

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 4/23/2020

Thief River One Watershed One Plan (1W1P)

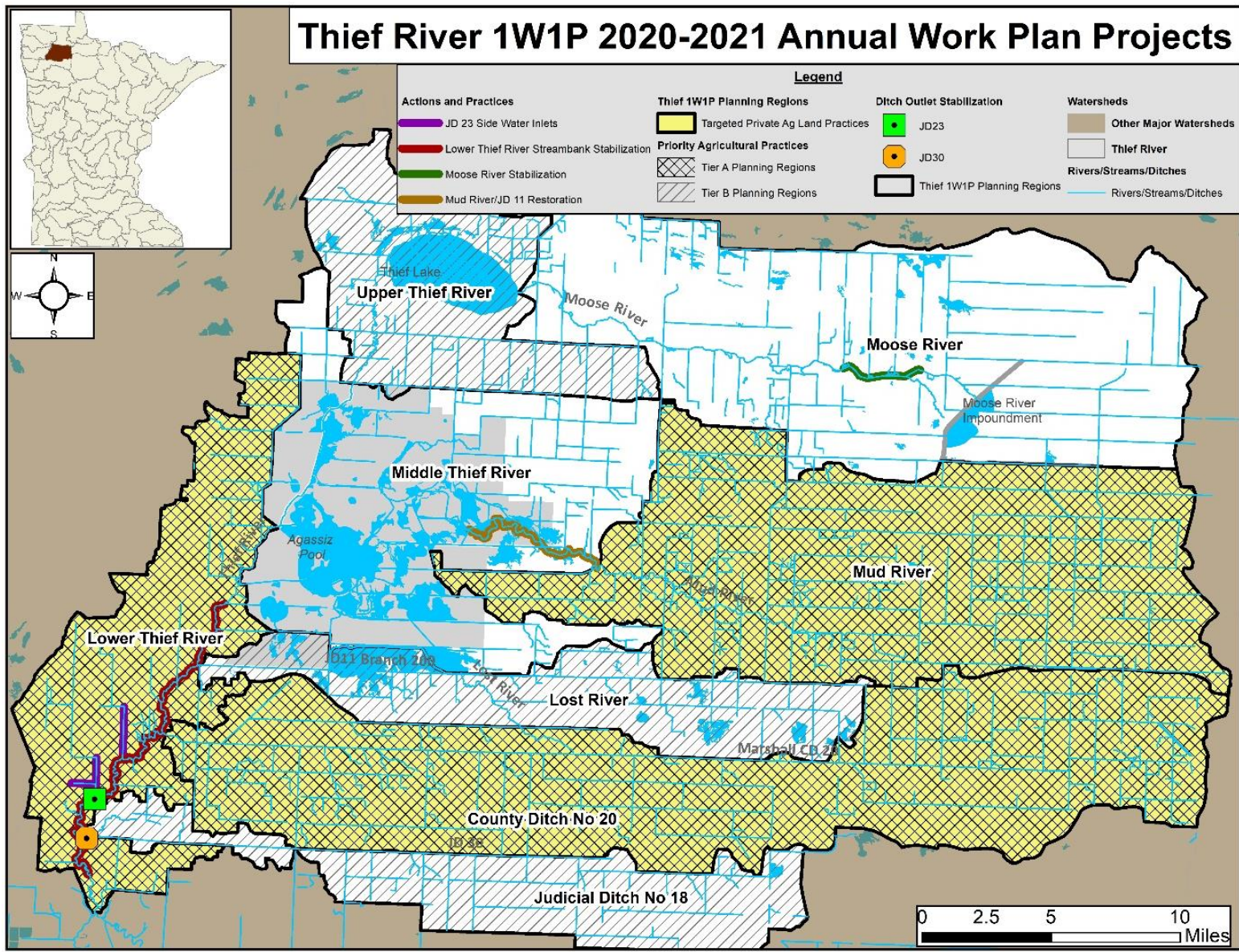
Local agency staff met with BWSR staff at the March 4, 2020 BWSR Northern Region Committee Meeting. The BWSR North Region Committee made the recommendation to approve the Thief River Comprehensive Watershed Management Plan.

