RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

April 2020

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 6/24/2020

2020 Flooding

District staff photographed some high water levels and flooding in rivers and ditches. District Engineering Technicians publicly shared information on impoundment operations on the District's Facebook page. A floating bog was removed from the Pine Lake Outlet Structure on April 6, 2020. Gates on the Shirrick Dam, Brandt Impoundment, Euclid East Impoundment, and Parnell Impoundment were closed in early April to reduce downstream flooding. The timing of the gate closures was based on predicted stage levels in the Red River of the North. The District began releasing water from Shirrick Dam, Brandt Impoundment, Euclid East Impoundment, and Parnell Impoundment in mid-April.

Red Lake River along Riverside Street in Crookston (flooding streets)

Red Lake River at Central Park in Crookston

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Shirrick Dam outlet structure

Aerial view of Shirrick Dam

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A large Ice Jam in the Red Lake River at Huot caused flooding problems

Two adjacent fields along CSAH 11, west of Red Lake Falls, demonstrated the importance of riparian buffer strips. One field was farmed to the edge of the ditch and there was extensive erosion and sedimentation. The other field had a buffer that prevented erosion along the edge of the field and there was no visible sedimentation within the ditch.

Field with no buffer strip

Well-buffered field

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Locations where side water inlets and improved buffers are needed became obvious in the aftermath of 2020 spring runoff:

Erosion along the Red Lake River downstream of the Highway 75 Bypass Bridge (Kreutzberg Property).

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District Office Took Actions in Reaction to the Covid-19 Pandemic

In response to the Covid-19 pandemic, the Red Lake Watershed District Board of Managers declared a State of Emergency for the period of 30 days effective April 9, 2020 through May 9, 2020 or until circumstances no longer require a State of Emergency.

Legal Counsel Delray Sparby indicated that the RLWD is an essential critical sector entity so therefore staff could report to office, however, it is encouraged to have staff work at home, if possible. Administrator Jesme stated that a few staff have been coming into office as needed and but mostly working remotely from their home. Jesme also indicated that he felt that this working from home policy has worked out well with only some minor issues. Consensus of the Board was staff should work remotely and report to office as needed.

River Watch

Natural Resource Technician Ashley Hitt worked with International Water Institute staff to help plan a virtual River Watch forum. Ashley graded River Watch projects and helped International Water Institute staff choose the top 5 projects so a winner can be chosen.

Red Lake River Watershed One Watershed One Plan

The Planning Work Group worked on drafting a workplan and budget for an upcoming 319 Small Watershed Focus Grant request for proposals.

- Reduce E. Coli in Black River and CD 96 in critical loading areas within priority management areas.
    - Implement cattle exclusion practices, septic system upgrades, grazing management, and other practices identified in the 9-Element Plan to reduce E. coli.
    - Conduct outreach to smaller livestock operations (50-299 Animal Units) to encourage development and implementation of manure management plans in critical loading areas.
- Reduce sediment in critical loading areas within priority management areas utilizing PTMApp and provide a secondary benefit to reduce phosphorus loading and improve index of biological integrity.
    - Implement structural Best Management Practices (BMPs) that include grade stabilization structures, Water and Sediment Control Basins (WASCOB), streambank stabilization projects, and stabilization of ditch outlets other structural practices included in the 9-Element Plan.
    - Implement Non-structural practices such as cover crops, field borders, riparian forest buffers, riparian buffers, critical area plantings, and other related non-structural practices included in the 9-Element Plan.

Clearwater River One Watershed One Plan

District staff reviewed the components of previous 1W1P documents and which ones could be created in-house to reduce consultant costs and take advantage of local expertise.

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Bartlett Lake Management Plan

The Bartlett Lake Management Plan was edited based on notes from the previous meeting and comments submitted by planning partners.

Clearwater River Watershed Restoration and Protection Strategy (WRAPS)

District staff completed a detailed read-through and review of the draft Clearwater River WRAPS document and applied those edits. Further edits will be completed when MPCA staff complete a review and submit comments.

District staff edited some maps and figures for the Clearwater River Total Maximum Daly Load report to help the MPCA with some final edits prior to submittal to the EPA.

