight inquired of Mr. Fischer on the amount of 1W1P funds that could be used as Administrative and if that amount could be from contracted services. The answer was yes it could be used for contracted services and possibly up to 50%. Currently BWSR is planning a watershed district manager training on February 4, 2022 in Warren and February 11, 2022 in Buffalo Red. Grants training for watershed staff for competitive grants is upcoming.
- The Board reviewed Pay Estimate No. 1 for the Thief River Falls Streambank Stabilization Project, RLWD Project No. 14/ Thief River 1W1P, RLWD Project No.149A to Quality Spray Foam/Anderson Excavating in the amount of \$75,510.96. Motion by Ose, seconded by Page, to approve Pay Estimate No. 1 to Quality Spray Foam/Anderson Excavating in the amount of \$75,510.96 for the Thief River Streambank Stabilization Projects, RLWD Project 14/149A. Motion carried.
- Engineer Nate Dalager, HDR, Inc. gave a Pine Lake construction update, RLWD Project No. 26B. Dalager indicated that the outlet structure has been poured, the outlet channel has been constructed, the fish passage rock weirs were placed and the inlet channel from the lake to the concrete structure have been completed. MnDNR had been onsite for a complete day to help with placement of the rock for the fish passage. Currently the optimum winter elevation has already been reached.
- Quotes for the Demarais/Hanson Outlet Project, Red Lake River 1W1P, RLWD Project No. 149, were reviewed. The engineer's estimate for the project was \$160,625.00. The low quote was from Gladen Construction, Laporte, MN, in the amount of \$147,350. A preconstruction meeting is scheduled for October 20, 2021 at the Red Lake Watershed District office. Motion by Tiedemann, seconded by Page, and unanimously passed, to accept the low quote from Gladen Construction, Inc., and award the contract in the amount of \$147,350.
- Cost share requests from Red Lake Soil and Water Conservation Districts for Grade Stabilization Projects were reviewed. The Beyer project is located in Section 10 of Louisville Township and \$1,100 is requested to assist with the local match requirement for this project. The total project cost is \$9,170 and 75% of project will be using the 2020 Watershed Based Funding. Second cost share request is \$1,000 for two grade stabilization projects located in Section 28 of Gervais Township for landowner Gagnon. The total project costs for the Gagnon project were \$9,110.50 with Red Lake SWCD using Board of Water and Soil Resources Clean Water Fund to fund 75% of the project cost. The third cost share request is for two grade stabilization projects in Section 32

of Browns Creek in the amount of \$3,000. The total project cost is \$28,446.00. The Red Lake SWCD will be using 2020 Watershed Based Funding for 75% of total project cost. Motion by Page, seconded by Ose, to approve the three pay requests to Red Lake SWCD in the amount of \$5,100, with funds to come from the 2021 Streambank Erosion Fund, RLWD Project No. 164. Motion carried.

- River Watch Advisors from the school districts were inquiring about purchasing additional River Watch apparel for newer students in the groups. Motion by Tiedemann, seconded by Anderson, to approve the purchase of additional River Watch apparel for current River Watch Students. Motion carried. Manager Page abstained from discussion and voting.

Water quality related notes and minutes from the October 28, 2021 Red Lake Watershed District Board of Managers meeting.

- Chester Powell, Clearwater SWCD, presented information to the Board about conducting a pilot project along the Lost River, located in Section 20 and 21, Winsor Township in northern Clearwater County, which is under the jurisdiction of the District. The proposed project is to plant dormant willow stakes along the unstable and failing banks of the Lost River to establish woody perennial cover to stabilize the banks during peak flows. Data obtained during a WRAPS study on the Lost River is listed as having bank instability and is a priority resource concern. Powell stated that work would be completed in November, dependent on current temperatures. The Clearwater SWCD has funding for the project and will complete the installation. Motion by Tiedemann, seconded by Page, to grant permission to the Clearwater SWCD, for installation of willow stakes along the Lost River, RLWD Project No. 4. Motion carried. Powell stated that he will contact the local landowners.
- Construction at the Pine Lake Flood Damage and Fish Habitat Project, RLWD Project No. 26B is almost complete. Engineer Nate Dalager, HDR Engineering, Inc., stated that the rock is in place, seeding is complete, and they are waiting on structural steel and gates for the structure. Dalager stated that the rock riffle structure is in place so the lake will be able to drain down if we get a large amount of rain. Currently there is no water coming out of the lake.
- A pre-construction meeting was held with Gladen Construction for the Demarais/Hanson Outlet Project, RLWD Project No. 149. Engineer Tony Nordby, Houston Engineering, Inc., stated that the contractor is anticipating being completed with construction in three weeks.
- Rob Sip, Executive Director, RRWMB appeared before the Board to present information on the 2021 lidar collection areas. Sip stated that collection of the data is about 52% complete, with the contractor flying approximately 16 days. If the weather holds out, the contractor estimates that the work will be done in the next 2-4 weeks.
- Manager Dwight discussed Clean Water Fund Grants that will be coming out in early 2022, and the need for discussion on the Fiscal Manager appointment for the One Watershed One Plan Projects. Further discussion will be held in early 2022.