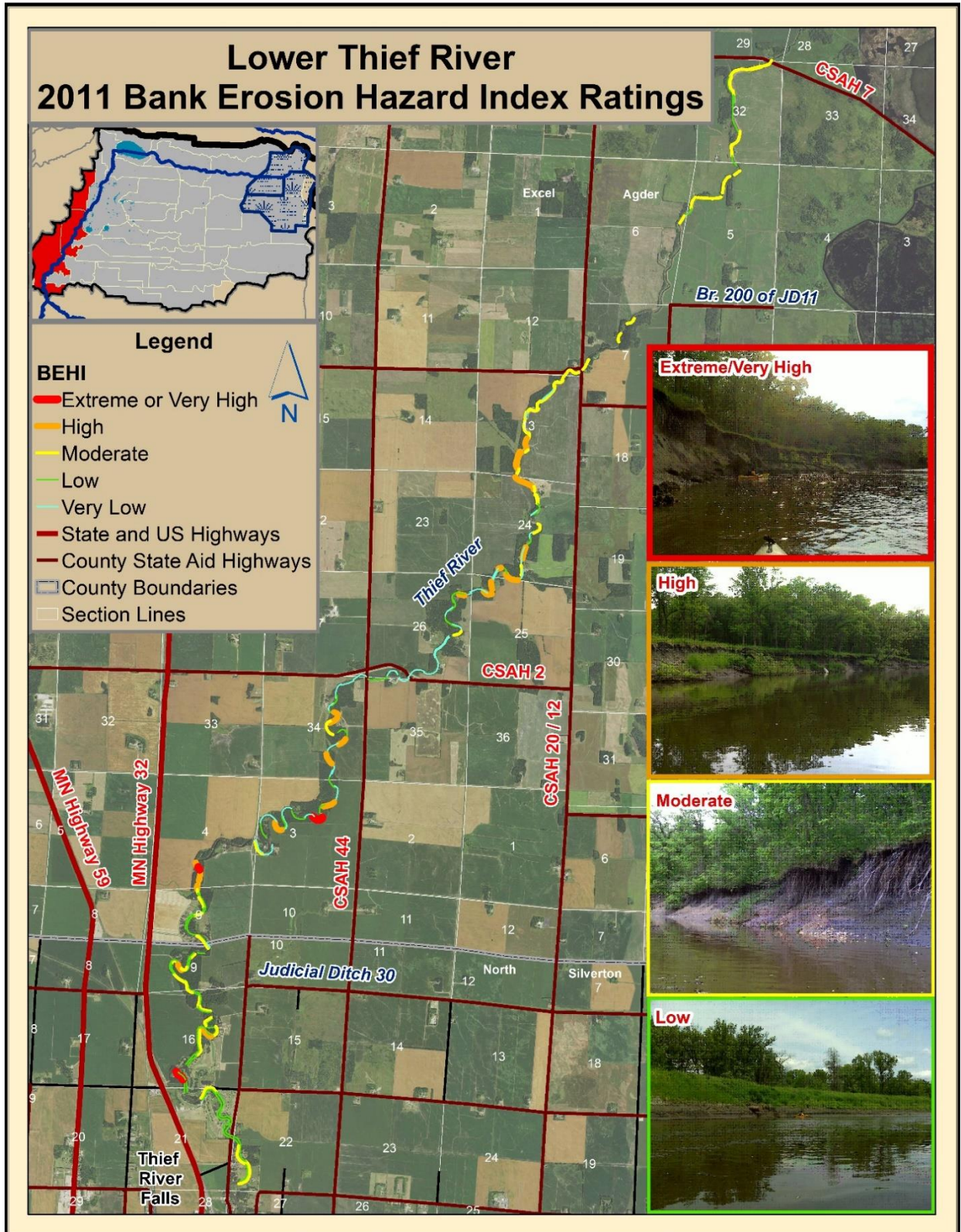
A Thief River 1W1P Policy Committee meeting was held on March 16, 2020 at the District office. Agenda items included a review of bylaws, deciding on a fiscal agent, deciding on a coordinator, and approving the 2020/2021 Work Plan. The Planning Work Group had put together a 2020-2021 work plan, including load reduction estimates. A map of proposed projects was created by District staff. District staff also helped create a presentation of those projects for the Policy Committee meeting. The policy committee approved the 2020-2021 work plan. The projects identified in the work plan include:

1. Stabilization of the JD 23 outlet in Marshall County (\$150,000)
2. Install 6 side water inlet grade stabilization structures within the JD 23 portion of the Lower Thief River subwatershed (\$12,000).
3. 1000 feet of streambank stabilization along the Lower Thief River (\$128,925).
4. Implement 640 acres of cover crop in the Lower Thief River subwatershed (\$20,000).
5. Conduct an education and outreach workshop (\$5,000).
6. Conduct a watershed-wide inventory for side water inlets and buffers (\$30,000).
7. Implement priority agricultural practices within Tier A and Tier B priority planning area subwatersheds (\$75,000).
8. Implement grade stabilization and cover crops within the Lower Thief River and JD 30 subwatersheds (a \$256,666 project funded by a Clean Water Fund grant that was awarded to the Pennington SWCD).
9. Septic system upgrades, watershed-wide (\$30,000)
10. Several Technical and Engineering Projects, as funding allows:
 - a. Priority 1: Feasibility study, survey and design work on the Mud River/JD11 – USFWS been looking for money for this project. The majority of the project lies within Agassiz National Wildlife Refuge.
 - b. Priority 2: Survey and design work on the outlet of JD30 with the intent to stabilize the outlet pending future funding.
 - c. Priority 3: Survey and design work on the outlet of JD30 with the intent to stabilize the outlet pending future funding.

District staff received Bank Erosion Hazard Index rating data from DNR staff and used that data to create a map of the streambanks along the Lower Thief River that were most susceptible to erosion.

Thief River 1W1P 2020-2021 Annual Work Plan Projects





River Watch

The month of March began with some anticipation for the River Watch Forum that was scheduled for March 25, 2020. Unfortunately, the spread of the SARS-CoV-2 virus (coronavirus) throughout the United States caused cancellations of all gatherings throughout the State of Minnesota after mid-March. The 2020 River Watch Forum was going to be a celebration of 25 years of the Red River Basin River Watch program.

The River Watch teams' assignments were due on March 11. A team of water resource professionals, including Ashley Hitt of the RLWD, met to review and judge the assignments. The top six projects will be chosen in April. River Watch students were able to submit applications for scholarships through March 20th. District staff held a River of Dreams classroom visit with the Red Lake Falls.