Upper/Lower Red Lakes Watershed Restoration and Protection Strategy (WRAPS)

Red Lake DNR staff shared a draft Upper/Lower Red Lakes WRAPS report to gather comments and editing recommendations. District staff reviewed the report and provided comments. While reviewing the Restoration and Protection Strategy tables that list strategies that will be used to address water quality issues, District staff examined each subwatershed (in aerial photos) to find opportunities for projects that could improve water quality and aquatic habitat.

Other Notes

- District staff reviewed and researched the MPCA's 401 Certification program and requirement, including the "Anti-degradation Form for Applicants."
- A February 2020 Red Lake Watershed District Water Quality Report was completed and posted on the RLWD website: http://redlakewatershed.org/waterquality/MonthlyWQReport/2020%2002%20February%20Water%20Quality%20Report.pdf
- District Staff reviewed preliminary plans and information for a project that will clean sediment from stormwater runoff that has accumulated and filled an oxbow wetland in Thief River Falls. The oxbow is located on the west (downstream) side of Pennington Ave, between Greenwood Street East and Parkview Street East. The project will also involve treatment of future stormwater that flows into the wetland to remove trash and sediment.

- District staff discussed zebra mussel sampling in Lake Lomond and downstream with Clearwater SWCD staff. Zebra mussel research was reviewed to learn more about the risks to waters downstream of an infested waterbody.
    - Lakes downstream of infested waters are 27 times more likely to become infested.
    - The months of June through August should be targeted for early detection sampling.
    - Stationary long-term samplers could be deployed in downstream waters like the Bagley stormwater pond that is located between Lake Lomond and the Clearwater River.
    - Densely vegetated wetlands may serve as barriers that can limit the dispersal of zebra mussels.
- A March 2020 Red Lake Watershed District Water Quality Report was completed and posted on the RLWD website: http://redlakewatershed.org/waterquality/MonthlyWQReport/2020%2003%20March%20Water%20Quality%20Report.pdf
- Construction began on the Thief River Falls Westside Flood Damage Reduction Project, including the stabilization of the outlet downstream of Highway 32.
- The District's Natural Resource Specialist completed maps of known tiled fields throughout the watershed (mostly based upon the District's tile permitting records).
- District water quality staff provided water quality information to the District Administrator to help with compiling the Black River Impoundment Project RCPP application.

Water quality related notes and minutes from the April 9, 2020 Red Lake Watershed District Board of Managers meeting.

- Administrator Jesme informed the Board that a landowner, approximately two miles downstream of the Euclid East Impoundment, had contacted him regarding the outlet channel of the impoundment. Discussion was that the landowner or multiple landowners may have an interest in a two-stage ditch design similar to the outlet of the Brandt Impoundment. Jesme also informed the Board that Polk County Ditch authority would have to be contacted as the outlet to the Impoundment is Polk County Ditch 66 Branch C. Motion by Tiedemann, seconded by Sorenson, to give staff the authority to pursue a survey and a cost estimate to complete the design requested for the outlet improvement to the Euclid East Impoundment. Upon roll call vote, motion passed unanimously. Manager Dwight also inquired about investigating purchasing easements of property directly downstream of the Euclid East Impoundment which had been discussed at a prior Board meeting. Administrator Jesme said the RLWD would look at it as a holistic package and would include that area as well.
- The Board voted to adopt and will begin implementation of the approved Thief River Comprehensive Watershed Management Plan.
- The Red Lake Watershed District previously entered into a cost sharing engineering agreement with Marshall County Drainage Authority in conjunction with Marshall County Ditch 20 and State Ditch 83. As part of this agreement, RLWD Project 14D was approved to assist in the reduction of sediment from CD #20 depositing into State Ditch #83 ditch system. As part of that project, there were various side water inlet culverts installed along with flap gates. Marshall County Ditch authority has asked if the Red Lake Watershed District would assist in the cost share to repair one of the SWI's as the spoil has settled and culvert and water is going over the spoil and causing flood concerns to an adjacent landowner. An extension would be installed on the culvert and a berm built higher. Motion by Ose, seconded by Page, and passed unanimously by

roll call vote to approve cost share of 50/50 with Marshall County to repair an area of Marshall County Ditch 20/State Ditch 83.

