

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 2/3/2020.



- Stream and Lake Sampling
- Dissolved Oxygen Logger Deployments
- Blue-Green Algae Testing
- Lost Lake and Pine Lake Area
- Thief River Falls Intensive Monitoring
- Burnham Creek Geomorphology
- Bartlett Lake Meeting
- Clearwater County Tour
- River Watch

Red Lake Watershed District Long-Term Stream Monitoring Program

High concentrations of *E. coli* bacteria were found in:

- Lost River at 486th St. near the Pine Lake outlet
- Lost River at 141st Ave (south crossing), upstream of Lost Lake
- Tributary to the Lost River at 410th St., upstream of Lost Lake (in 2 sampling visits)
- Mud River in Grygla

Lake Sampling

In addition to sampling Lost Lake and Pine Lake in 2019, the District is also collecting samples from Long Lake, near Pinewood, to determine whether or not the lake is still impaired. The lake met lake eutrophication water quality standards in the September 2019 samples.

Long Lake



Lost Lake



Dissolved Oxygen Logger Deployments

Dissolved oxygen loggers were calibrated and prepared for deployment. HOBO DO loggers received new sensor caps. Some HOBO DO loggers had been sent to Onset for battery replacements. DO loggers were deployed at the following locations

1. Red Lake River, east of LaFave Park (malfunctioned)
2. Thief River at 140th Ave NE
 - a. A spike in turbidity concentrations was observed from September 10th through 13 as flows peaked and began to recede. Water treatment problems for the city reportedly occurred during that time. Turbidity levels remained elevated, compared to levels from early September during late September. Flows sharply began to increase on September 20. Dissolved oxygen levels decreased, and turbidity levels remained somewhat elevated during that period of high flow.
3. Hill River at 335th Ave SE
 - a. As with the August portion of the deployment at this site, all dissolved oxygen measurements met the 5 mg/L standard.
4. Lost River at 530th St., downstream of Anderson Lake
 - a. Though September dissolved oxygen levels were better than the levels recorded in August, they regularly dropped below 5 mg/L.
5. Clearwater River at 400th Ave SE (CSAH 27)
 - a. Dissolved oxygen levels remained above 5 mg/L until some low daily minimums were recorded during increased flows from a September 20th runoff event.
6. Mud River in Grygla
 - a. Dissolved oxygen levels remained above 5 mg/L on all but one day of the September deployments.

Clearwater River Watershed Total Maximum Daily Load and Watershed Restoration and Protection Strategy

Comments from the MPCA's internal review of the Clearwater River total Maximum Daily Load report were received.

Blue-Green Algae Monitoring

The Mud River in Grygla was tested for algal toxins on September 5, 2019 and no toxins were detected.

Intensive Monitoring in Lost Lake and Pine Lake Area

Sample collection in the Lost Lake and Pine Lake area continued throughout September 2019. Samples were collected upstream and downstream of Lost Lake, within Lost Lake, upstream and downstream of Pine Lake, and within Pine Lake. Stream samples were collected once every two weeks. Lost Lake was sampled twice each month, and Pine Lake was sampled once each month.