Beltrami SWCD staff and Ashley Hitt discussion of a strategy to start River Watch programs at schools in the eastern part of the District.

Bartlett Lake Management Plan

A meeting for the Bartlett Lake Management Pan was planned for March 24, 2020 but was canceled due to the COVID-19 pandemic.

Red Lake River Watershed One Watershed One Plan

Administrator Jesme participated in the BWSR sponsored "Building capacity for watershed-based funding in the Red River Basin" that ran in conjunction with the RRWMB meeting.

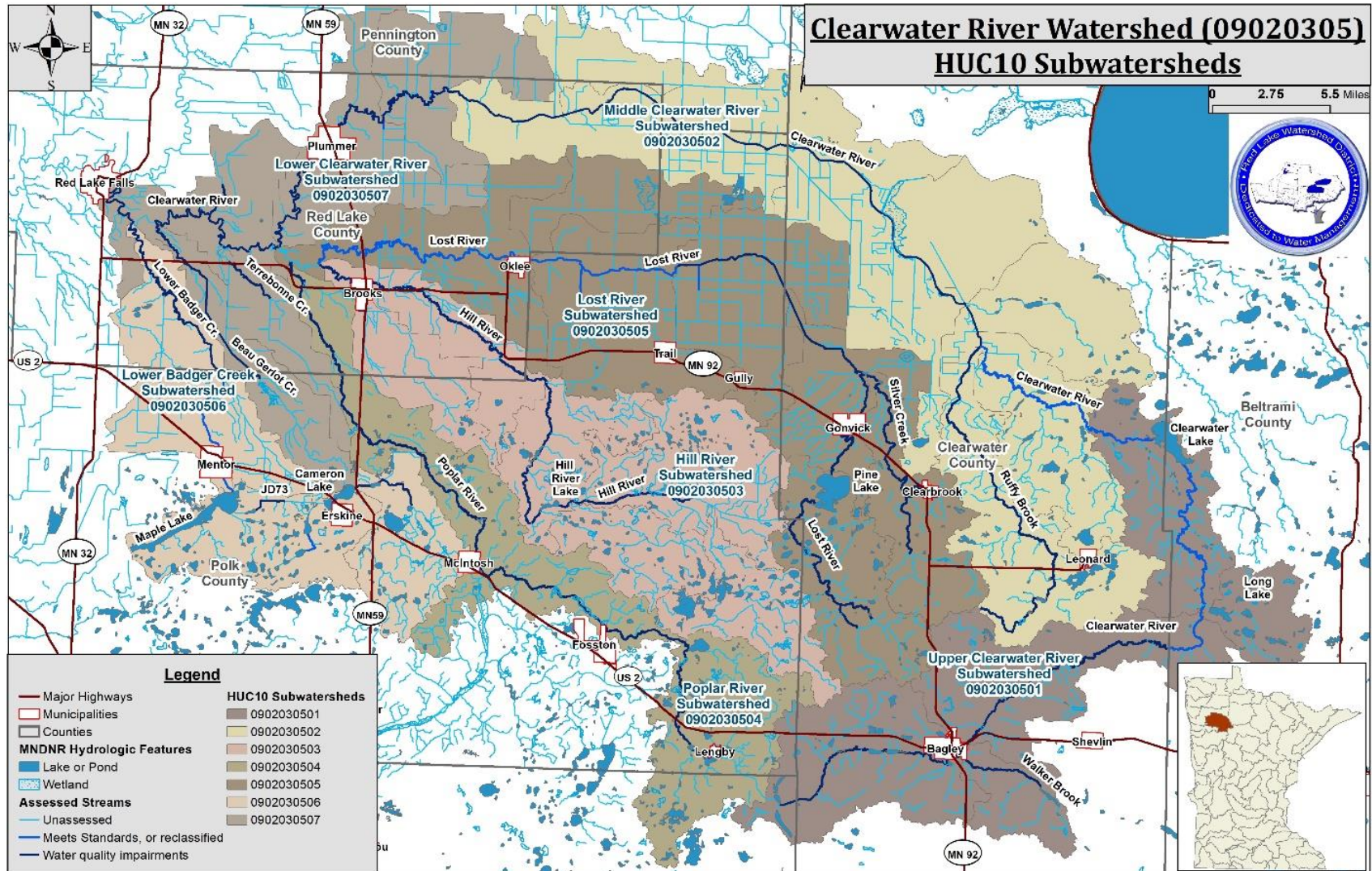
Clearwater River One Watershed One Plan

The Clearwater SWCD staff began the process of organizing project partners for the Clearwater River 1W1P.

A conference call with potential Planning Work Group partners was held on March 25, 2020. The planning work group (or steering committee) included staff from the RLWD, Clearwater SWCD, East Polk SWCD, Red Lake SWCD, Pennington SWCD, and BWSR. Project partners reviewed a draft Memorandum of Agreement that was drafted by the Clearwater SWCD.

RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

March 2020



Other Notes

- District staff worked with DNR and International Water Institute staff to plan flow monitoring upstream and downstream of the Brandt Impoundment in 2020. The flow monitoring will be used along with intensive sample collection to calculate loads of pollutants going in and out of the impoundment. DNR flow monitoring staff are prepared to help with the high flow measurements. They will try to collect at least 2 sets of measurements

Inlet channel, upstream of the Brandt Impoundment



Brandt Impoundment outlet



Outlet channel, downstream of the Brandt Impoundment outlet



- A February 2020 Red Lake Watershed District Water Quality Report was completed and posted on the RLWD website.
<http://redlakewatershed.org/waterquality/MonthlyWQReport/2020%2001%20January%20Water%20Quality%20Report.pdf?fbclid=IwAR36Le4i0S4GDYe7g0K7XlysZc80QY3y2jYAgEDa6vqmMYchpABKbSoaiTE>
- District engineering staff conducted snow surveys, kept informed of NOAA flood outlook updates, and shared information with the public on the District's Facebook page.
- District staff completed articles for a draft 2019 Red Lake Watershed District Annual Report
- District staff created a monitoring checklist/schedule for 2020 sampling at long-term monitoring stations. Rounds of monitoring at RLWD long-term monitoring sites will be planned for the months of May, June, July, and September in 2020. Local agencies will take the presence of zebra mussels in the Upper and Lower Red Lakes into consideration when sampling this year. Stations along the Red Lake River upstream of Thief River Falls will be sampled last during a day's sampling run. There is not knowledge of zebra mussels in the Red Lake River, yet, but precautions will be taken to reduce the chance of spreading them to other waters. Sampling equipment is well-rinsed after every set of samples as a standard operating procedure to avoid cross-contamination of pollutants between sites. Local and state agencies will cooperate to conduct early detection monitoring in the Red Lake River with deployed samplers and laboratory samples.
- The Red River Watershed Management Board approved methods for distributing water quality funding to member watershed districts.
- RMB Laboratories completed and shared electronic data deliverable (EDD) files for the lab reports from the District's 2019 samples. District staff reviewed the files for accuracy (mostly to confirm that RLWD site names matched the correct EQUIS station identification codes. This is the first year that the RLWD has used the EDD system for the submittal of laboratory data. Concerns about accuracy in the recording and understanding of site information were confirmed during the review. However, the MPCA will be requiring EDD files for EQUIS laboratory data submittals in the future. Being able to review the data before it is submitted to the MPCA will alleviate some the concerns.

Water quality related notes and minutes from the March 12, 2019 Red Lake Watershed District Board of Managers meeting.

- West Polk SWCD submitted a request for a financial donation for the Area I Envirothon. The Area I Envirothon will be held on May 6, 2020, at Rydell Refuge, Erskine, MN. Motion by Dwight, seconded by Page, to donate \$300 to the Area I Envirothon to promote education and awareness of water quality issues.

Meetings and Events from March 2020

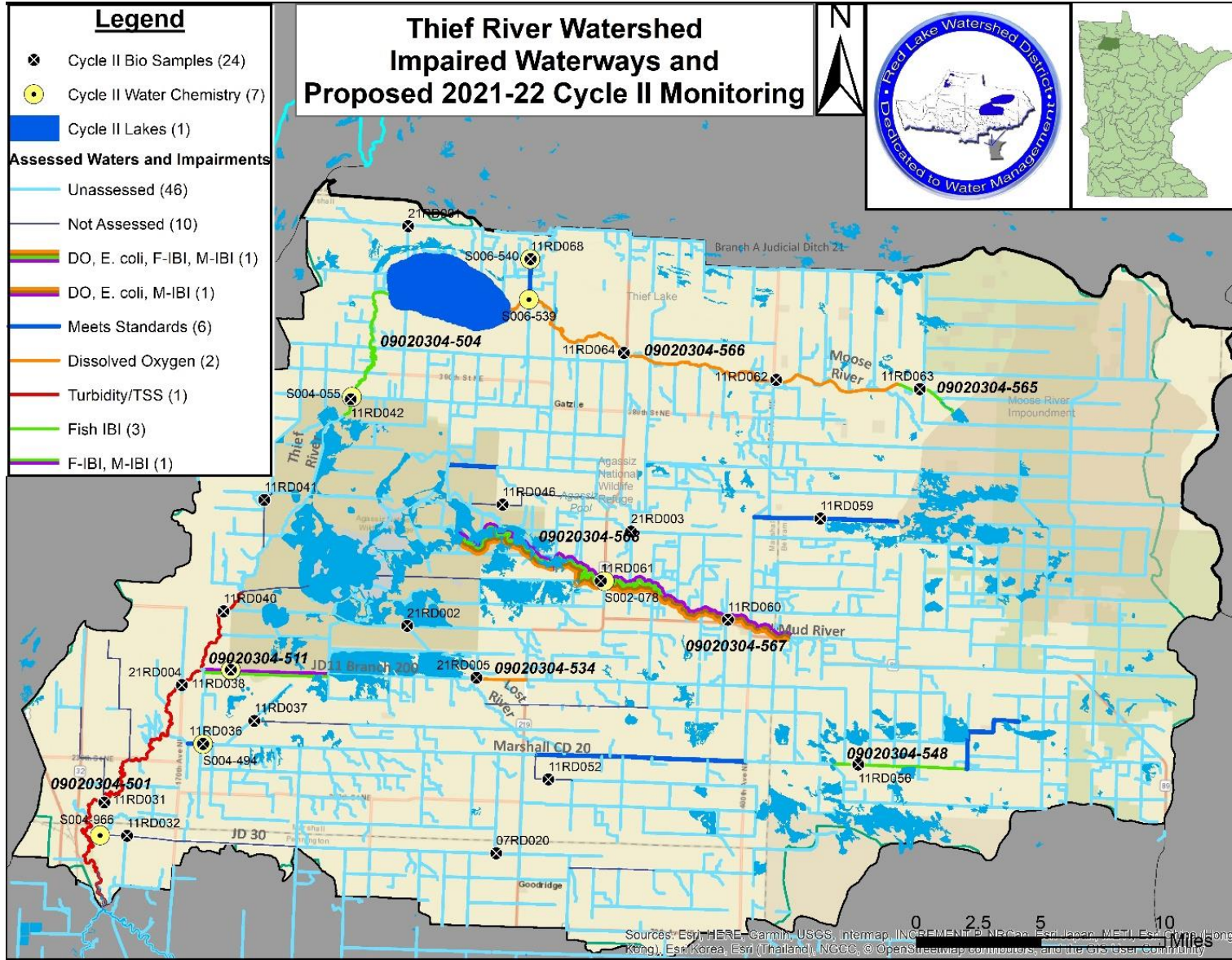
- **March 3, 2020** – Annual Red River Basin Water Quality Training Session at the university of Minnesota, Crookston
 - District staff presented on the use of standard operating procedures when monitoring.
 - Sampling in AIS Infested Waters
 - USGS Decontamination Protocols
 - Dedicated equipment for infested waters