- Pennington Soil and Water Conservation District thanked the Red Lake Watershed District for their financial support for the 2020 Envirothon, but due to the COVID-19 pandemic, the event was cancelled for this year. Pennington SWCD inquired how the RLWD wished to handle the 2020 financial support given them. Motion by Tiedemann, seconded by Ose, and passed unanimously following roll call vote, to apply the support to the 2021 Envirothon.

Water quality related notes and minutes from the April 23, 2020 Red Lake Watershed District Board of Managers meeting.

- The Board reviewed Task Order No. 3 from HDR Engineering, Inc., for Final Engineering for the Pine Lake Subwatershed Project, RLWD Project No. 26. Engineer Nate Dalager, HDR Engineering, Inc., stated that through a series of meetings and Project Team meetings, we have focused on a final alternative to replace the outlet structure of Pine Lake with an operable dam. Task Order No. 3 would get the project to construction. Manager Torgerson asked if replacement of the outlet structure would address the oxygen levels within the lake. Administrator Jesme stated that a provision was discussed that would call for a tube to be installed into the lake that would remove bottom water from the lake during drawdown which would prevent the release of higher oxygenated water from leaving the lake. Discussion was held on the financing of the project.

Meetings and Events from April 2020

- **April 2, 2020** – Red Lake River 319 Small Watershed Focus Grant discussion with the Red Lake River 1W1P Planning Work Group
    - The group needs to prepare a work plan for the upcoming request for proposals that describes the work that will be done in the watershed.
    - The rules and timing of the RFP process were discussed.
- **April 7, 2020** – Red Lake River and Thief River 1W1P Joint Meeting to discuss organizational capacities for completing the tasks in those work plans.
- **April 8, 2020 -** Red Lake River 319 Small Watershed Focus Grant work plan discussion with the Red Lake River Planning Work Group
    - Project ideas
        - Black River streambank stabilization
        - Browns Creek erosion control
        - Black River Impoundment project area side water inlets
        - Red Lake River streambank stabilization
        - Prevent/stabilize meander cut-offs (two can be found between Red Lake Falls and Huot)
        - Grazing management in the Black River watershed, Browns Creek, and CD 96
        - “Bang for the buck” cost-effective projects

- Create a Bank Erosion Hazard Index map for Red Lake River geomorphology reconnaissance reaches, particularly the portion of the Red Lake River from St. Hilaire through Huot.
- Peter Nelson, Pennington SWCD, will be the Coordinator and the RLWD will be the fiscal agent. As the fiscal agent, the RLWD will be entering into the contract. Denise Oakes will be the MPCA Project Manager. The start date will be sometime after October 1, 2020. The budget will be $280,000 in grant funds and at least $187,000 in matching funds.
- Target critical loading areas.
- This will be a four-year grant (2021, 2022, 2023, and 2024 construction seasons).
- The closest SWCD grazing specialist is based in Perham. Bryanna Grefthen is being trained-in, but it is a year-long process.
- The group will need to list deliverables, set goals for the quantities of practices that will be installed, and estimate pollutant load reductions.
- Landowner outreach can be part of the project, but not project development. The money should be used to complete projects where we already know what we want to do.
- District staff will work with Pennington SWCD staff to estimate measurable outcomes.

- **April 10, 2020** – Staff Meeting teleconference
  - One of the side water inlets installed for the Grade Stabilization for Reduction of Sedimentation in the Thief River project has settled, has been getting overtopped by runoff, and needs to be replaced.

- **April 16, 2020** – Black River Impoundment 401 Certification Skype Meeting
  - St. Paul MPCA 401 certification staff expressed their concerns about the project, which included 1) increase in flow to the Black River due to ditch expansion and 2) construction of a fish passage barrier to construct the impoundment.
  - Local staff and consultants explained that 1) the Black River Impoundment is a flood damage reduction project that will decrease peak flows in the Black River and 2) the impoundment is not being constructed on an existing channel an is not obstructing any channels that may have provided fish habitat. The future location of the impoundment is a field with a private drainage channel that only conveys water during runoff events.
  - Local RLWD and MPCA staff explained the downstream water quality concerns within the Black River that are caused by high peak flows (erosion and high total suspended solids) and low base flows (low dissolved oxygen concentrations). Lowering peak flows and extending the duration of base flows will help reduce erosion and improve dissolved oxygen levels for the benefit of fish and macroinvertebrates in the Black River. There will be limits on the rate of discharge from the impoundment and there will be extended discharge.
  - There was a lot of discussion about communication (the 401 Certification process was not communicated to LGU or regional MPCA staff), timing ("11th hour"), and costs (having to work through the permitting and wetland mitigation process with multiple state agencies).
  - Regional MPCA staff had worked with the St. Paul MPCA staff to obtain a 401 Certification waiver for this project.