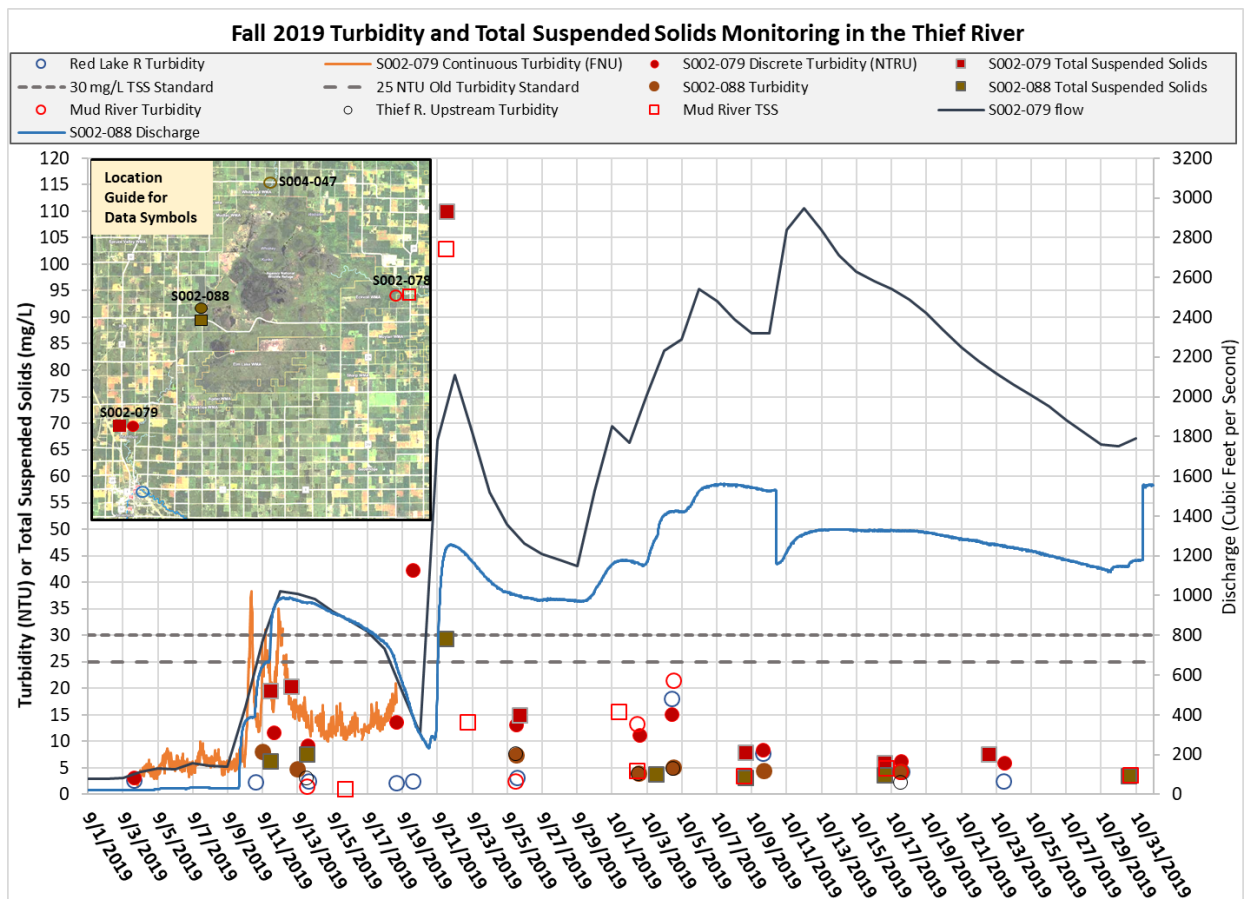
District staff compiled a summary of the 2019 intensive monitoring in the Pine Lake area.

Continuous dissolved oxygen data was compiled for the Lost River at the south crossing of 141st Ave.

Stream Gauging

Flow measurements were recorded at the Judicial Ditch 23 sites that were being monitored to aid the MPCA biological assessment and stressor identification processes.

Intensive monitoring of the Thief River and Red Lake River Upstream of Thief River Falls



The Thief River and Red Lake River were intensively monitored, with a focus on turbidity levels, upstream of the City of Thief River Falls drinking water intake. The monitoring was completed to provide additional data for the Minnesota Department of Health and the City of Thief River Falls to use in evaluating the effect of high-turbidity discharge from Agassiz Pool upon the city’s wastewater treatment process. The Thief River and Mud River upstream of Agassiz NWR were also regularly monitored to characterize water quality upstream of Agassiz Pool. The monitoring included sonde deployments in the Red Lake River near LaFave Park/Merriam Avenue and the Thief River at the Hillyer Bridge (140th Ave NE).