- Visual inspection of equipment
- Rinsing of equipment
- Scheduling sampling at AIS-infested sites last
- Pour any extra water from the sampler onto the bridge instead of pouring water back into the stream.
- Soak equipment in pH 4 buffer solution
- If the equipment can handle it, it can be allowed to freeze between sites during winter sampling to kill AIS.
- Always verify methods with a project manager or supervisor.
- AIS awareness is very important – stay up-to-date on which waters are infested.
- There are 1,300 infested waters in the state of Minnesota.
- The Watershed Pollutant Load Monitoring Network has a permit to collect and transport samples from infested waters.
- Data Gathering and Submittal Tools
 - District staff discussed submittal of continuous monitoring data to WISKI and the use of GoCANVAS, EDGE (Earthsoft), ESRI Survey 123, or ArcGIS Collector data management applications with MPCA staff. These applications can reduce the time spent entering data and can help improve the consistency of data collection. Date and time values are automatic. Forms can be customized and can include drop-down selections.
 - The DNR has a culvert inventory mobile app (Culvert Inventory Application Suite).
 - Before submitting data to EQUIS, it helps to have someone else review the data (a fresh set of eyes) or to set it aside for a while before reviewing it yourself.
 - The MPCA uses WISKI to compile and correct their continuous water quality monitoring data now, instead of Aquarius.
- Laboratory Quality Control
 - A 1,000 ml bottle is now needed for total suspended solids analysis (the whole bottle is used for the test).
 - Mark “AIS” on the sample bottles that were collected from infested waters.
- **March 4, 2020** – Minnesota Board of Water and Soil Resources Northern Region Committee Meeting to review the Thief River Comprehensive Watershed Management Plan.
 - Peter Nelson of the Pennington SWCD gave a [presentation](#) to the group about the plan and the planning process.
 - There was discussion about what went well and about some of the challenges encountered during the process.

- BWSR staff and the committee determined that the plan, as submitted, meets BWSR states and requirements.
- A representative from the MPCA wanted some minor changes to the language, but the committee followed the advice of the local BWSR representative and local staff and did not make any changes to avoid fueling mistrust from landowners on the committees. Though there may have been an oversight in specifically naming the MPCA (because the focus was on naming local lead agencies and partners - it is a local plan) as a partner in some of the action tables, other language in Section 4 of the report opens the door to the inclusion of experts and representatives of state agencies.
- The MPCA representative noted that we appropriately applied water quality standards when identifying nearly impaired and barely impaired streams for prioritization.
- The committee voted in favor of recommending the plan for approval.
- **March 5, 2020** – River of Dreams classroom visit in Red Lake Falls
- **March 10, 2020** – MPCA Cycle II Intensive watershed Monitoring Kick-Off Meeting for the Thief River Watershed
 - District staff reviewed the monitoring plan and site locations to prepare for the meeting.
 - Intensive monitoring of the Thief River watershed by the MPCA (biological monitoring and Surface Water Assessment Grants for additional water chemistry sampling) will begin in 2021. Sampling for the Intensive Watershed Monitoring effort will occur in 2021 and 2022 in preparation for a formal assessment of water quality in 2023.
 - District staff had follow-up conversations with MPCA staff and will be submitting a monitoring request form for the watershed.
 - Continuous water quality and flow data from a previous study were found and shared with MPCA biological monitoring staff. District staff also provided MPCA staff with a LiDAR profile of Branch 200 of JD 11 upstream of Lost River Pool to show the influence of the pool upon flows in the ditch at the last road crossing (stagnant water).
 - In the screen shot below, the red Xs on the map correspond with the locations of the black lines and elevations shown on the Elevation Profile graph. There is a lot of variability in the LiDAR data, as you can see in the chart, but it shows that the drop in elevation between the 290th Ave NE crossing and the Lost Pool outlet is less than a foot of fall between 290th Ave NE and Lost River Pool. The lines that look like trees on the graph are road crossings (box culverts) and the Lost River Pool outlet (approximately 9 miles). The orientation of the graph is the opposite of the map (the east end is on the left and the west end is on the right).