- **April 16, 2020** – Red Lake River 319 Small Watershed Focus Grant work plan discussion with Peter Nelson.
- **April 17, 2020** - Red Lake River 319 Small Watershed Focus Grant work plan discussion with Peter Nelson.
- A**pril 21, 2020** – Red Lake River and Thief River 1W1P joint Webex meeting to discuss organizational capacity to complete the work in the 1W1P annual workplans. Some organizations will be working on projects from both watersheds' annual workplans.
    - Estimated technical and engineering hours that will be spent by each local government unit (LGU)
    - Discussion about different Technical Service Area (TSA) staffing levels throughout the state.
    - Discussion about whether local staff can design side water inlets with sufficient training and the process of gaining sign-off authority
    - Concurrence that larger projects would still need an engineer to sign-off on designs
    - Discussion about hiring an engineer or technician
    - Watershed district staff can't get job approval authority under the current system. If they receive training, the watershed district board can decide that they have authority to sign-off on a project. The work could be limited to smaller, low-risk projects to reduce liability.
- **April 22, 2020** - Red Lake River and Thief River 1W1P joint Webex meeting to review and discuss PTMApp tools that are being developed by Henry Van Offelen (BWSR) to help with prioritization of projects within priority subwatersheds.
    - Apply "filters" to the PTMApp data to identify the most effective practices within the highest loading catchments.
    - Protection practices (side water inlets and grade stabilization in areas with high stream power index values), source reduction (cropping/tillage BMPs), and filtration (buffers) were chosen as the practice groups that will be most important when prioritizing areas that will be targeted for implementation projects using 1W1P funding.
    - Use tons/acre instead of total loading to factor-out the variable of catchment size.
    - The Judicial Ditch 30 subwatershed was used as an example.
    - These tools will be important for SWCDs that need to make decisions about which fields are eligible for limited cost share funds. The Pennington SWCD cover crop policy requires that a field has to be identified as priority by PTMApp to be eligible for cover crop cost share funding.
    - Practices are sorted by high/medium/low effectiveness in order to filter-out practices that are small and ineffective. Henry also filtered-out practices with artificially exaggerated drainage areas.
    - Ashley Hitt will work Henry Van Offelen, Mary Steinlicht, and Matt Drewitz to create the filtered PTMApp GIS layers for other subwatersheds in the Red Lake River and Thief River watersheds.
- **April 23, 2020** – Red Lake River 319 Small Watershed Focus Grant work plan teleconference with the Red Lake River 1W1P Planning Work Group

  - The Red Lake SWCD has had some success working with landowners to implement grazing management.
  - The group discussed and made adjustments to the grant application's budget.