The deployed sonde and discrete measurements recorded an increase in turbidity in the Thief River upstream of Thief River Falls that coincided with water treatment challenges that were experienced at the city’s water treatment plant. The monitoring captured a period of changes in flow (sharp decrease followed by a sharp increase during a runoff event) during which high total suspended solids and

turbidity levels were recorded. Water quality from the Thief River watershed was more volatile than water quality in the Red Lake River at Thief River Falls, in which turbidity levels were relatively steady. A finding of the fluvial geomorphology study was that channel-forming, bankfull flows (above which the river is most effective at moving sediment, eroding streambanks, and forming/removing sediment bars) was approximately 1,100 CFS. That level of flow was exceeded for much of September and all of October 2019. On most days, there was an increase in turbidity and/or total suspended solids from the CSAH 7 crossing of the Thief River (S002-088) to the 140th Ave crossing (S002-079), most likely due to erosion. The amount of erosion occurring throughout the watershed during and after the September runoff event (>5 inches of rain on September 20) was characterized by high total suspended solids concentrations in the Mud River and Thief River. High flow rates and runoff seemed to be the dominate cause of increases in turbidity or total suspended solids concentrations during this monitoring effort. The full characterization of the latter stages of a pool drawdown was cut short by a rainfall event and sustained high flows. During the drawdown, flow in the Thief River was dominated by discharge from Agassiz Pool and its watershed (flow at 140th Ave was similar to flow at CSAH 7). During the runoff event, the inputs from other tributaries downstream of Agassiz Pool is visualized by the difference between the two discharge plots in the chart above.

Thief River at CSAH 7, near Agassiz National Wildlife Refuge on September 13, 2019



Turbidity and total suspended solids levels were elevated in the Thief River below Agassiz Pool during the early September drawdown compared to upstream sites, but didn't rise to levels of concern (near or above the water quality standard(s) until the latter part of the falling limb of the drawdown (just prior to the start of the runoff events). A 2012 report from the USFWS explained how in-pool erosion and vegetation disturbance happens when there is a head differential between water in the JD 11 channel and water standing in the pool (flow is concentrated within the JD 11 channel and in-pool gullies). That is a situation that would occur near the end of a drawdown process. It makes sense that turbidity levels

would be relatively low if most of the water being discharged is ponded water while the pool is mostly full (due to lower velocity of water movement throughout the pool and dilution).

Thief River at 140th Ave on September 19, 2019



Red Lake River near the Merriam Street and Taft St E



Burnham Creek Geomorphology

District staff helped DNR staff with a Burnham Creek geomorphology study site and longitudinal survey on September 16 and 17, 2019. The station was located between $\frac{3}{4}$ and 1 mile downstream of the 290th Ave SW crossing of Burnham Creek. That portion of the stream is characterized by excess sedimentation, lots of woody debris, and lots of trash in the river (especially near field edges).





Red Lake River Watershed One Watershed One Plan

The Board of Water and Soil Resources approved \$1,071,149 of watershed-based implementation funding for the Red Lake River Watershed at their September 25, 2019 meeting for the FY20-21 biennium.

Bartlett Lake Management Plan

District staff helped plan and put together an agenda for a September 25, 2019 meeting for a Bartlett Lake Management Plan. It was a great meeting with much enthusiasm from the group. Attendees included city staff, local residents, SWCD staff, county staff, DNR staff, and MPCA staff. Previous studies and other existing information were discussed. Some of the discussion topics included geese, stormwater, in-lake treatment, public water access/park, vegetation, fisheries, aquatic invasive species, monitoring, history, educational materials, and water quality conditions. A December public open house event was planned for December 5, 2019. Meeting minutes are included near the end of this report, in the Meetings and Events section.

Beach at Bartlett Lake



Boat Landing at Bartlett Lake

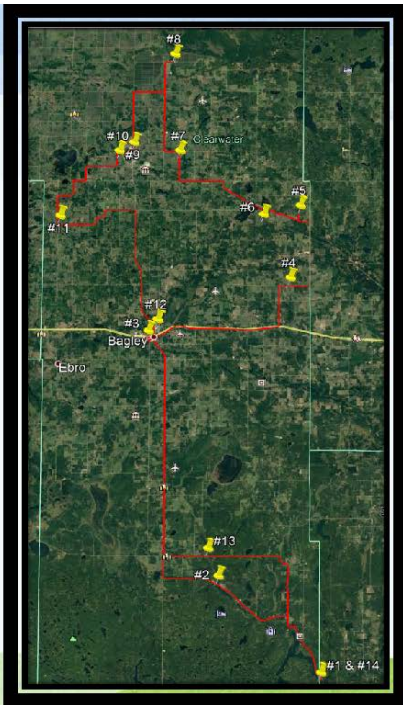


Fishing Pier at Bartlett Lake



Clearwater County Tour

District staff and several Board Managers attended the Clearwater County Soil and Watershed District's Tour on September 12, 2019.