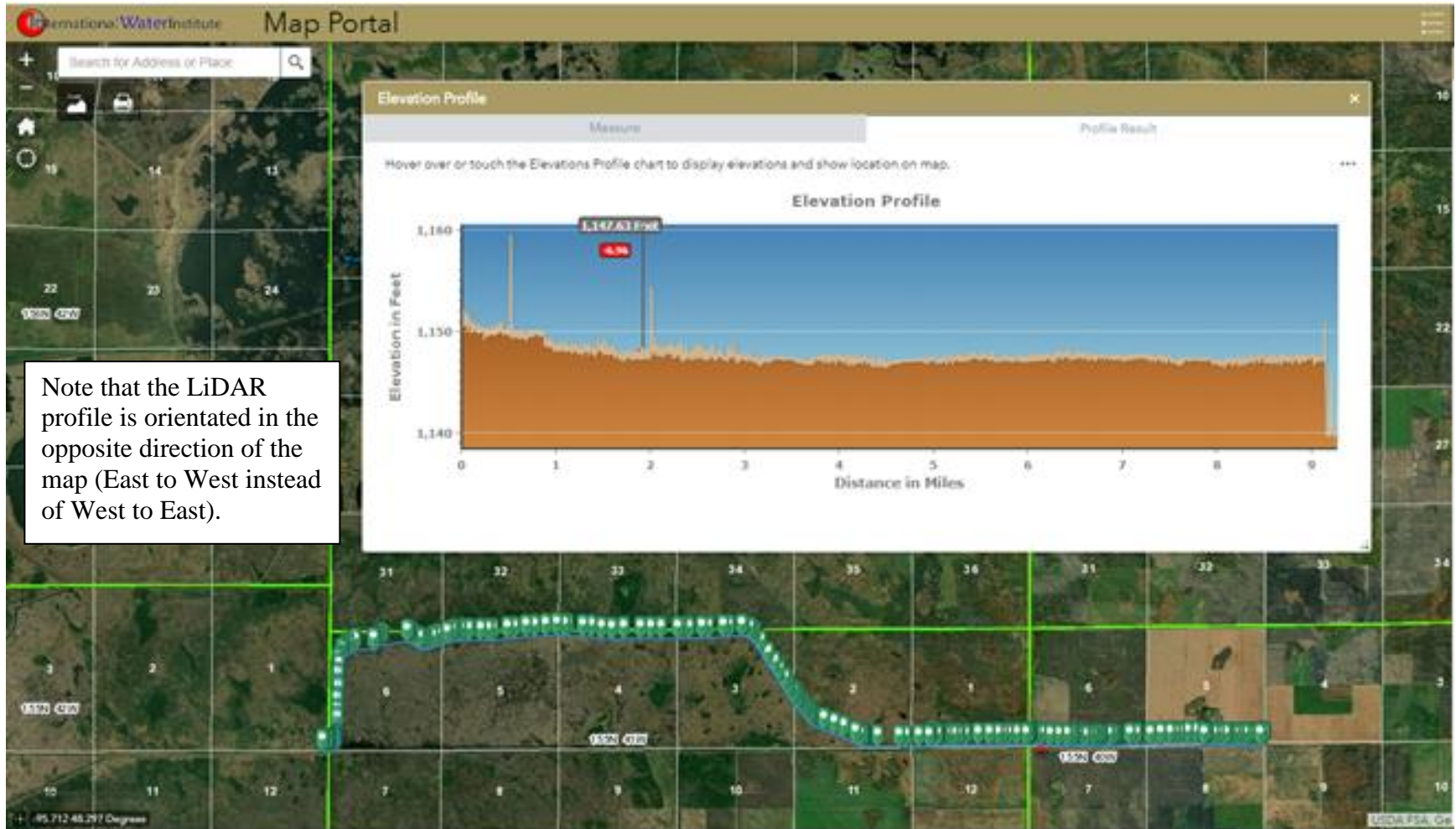
RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

March 2020



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Note that the LiDAR profile is orientated in the opposite direction of the map (East to West instead of West to East).

- **March 10-11, 2020** – Red River Watershed Management Board and Flood Damage Reduction Workgroup Joint Meeting and Conference in Moorhead. Day 2 of the conference included presentations that pertained to water quality within the RLWD.
 - The Regional Conservation Partnership Program – Navigating Environmental and Economic Considerations in Watershed Planning (Dave Jones, NRCS)
 - \$300 million in new RCPP funding will be available (\$6 million/state) for critical conservation areas.
 - Integrating Agricultural and Natural Resource Objectives in the Yakima River Basin of Washington State – Lessons Learned (Andrew Graham, DNR Red River Basin Coordinator)
 - Collaboration was key in the restoration of Indian Creek, a community forest, and using surplus irrigation water to supplement stream flow.
 - Proposed Nutrient Objectives at the US Canada Border for the Red River (Jim Ziegler, MPCA)
 - A 2012 USGS study showed an increasing trend in nutrients.
 - The International Red River Board has recommended a concentration target of 0.15 g/L total phosphorus for the Red River near the US/Canada border for protection of the Red River. A annual loading target was also recommended for protection of Lake Winnipeg.
 - There is no timeline to achieve the goals. There will be continued monitoring and annual reports.
 - Red River Watershed Management Board (Rob Sip, RWMB) and Flood Damage Reduction Work Group (Dan Money and Theresa Ebbenga, FDR Work Group Co-Chairs) Updates
 - The Board approved water quality funding as it was proposed by the Red River Basin Monitoring Advisory Committee.
 - Managing Minnesota’s Transportation Assets for Flood Resiliency Under Changing Climatic Conditions (Jeff Meek and J.T. Anderson, MNDOT)
 - The climate has been shifting toward increased precipitation. Northwest Minnesota is still relatively dry.
 - MNDOT is approximately ½ done with an assessment of the vulnerability of infrastructure. Some techniques and guidelines for reducing flood damage to roads will be refined when the study is completed.
 - Geomorphic design approach for road crossings = relieved stress and improved floodplain connectivity using floodplain culverts.
 - In-slope paving to resist wave action (difficult to install with proper compaction)
 - In-slope rock rip-rap to resist wave action