The District's long-time Accounting Officer/Office Administration Specialist Principal, Arlene Novak, began her retirement at the end of October.

October 2021 Meetings and Events

- **October 7, 2021** – Red Lake River 1W1P Planning Work Group meeting
- **October 11, 2021** – Pennington County water Resources Advisory Committee meeting

- Clean Water Fund Project Updates
 - County Ditch 96 Stabilization
 - Monitoring wells were installed along the portion of the ditch that will be stabilized in Phase II of the stabilization effort.
 - Thief River Falls streambank stabilization
 - Three eroding streambanks will be stabilized
 - Costs have been increased by design updates that will improve project safety
 - Construction is planned for the summer of 2022
 - Cover Crop and Grade Stabilization – Lower Thief and JD 30/18/13
 - A total of 24 side water inlets have been installed in 2020 and 2021. Cover crops haven't generated much interest, yet.
 - Cooperative Weed Management Area Grant
 - An inventory of noxious weeds is 95% complete.
 - Completed maps of weeds identified in the inventory will be sent to townships.
 - Oxbow Wetland Restoration
- One Watershed One Plan Updates
 - The Pennington SWCD has identified a need for additional work to stabilize a meander cutoff near the Erickson Group project (upstream of the Thief River Gold Club).
- Pennington SWCD Activity Reports
 - \$1.2 million in Ag BMP loans have been approved. \$200,00 of additional approved applicants are waiting to be funded.
 - 5 wells were sealed this year
 - A drop structure was installed near Hudson Electric in Thief River Falls to stabilize the riverbank (Red Lake River).
 - Septic system installations have been slow until the last month or so. The county is distributing funding that was received from BWSR (\$25,000) and the MPCA.
 - 11,000 trees have been ordered for next spring
 - A new water quality monitoring station was established where the Thief River Falls Westside diversion ditch crosses CSAH 7 to replace the SWCD's former monitoring station near the outlet of Pennington County Ditch 70.
 - Most of the DNR groundwater observation wells in the county had their lowest levels ever recorded (since monitoring began in 1995) in August. The wells had a slight increase in water levels at the end of September.
 - The SWCD installed stationary zebra mussel settling pipes in the Red Lake River and inspected them monthly. No zebra mussels have been observed.
- DNR Activity Report
 - Drought-related communication and outreach
 - Lots of well-interference problems in Red Lake and Polk Counties
 - It has been difficult to get all irrigators to cooperate with restrictions
 - Work related Line 3 installation
 - The pipeline started operating on October 1st