Registration Opens at 8:30- Jacob Brower Center, Light breakfast-Bus departs at 9:00

- #1: Jacob Brower Visitor Center
- #2: Long Lake Public Access
- #3: City of Bagley Retention Ponds
- #4: Marsh Cattle Exclusion
- #5: SWCD Conservation Farm
- #6: Gebhardt No-Till/Cover Crop
- #7: Lunch-Rydeen Farm
- #8: Cultivated Wild Rice Presentation
- #9: Clearbrook School Project
- #10: Silver Creek Project
- #11: Larson Cattle Exclusion
- #12: 4H Project
- #13: Wild Rice Presentation
- #14: End: Douglas Lodge



5:15 Load Itasca Boat Tours-Depart 5:30,
Dinner on the Boat.

The first stop was the Long Lake public access where the SWCD completed a project that addressed erosion of the road to the boat ramp. Instead of creating washouts along the road, runoff no flows into rock-lined channels on either side of the road. The runoff is directed into grassy areas by those channels instead of flowing directly into the lake. The SWCD has collected water quality samples in 10 lakes, including Bagley Lake, Lake Lomond, Minerva Lake, Moose Lake, Walker Brook Lake, Pine Lake, Stony Lake, Long Lake. The county performed nearly 3,100 AIS inspections in 2019. At the time of the tour, the county was AIS-free. Later in the year, however, zebra mussels were found in Lake Lomond.



The bus drove past the City of Bagley stormwater ponds and made a brief stop at the pond along Sunset Avenue. There are plans to clean-out the pond along Highway 92 soon.

The tour also drove past a cattle exclusion project and the SWCD conservation farm. The SWCD staff shared information on their conservation programs. The cattle exclusion project excluded cattle from a wetland area with minimal pasture loss and an added cattle crossing. The 442.93-acre Clearwater Soil and Water Conservation District Conservation Farm was established in 1994 when it was donated to the SWCD for educational use. It is located approximately 6 miles south of Clearwater Lake and 3 miles east of Leonard near the eastern border of the county. The land is open to deer hunting with a permit. Surplus trees from tree sales are planted on the land. The SWCD rents-out tree planting equipment and also does custom tree planting (\$0.50/tree). The SWCD sells 20,000-30,000 trees each year. The Conservation Farm also has 20 acres of pollinator plantings. The pollinator planting area was burned and broadcast-seeded with twelve species (big bluestem, goldenrod, golden alexander, etc.). The pollinator-planted area is burned once every three years. There are plans to seed the area with more forb (herbaceous) species. The land features 7 miles of walking trails that are brushed annually. The 2018 Forest Stewardship Program provides reimbursement for the cost of having a forest plan. Landowners can receive \$16.15/acre for a permanent covenant. The Sustainable Forest Incentive Act (SFIA) provides annual incentive payments to encourage private landowners to keep their wooded areas undeveloped and follow a forest plan.



The tour stopped at the Rydeen Farm for an awesome lunch (catered by Fozzie's Smokin' Bar-B-Q) and presentations on no-till drill seeding equipment that can be rented from the SWCD. The Rydeen family were excellent hosts.

The tour stopped at Clearwater Rice. Rod Skoe spoke about farming cultivated rice and about the Clearwater River. There was a brief discussion about future grade stabilization work on the Clearwater River. SWCD staff suggested using drone technology to help collect detailed elevation data and plan a project. There are companies that offer LiDAR drone flight services for around \$100/hour. Rod mentioned that the headcutting on the Clearwater River was originally 13-feet deep!

The tour stopped at the Larson cattle exclusion project along the Lost River. The landowner and SWCD staff spoke of the reasons that he wanted to do the project, how it was funded, and how it has been

beneficial. The landowner had problems with losing cattle in the river prior to the project. Fencing was funded with SWCD cost-share. EQIP helped pay for the well. The project should also help address the *E. coli* issue in the Lost River.