- Partnering for Water Quality – Perspectives from Local Cities in the Red River Basin of MN (Brian Holmer, Mayor of Thief River Falls)
 - The city is working with the MPCA to reduce phosphorus using alternative strategies.
 - State Representative Dan Fabian co-authored a bill that requires the development of a water quality management plan for the Red River of the North (HF 4213). The bill appropriates \$500,000 in fiscal year 2021 to the commissioner of agriculture for a grant to the Red River Basin Commission to facilitate developing a phosphorus water quality plan for the Red River of the North. The plan:
 1. must address applicable water quality targets for phosphorus loading;
 2. must include and allocation of phosphorus between point and nonpoint sources (concentrations from point sources can be high, but annual loading and cost-effectiveness of implementation projects are much greater for nonpoint sources on a watershed scale);
 3. must identify cost-effective implementation strategies to reduce nutrients; and
 4. must include other state water quality goals and objectives.
 5. will be developed by an advisory group (representatives from Minnesota Agricultural Water Resources Center, Red River Watershed Management Board, agricultural groups, watershed districts, and cities within the Red River Basin).
 6. will be completed by December 31, 2024.
- Wildlife Benefits from the Burnham Creek Impoundment, a Multi-purpose Flood Control Project in Northwest MN – Lessons Learned (Dan Svedarsky, University of Minnesota Crookston)
 - The impoundment was constructed in response to overland flooding from the CD 140 drainage system.
 - The outlet of the impoundment flows north to Gentilly Creek and it reduces flooding in the Burnham Creek watershed.
 - There is some erosion in the drainage area of the impoundment that contributes some pollutants from overland runoff.
 - Sago pondweed is an example of an aquatic plant in this impoundment that is very good for wildlife.
 - Svedarsky listed design factors that worked well.
 1. Upland habitats adjacent to pools provide essential nesting and foraging habitats for aquatic as well as terrestrial birds. Cover planting mixtures were appropriate and are aesthetically pleasing and functional as nesting cover and foraging habitat.
 2. The presence of the Flood Pool close to the Wildlife Pool enhances the wildlife value of each.
 3. The large expanse of open water in the Flood Pool makes it attractive as a resting area for migratory birds.

4. Gradual sloping shorelines of the Flood Pool provide excellent foraging and loafing habitat for a variety of breeding and migrating aquatic birds, especially where fertile topsoil was flooded.
 5. Fluctuating water levels of the Flood Pool provide good shorebird foraging areas although on an unpredictable schedule depending on precipitation patterns.
 6. The sand/gravel spits with scattered rocks extending into the Flood Pool provide attractive loafing and/or foraging sites for waterfowl, shorebirds, terns, gulls, and cormorants.
 7. The presence of deeper water areas of the Flood Pool provides overwintering habitat for minnows serving as forage for mergansers, grebes, terns, Common Loons, Double-crested Cormorants, herons, and egrets.
 8. The positioning of the Flood Pool inflow channel close to the Outlet Structure probably reduces the turbidity of the Flood Pool more than if the inflow were at one end and the outflow at the other end. Turbidity is a critical factor affecting the productivity of submergent vegetation.
 - The University has experimented with mowing and harvesting cattails within the pools of the impoundment. Cattails are covering shallow wetlands and choking-out habitat that is important for waterfowl production. Canada has a head start ahead of the United States on cattail harvesting.
 - The original report from the 1992 study ([Biological Inventory of a Multi-Purpose Flood Control Impoundment in Northwest Minnesota and Potentials for Nongame Bird Management](#)) is available online.
- Brandt impoundment Spring 2019 Runoff event – Sediment and Nutrient Load Monitoring (Danni Halvorson, International Water Institute)
 - The early study (shortly before and after construction of the impoundment) did not reveal much of a difference in water quality from upstream of the impoundment to downstream.
 - Downstream samples for the 2019 study were collected right at the outlet of the impoundment.
 - Lots of total suspended solids concentrations that were too low to report (<1 mg/L) were recorded at the inlet to the impoundment in 2019.
 - Small reductions in phosphorus occurred at the outlet compared to the inlet. Nitrogen reductions were more significant. Total suspended solids concentrations slightly increased from the inlet to the outlet. Though they were more measurable than the concentrations at the inlet, they were still low.
 - There are plans for another round of monitoring in 2020.
 - Spring Flood – What’s the Status Now (Greg Gust, National Oceanic and Atmospheric Administration and National Weather Service)
 - Greg Gust gave a very educational presentation about the different factors that can influence snow melt. Forests have more sublimation, so trees will warm up faster than prairies as they capture heat in the early spring. In the late spring,

however, there is faster melting in prairie than in forests due to shading of the snow under trees.