- An “uncontrolled flow” occurred near Clearbrook. The uncontrolled flow was a result of rupturing an aquifer confining layer while completing a horizontal boring under existing pipelines at Enbridge’s Clearbrook Terminal.
- BWSR Activity Report
 - The Clearwater River One Watershed One Plan can apply for approximately \$974,000 of Watershed Based Implementation Funding when the plan is completed.
 - 2022-23 Watershed-Based Implementation Funding will also be allocated to the Thief River and Red Lake River 1W1P projects. The allocations for those watersheds will be similar to 2020-21 funding.
 - \$13 million was available for competitive Clean Water Fund grants this year. A total of 63 applications were received, requesting a total of \$22 million (the available funding will cover approximately 59% of the requested grant funding).
 - Governor Walz has announced a goal of planting 12 million trees by 2025.
- Pennington County Highway Department Activity Report
 - County Ditch 46, near the community college, will need a redetermination of benefits.
 - County Ditch 31, near St. Hilaire, has interest in abandonment due to a lack of maintenance or maintenance funding. Buffer requirements brought this issue to light.
- MPCA Activity Report: Project charters will be used for future WRAPS processes.
- There hasn’t been any progress in obtaining the funding that is necessary for moving the City of Thief River Falls drinking water intake upstream to the cleaner water of the Red Lake River upstream of the Thief River confluence.
- There are plans to replace the Kratka Bridge within the next 2 years
- **October 13, 2021** – Red Lake River 1W1P Policy Committee meeting
 - Financial report
 - Cost-share policy amendment
 - Project updates
 - 81 side water inlets were installed along Ditch 16
 - The Thief River Falls Oxbow Restoration Project is approximately 75% complete
 - The Black River Impoundment Project, including side water inlets and rock-check grade stabilization structures along ditches, will be mostly complete before the end of the year.
 - The RLWD and the contractor are working on a contract for the Demarais-Hanson stabilization project.
 - The West Polk SWCD has been working on the installation of three grade stabilization structures in Section 9 of Andover Township. The structures may be completed by the end of the year.
 - A streambank failure was examined in Section 34 of Crookston Township (west of town, near the old Ottertail Power Dam) as a potential 319 Grant or 1W1P project. A concept report was completed by HDR Engineering. The conclusion was that the project might not be feasible due to the amount of work that would be needed to determine the cause of the rotational slump. There would be no guarantees that a stabilization project would fix the problem. Cost-share

for vegetation establishment will be offered to help slow the rate of erosion. The landowner was advised to move a paved road away from the bank. The RLWD could help with surveying for the re-sloping or road relocation if needed.

- The Pennington SWCD installed a drop structures to reduce erosion from stormwater runoff near Hudson Electric in Thief River Falls.
- 2022 funding request
 - The amount of Watershed Based Implementation Funding available for 2022-23 will be similar to the amount that was available for the 2020-22 biennial work plan (\$1,071,149).
 - Some additional West Polk SWCD projects didn't fit into either the 2018 or 2020 biennial work plans (outside of priority areas), even though they addressed a goal in the comprehensive, 10-year plan. They were eventually funded by the Red Lake Watershed District (Bygland 1 and Fisher 7/18). In the next round of Watershed-Based Implementation Funding, a pot of money should be made available for projects like these that address goals that were established in the overall, ten-year Red Lake River One Watershed One Plan (like sediment loading reduction goals for more severely impaired waters and protection of unimpaired waters).
- **October 15, 2021** – Mud River Restoration Project meeting
- **October 18, 2021** – Thief River 1W1P Planning Work Group meeting
- **October 19, 2021** – Minnesota Water Resources Conference
- **October 20, 2021** – Clearwater River 1W1P Planning Work Group (PWG) meeting
 - PTMApp decisions
 - The group was leaning toward using cost estimates that are double the EQIP costs for each practice to account for staff time (surveying, design, communication, etc.) involved in the total cost to install each practice. Staff from SWCDs will review the rates to make sure that they look reasonable.
 - Which parameter should be used to rank best management practices (BMPs)? Sediment loading has been used in other watersheds. There are a lot of waterbodies with phosphorus reduction goals in the Clearwater River Watershed, though.
 - Should we rank BMPs by load reductions or cost effectiveness?
 - The PWG reviewed the list of BMPs that will be evaluated by the PTMApp model.
 - Review of draft goals
 - The consultant looked at eLINK data to estimate how much work can be accomplished.
 - Low-income requirements for septic system upgrades is an obstacle to getting projects funded and completed. Environmental resources staff from counties will be consulted to help set goals related to septic systems.
 - RLWD staff will create a map to show where *E. coli* pollution reduction projects should be targeted.
 - Funding
 - Project partners will fill out spreadsheets to estimate baseline expenditures for water resource projects (quality and quantity) in the Clearwater River Watershed.

- Approximately \$974,728 will be available for the first round of Watershed Based Implementation Funding for the Clearwater River Watershed (2022-2023).
- **October 26, 2021** – BWSR Academy
 - [Successful Fiscal Grants Management](#)
- **October 27, 2021** – BWSR Academy
 - “Something about that GAM (Grants Administration Manual)”
 - 1W1P Success Through Partnerships
- **October 28, 2021** - BWSR Academy
 - Hydrology
 - Improve your Photos

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.