The stop at the Clearwater County Fair Grounds featured an excellent presentation by students in the Clearwater Shooting Sports and Wildlife 4H Club. They had planted gardens with pollinator species on the fairgrounds. This would be a great idea for other counties and clubs in our watershed. Their gardens included educational signs that described the species that were planted. They also handed out sample packets of pollinator plant seeds. The species that they had planted in their gardens include anise hyssop,, swamp milkweed, lance leaf coreopsis, purple prairie clover, pale purple coneflower, common ox-eye sunflower, meadow blazing star, slender penstemon, long headed coneflower, little bluestem, and sky blue aster.





The tour didn't stop at the Silver Creek project due to the wet weather. A rock chute has been designed to prevent headcutting where drainage enters Silver Creek a short distance west of the 159th Ave crossing. The landowner for the Silver Creek project area was former RLWD Board Manager Vernon Johnson.

Near the end of the tour, there was a demonstration of how wild rice harvesting is done. Linda Knutson, from the Zerkel Store, spoke about wild rice, how the grains differ among varieties, and how the grains can differ from year to year. She passed around a display board with different types of wild rice, including one with very large grains called "old school cream" (I tried to use Google to learn more about it but only found recipes), cultivated wild rice, and wild harvested wild rice from different years.





The tour ended back at Itasca State Park with a stop at the headwaters of the Mississippi River and a dinner. The Clearwater SWCD is one of the project partners that is currently working on a 1W1P for the Mississippi Headwaters Watershed.



River Watch

River Watch activities resumed in September as students returned to school. District staff helped the Clearbrook-Gonvick, Red Lake Falls, Win-E-Mac, and Thief River Falls River Watch groups with monitoring.



Local 4th and 5th graders learned about paddling on their local rivers and how they connect to the Red River Basin at a September 18, 2019 event in Thief River Falls. The Wilderness Inquiry crew provided an opportunity for students to paddle on the river in large voyageur canoes. Students participated in River of Dreams activities while on shore. The Thief River Times created a YouTube video about the paddling event: <https://youtu.be/A-T9oEOUNOQ>.



District staff and the Red Lake County Central River Watch team collected macroinvertebrate samples from the Hill River on September 19, 2019. They found 12 different species of macroinvertebrates. The group used sampling results to perform calculations and determine that the stream should receive good Hilsenhoff Biotic Index rating.