- Because much corn was not harvestable last fall and was standing throughout the winter, there was less wind movement of snow. So, snow cover is more even this year. Snow melt has been slower where there was corn because it was holding more snow.
 - There is an [airborne snow survey website](#).
 - Citizens can help NOAA by using the [CRED website](#) to report river conditions (especially when they open up) and snowpack.
- **March 16, 2020** – RLWD Overall Advisory Committee Meeting
 - District staff gave a series of presentations that summarized work that was done in 2019 and what is planned for 2020.
 - There was additional questions and discussion about water levels, impoundment drawdowns, the 1W1P process, snow surveys, the Grand Marais Creek restoration projects, and a ditch upstream of the Moose River Impoundment.
 - The RLWD was appointed to be the fiscal agent.
 - Daren Carlson of the Marshall SWCD was appointed to be the plan coordinator.
 - The BWSR Board will meet next week to discuss/approve the plan.
 - The next meeting was planned to be held within the next 3 months, though that plan may change due to the ongoing pandemic. A cost-share policy will need to be established before we start spending money for agricultural practices.
 - **March 16, 2020** – Thief River One Watershed One Plan Policy Committee Meeting
 - There was discussion about the remaining budget for the project. The unused portion that had been allocated to Marshall County will be moved to cover part of the extra time that was spent on the project by the RLWD and the Pennington SWCD.
 - There was discussion of by-laws.
 - Meeting notices will be posted on the RLWD website.
 - **March 19, 2020** – Discussion with MPCA staff about biological monitoring sites in the Thief River watershed.
 - **March 19, 2020** – Red Lake River One Watershed One Plan Planning Work Group conference call
 - Discussion of Ag water Quality Program and incentive amounts. The incentive for going through an assessment was increased.
 - Project tracking database discussion
 - Completed Clean Water Fund projects (those recorded in eLink) are mapped in a GIS layer.
 - LGU workplan budgets

- The budget for the Demarais-Hanson ditch outlet stabilization project was moved to the budget for the RLWD.
- Discussion of the Red River Watershed Management Board funding for water quality projects
 - It could be used to provide local match.
 - The money can only go to member watershed districts, though the watershed districts can subcontract with SWCDs.

In-person meetings in the last two weeks of March and beyond were canceled due to the coronavirus pandemic. Canceled meetings/events included a Bartlett Lake Management Plan meeting, Envirothon competitions, Water Resource Advisory Committee meetings, and an RLWD Board Meeting.

- **March 25, 2020** – Clearwater River Watershed One Watershed One Plan conference call
- **March 25, 2020** – Governor Walz’s Emergency Executive Order 20-20 was announced:
 - Beginning on Friday, March 27, 2020 at 11:59 pm through Friday, April 10, 2020 at 5:00 pm, all persons currently living within the State of Minnesota are ordered to stay at home or in their place of residence except to engage in the Activities and Critical Sector work set forth below in Paragraphs 5 and 6.
 - In response to this Executive Order, the District office was closed to the public and employees began working from home to continue. The essential field work of monitoring flood conditions and operating impoundments continued. Much of the day-to-day work of the district staff has been able to continue during the period of working remotely, like data management, report writing, project development, and even (remote) meetings.
- **March 31, 2020** – Black River Impoundment Skype meeting with District staff, engineering staff, and MPCA staff to discuss 401 Certification for the project
 - Under Section 401 of the Clean Water Act, some projects need to obtain certification from the state that the discharge complies with applicable water quality standards. The original language of Section 401 focused on protecting waters from discharges from projects (point sources, in particular). More aggressive rules have been put in place to expand the 401 Certification to protect wetlands. The MPCA passed a new rule in 2016 that gave the agency more jurisdiction under Section 401 but did not inform regional MPCA staff that represent the agency on project teams until March 2020. The Black River Impoundment had already gone through a long period of project planning (involving a project work team that included regional MPCA staff). The MPCA Section 401 staff from St. Paul entered the process late in the process, after the other known permitting boxes for the Clean Water Act and the Wetland Conservation Act had been checked.
 - There was a surprising lack of concern about downstream water quality from the St. Paul MPCA staff. Their focus, during the call, was on additional wetland mitigation for incidental wetlands and wetlands near the ditch improvements (lateral effect). The

conversation focused on those wetlands and intermittent ditches that will not be assessed by aquatic life use water quality standards.

- As for the downstream effects in assessed waters, it is anticipated that sediment loading would be reduced. It is anticipated that extended flows would improve dissolved oxygen levels in the Black River by reducing the amount of time that the river is stagnant. There has been long-term water quality monitoring upstream and downstream of the project area along the Black River. Sediment loading reductions are an anticipated outcome of reduced peak flows along the Black River channel, buffer establishment along diversion ditches, side water inlet installation along diversion ditches, and sedimentation within the impoundment.
- There is a significant amount of pre-project data along the Black River than can be compared to post-project data, with the caveat that there are other variables that can influence water quality besides this project. The Pennington County SWCD collects monthly samples at S003-943 (140th St. SW on AUID 09020303-557) and S003-948 (120th St. NW on AUID 09020303-557). The Red Lake Watershed District collects at least four sets of water quality samples each year at S002-132 (CSAH 18 on 09020303-529).

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.