- **April 27, 2020** – Staff Meeting teleconference
- **April 28, 2020** – Red Lake River Corridor Enhancement Project Zoom meeting
  - 2018 Grant Project Completion
    - Docks have been ordered for park in Crookston – 2 fishing piers and a kayak launch.
    - St. Hilaire is getting a kayak launch.
    - The Gentilly access construction is ready to go. The bid was let last fall.
    - A 50-foot Mobi-mat will be installed at the access that is located east of Crookston, north of the intersection of Highway 2 and Highway 102.
    - 3 kayak launches are planned for Pennington County river accesses
    - A nature playground could be planned for Sportsman's Park in Red Lake Falls
    - A bird watching spot might be created at the Red Lake Falls wastewater treatment ponds
    - One idea for the Red Lake Falls Area is a bike trail that connects Sportsman's Park to the existing bike trail.
    - Signage has been ordered.
    - Huot Park doesn't need a dock, but trees are needed. District staff followed up with Red Lake SWCD staff to see if they still had some trees available and forwarded the list of available trees and prices to Manager Page.
  - 2019 Grant Approval Process – Not much new information
  - 2021 Application Process including "Connecting to Outdoors" pillar dedicated funding that is available. Brainstorming ideas for future projects:
    - More Mobi-mats?
    - Discussion about how to identify and serve disadvantaged populations in communities
    - Pollinator plantings that involve students and service groups
    - Kayak launches at more locations
    - Rain gardens and shoreland restorations
    - Some activities may be hard to do while practicing social distancing. Pay attention to news about how sunlight and wind affect the SARS-CoV-2 virus throughout the summer.
    - Focus more on connecting trails
    - Keep trails clean (trail maintenance)
    - Aunt Polly's slough trail – better signage to discern trail access points from private property.
    - Online maps of parks and trails
    - Native plantings along trails like the Greenwood Trails.
    - Add primitive trails
    - Improvements to the Kreutzberg Trails in Crookston (let people know the public is welcome, warn of any hazards).
    - Traffic signs to let people know "there's a trail over here, check it out sometime."

        - Facilitate and allow winter recreation (skiing and snowshoeing). Stop destroying the Crookston sledding hill with snowmobile races.
        - Check out kayaks at the library
        - Work with teachers

- **April 29, 2020** – Red River Watershed Management Board Water Quality Monitoring Advisory Committee meeting to discuss applications for RRWMB water quality funding.
    - Wild Rice River Watershed District Corridor Habitat Program
        - Land purchases along a 23-mile reach of the Wild Rice River corridor will improve water quality by reducing overland erosion, improving riparian vegetation (and bank stability), and allowing for stream channel restoration projects in later phases of the project. The work has been partially funded by a Lessard-Sams grant. The reach is currently impaired by high total suspended solids. In addition to filtering runoff, the land use changes in the river corridor will reduce erosion that occurs when the river breaks out of its channel. It will flow through a vegetated corridor instead of through fields and will pick up less sediment. There is a lot of landowner support for the project.
    - Roseau River Watershed District
        - This project will restore meanders along 13.6 miles of stream channel within the Roseau River WMA. This excellent habitat restoration project has received $3.5 million in Outdoor Heritage Funding. The habitat benefits are great, but the water quality benefits weren't as clear. There was a lack of existing impairments or reaches of the river that were identified as being a priority for protection projects. The river was formerly impaired by low dissolved oxygen, but it was recategorized and removed from the 303(d) List of Impaired Waters because the low dissolved oxygen levels came from natural causes. Influxes of water with low dissolved oxygen concentrations seeps into the river from wetlands during summer rain events. The committee recommended funding with the condition that rock riffles are installed to mechanically aerate water (while providing other structural and habitat benefits) to improve the low dissolved oxygen levels in the river.
    - Bois de Sioux Watershed District
        - This project will use structural rock riffle drop structures to stabilize a severely eroding public ditch outlet along the shore of Lake Traverse. The erosion had deposited a delta of sediment within the lake. Enigneers worked with DNR experts to design the rock riffle structures and have completed velocity modeling. The RRWMB will leverage funding from a BWSR Clean Water Fund Grant.
    - District staff will help RRWMB staff put together a check-list to aid with future application reviews.
    - District staff inquired about submitting an application to fund side water inlet installations in the Black River Impoundment project area using the $100,000 of RRWMB Water Quality Base Funding. The consensus of the committee was to encourage the District to move forward with that application.

- **April 29, 2020** - Red Lake River and Thief River 1W1P joint Webex meeting to review and discuss PTMApp tools

- Henry Van Offelen demonstrated some of the shapefiles that he created by filtering PTMApp data to find the highest priority locations for implementation of projects and practices.
- The catchments with top 33% highest tons/acre sediment loading rates were filtered from the PTMApp data and highlight the small sub-basins where priority projects will be located. The top practices within those catchments were then identified.
- Ditch inventory layers can be overlain on the PTMApp layers to see where issues noted during the ditch inventory overlap with the critical areas that are highlighted by the PTMApp data filtering.

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.