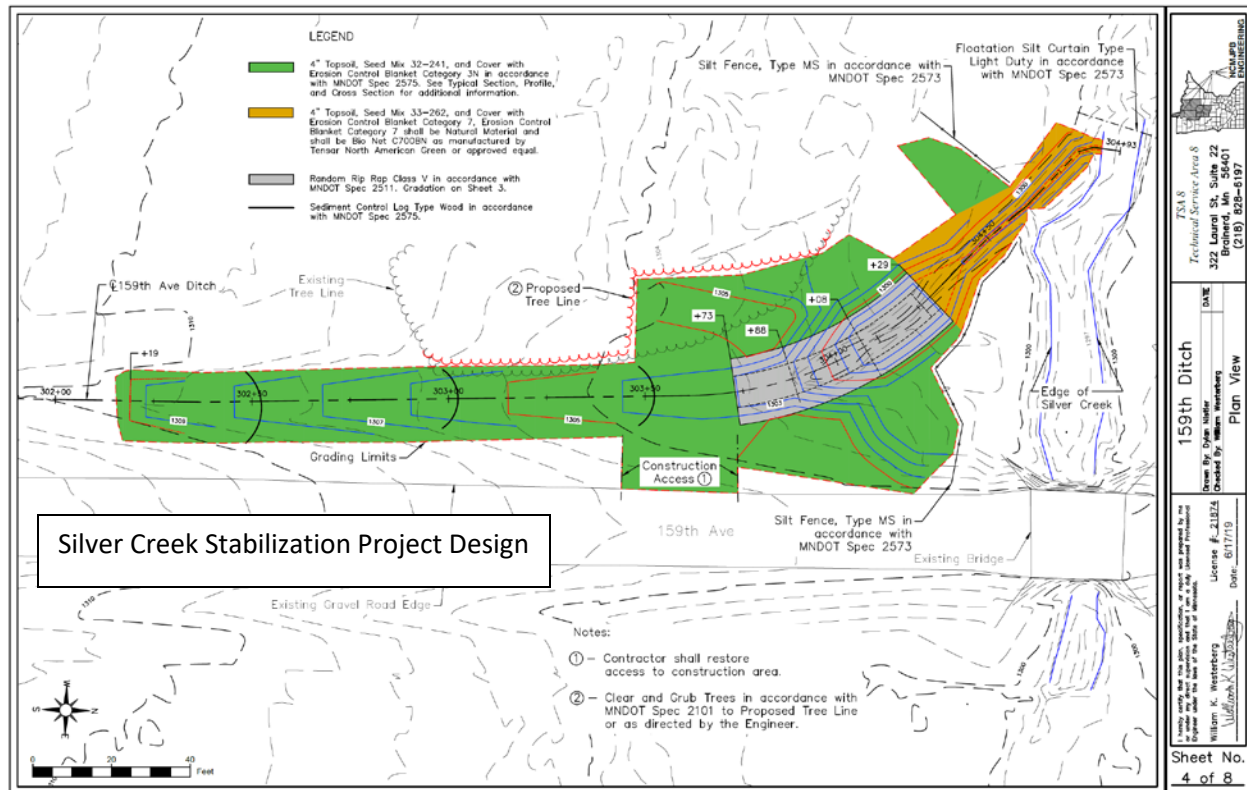


Other Notes

- Water quality related notes and minutes from the September 11, 2019 Red Lake Watershed District Board of Managers meeting.
 - The Board reviewed the Grand Marais Creek Targeted Survey completed by the Minnesota Department of Natural Resources. The survey assessed the Grand Marais Creek Channel Restoration Project, RLWD Project No. 60F, by surveying throughout and upstream of the project to document the fish community inhabiting the reconnect portion of Grand Marais Creek during springs flows.
 - Trap nets captured 15 species (bigmouth buffalo, black bullhead, black crappie, bluegill, channel catfish, common carp, freshwater drum, goldeye, mooneye, northern pike, quillback, sauger, shorthead redhorse, stonecat, walleye, and white sucker. That was a significant improvement over the 6 species that were found in the cutoff channel outlet in 2012.
 - Channel catfish were abundant, with lengths ranging from 11.22 to 29.37 inches.
 - Jesme, with assistance from HDR and MnDNR staff, is submitting a grant from the Conservation Legacy Funding for repairs to the outlet structure of the BR6 Wildlife Habitat Pool along the east side of the Burnham Creek Impoundment.

- The Clearwater SWCD fall tour will be held on September 12, 2019, at the Douglas Lodge at Itasca State Park.
- Staff member Loren Sanderson has indicated that his final day of employment with the District will be October 18, 2019.
- Administrator Jesme stated that the East Polk SWCD did not receive their grant for the Clearwater River Watershed and Cameron Lake for installation of sediment basins and potential shoreline restoration projects that the District agreed to a 25% cost share in August 2018. The East Polk SWCD is re-applying for the grant application and is requesting a 25% match from the District. Motion by Dwight, seconded by Torgerson, to approve the submittal of a Clean Water Fund Grant application from the East Polk SWCD for the Clearwater River Watershed and that the District be identified for the 25% match, with funds to come from the District's Water Quality Project fund, RLWD Project No. 46. Motion carried.
- Water quality related notes and minutes from the September 26, 2019 Red Lake Watershed District Board of Managers meeting.
 - Chester Powell and Brielle Prokosch, Clearwater SWCD, presented a cost share proposal for the Pine Lake Township Road Ditch Stabilization Project. Powell stated Silver Creek is head cutting where water enters into the system from a local ditch. The proposal includes the installation of a rock chute structure and streambank regrading to mitigate erosion. The Engineer's estimate is \$31,000, with a local contractor bidding \$11,500. Powell is requesting that the RLWD pay 25% of the actual project costs up to \$7,750. Motion by Torgerson, seconded by Tiedemann, and passed unanimously, to approve a cost share of 25%, up to \$7,750, from the 2019 RLWD Erosion Control Funds, RLWD Project No. 164, for the Pine Lake Road Ditch Stabilization Project for the Clearwater SWCD.





- District staff members Christina Slowinski and Myron Jesme and Tony Nordby, Houston Engineering, Inc., met with staff from FEMA to discuss damage to the outlet of RLWD 10, RLWD Project No. 161 during the 2019 Spring flood event. Nordby presented three alternatives for repair/replacement of the existing outlet structure. Administrator Jesme stated that this project is listed as a potential project in the Work Plan for the Red Lake River 1W1P, RLWD Project No. 149 for the upcoming Watershed Based Funding.
- The Board reviewed information for the purchase of River Watch apparel for students involved in the District’s River Watch Program. Motion by Tiedemann, seconded by Torgerson, to approve the purchase of approximately 45 jackets at a cost of \$40 each for River Watch students participating in the District’s River Watch Program. Motion carried.
- Jesme, with assistance from staff from HDR and MnDNR, submitted a Conservation Legacy Grant to assist in funding the repair to the outlet structure of the BR-6 Wildlife Habitat Pool along the east side of the Burnham Creek Impoundment.
- Manager Tiedemann discussed the Clearwater SWCD Tour he participated in, and the pollinator project presented by members of the Clearwater County 4H Program.
- Manager Dwight discussed a meeting regarding Bartlett Lake and the development of a Water Management Plan for the lake.
- Manager Sorenson discussed the request for a DNR Aeration Permit for Cameron Lake.
- The District’s Eureka Manta and Manta 2 sondes began to experience more dissolved oxygen probe calibration drift throughout the summer. The sondes were over 10 years old, so they have

probably reached the end of their life expectancy. The turbidity probes also failed to perform well when Manta/Manta2 sondes were deployed in the Red Lake River in September.

- District staff read and commented on an Evaluation of the Burnham Creek Restoration Clean Water Project.
- MPR News Article about zebra mussels in Red Lake: “Red Lake Nation confronts a new invader: zebra mussels. The threat to the reservations’s economic and spiritual core – and its massive walleye fishery – has left tribal leaders frustrated and angry.”
<https://www.mprnews.org/story/2019/09/03/red-lake-nation-confronts-a-new-invader-zebra-mussels>
- District staff reviewed and provided comments on a Tiered Aquatic Life Use resolution at the request of the Bois de Sioux Watershed District.
- The MPCA and the District received a complaint about the Thief River Golf Club dumping yard waste into the Thief River.
- Zebra mussel samplers were deployed in the Red Lake River, east of Thief River Falls.
- A May 2019 water quality report was completed and is available online:
<http://redlakewatershed.org/waterquality/MonthlyWQReport/2019%2005%20May%20Water%20Quality%20Report.pdf>
- Minnesota Public Radio ran a story about the Pennington SWCD’s project in which they are using drones and LiDAR to assess erosion problems at ditch outlets.
<https://www.mprnews.org/story/2019/09/12/airborne-tech-helps-fight-waterborne-pollution-in-northwest-minnesota>
- The 2018 Red Lake Watershed District Annual Report was completed and approved:
<http://redlakewatershed.org/Annual%20Reports/2018%20Annual%20Report.pdf>.

LiDAR image of a ditch outlet, courtesy of Steve Sorenson (Northland Community and Technical College)



Meetings and Events from September 2019

- **September 11, 2019** - Pennington County Outdoor Education Day at the Ralph Engelstad Arena
 - The event was held indoors this year due to weather.
 - Corey Hanson ran the “Incredible Journey” water cycle station with Peter Nelson of the Pennington County SWCD.
 - Ashley Hitt, Christina Slowinski, and Marisa Newton ran the Aquatic Invasive Species station.



- **September 24, 2019** – Northwest Minnesota Water Festival in Warren



- **September 25, 2019** – Bartlett Lake Management Plan meeting at Northome City Hall, 10:00 am until noon. Meeting minutes are at the end of this report.
- **September 26, 2019** – Northwest Minnesota Water Festival in Fertile
- **September 30, 2019** - Upper/Lower Red Lakes Watershed Restoration and Protection Strategy meeting in Bemidji
- **September 30, 2019** – Pine and Lost Lake field visit

- On September 30, 2019 four Region 1 DNR staff visited Pine Lake, Lost Lake and vicinity in the company of representatives from the Red Lake Watershed District.
- DNR staff compiled a memorandum that summarized the field visit and observations from DNR staff.

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.



**Bartlett Lake Management
Plan Meeting Minutes**

Northome City Hall | September 25, 2019 | 10:00 am until noon

I. Introductions:

1. Rian Reed (Minnesota Department of Natural Resources Hydrologist)
2. Eric Olson (Koochiching Soil and Water Conservation District)
3. Wayne Skoe (concerned citizen, county commissioner)
4. Denise Oakes (Minnesota Pollution Control Agency Project Manager)
5. Kevin Peterson (Minnesota Department of Natural Resources Fisheries)
6. Matthew Gouin (Koochiching County Environmental Services)
7. Greta Nelson (Clerk, City of Northome)
8. Corey Hanson (Water Quality Coordinator, Red Lake Watershed District)

II. Review existing information about the lake and reasons for the plan

1. MN DNR Lake Management Plan
2. Study completed by Dan Sherman and Northome students – Greta will find and share a copy of the report.
3. Paleolimnological Study of Bartlett Lake
 - Increased sedimentation rates, recently, and hope that water quality in the lake can continue to improve.
4. Bartlett Lake In-Lake Management Strategies
5. Draft Upper/Lower Red Lake Total Maximum Daily Load
 - The draft TMDL estimated that most of phosphorus was coming from internal loading.
 - TMDL Timeline: A draft Upper/Lower Red Lake Watershed TMDL will be completed soon. A draft WRAPS is expected to be completed by the end of the year. A public notice period is anticipated for April 2020. We should have time to get information from this lake management process into the WRAPS and TMDL.

III. Scope of the management plan, goals, logistics

Discussion covered many different topics that could be addressed by a lake management plan:

1. History
 - Untreated sewage from the city flowed into the lake until the 1970s.





**Bartlett Lake Management
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- There was a buildup of sawdust from sawmills on the ends of the lake. Currently, there is “fluffy” sediment in those areas.
2. Education
 - Brochures, etc. available at City Hall
 3. Water Quality
 - The lake bottom can become anoxic during the middle of the summer (RR)
 - Though the lake is shallow, some stratification does occur, but it is very close to the bottom and is temporary. (RR)
 - Natural inlets are small, have small watersheds, and don’t move very fast. The biggest one comes out of a small pond.
 - There was some disagreement with language in the EOR that suggests that the lake is currently in a “clear-water state”
 - Water in the lake can sometimes have a tea-stained, or “bog-stained” color, depending on rain.
 4. Background information like characteristics of the lake and land use can be taken from existing reports.
 5. Monitoring
 - The city’s maintenance guy has been monitoring water levels.
 - Somebody was going to do Secchi readings from the fishing pier.
 - There is a resident that volunteers as a park attendant that could be asked about their interest in collecting water samples.
 - Get information to Greta about how to start sampling in the lake. The city already regularly sends samples to RMB Environmental Laboratories, so lake samples could be sent along with the other city samples. The Red Lake Watershed District has reimbursed lake associations for the cost of sample analysis, so that may also be a possibility for Bartlett Lake (if approved by the RLWD Board of Managers).
 6. Aquatic Invasive Species (AIS)
 - Koochiching County has an AIS program but hasn’t done anything on Bartlett Lake due to a low rate of use. Hiring an inspector at Bartlett Lake wouldn’t be a good use of resources. The program focuses on higher use areas. There are few “transient” boats in Bartlett Lake.
 - There was some discussion about whether narrow-leaf cattails are invasive.



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- Replace invasive hybrid cattails with more plants that are more desirable and beneficial. There was some discussion of efforts that have been made elsewhere to get rid of invasive hybrid cattails. A cattail project has been underway near the Rainy lake Visitor Center (<https://www.nps.gov/voya/learn/news/cattail-removal-to-start-in-voyageurs-national-park.htm>). The methods used in Rainy Lake make a big mess, especially when a swamp devil machine is used to chop up the cattails. A project by the Seine River First Nations has been more successful (https://legacyfiles.ijc.org/tinymce/uploaded/RNLRC3B/37_Seine_River_Wild_Rice_Final.pdf). The cattails are cut underwater with a sickle and the material is harvested. Wild rice has come back to areas that were harvested.
- Cattails in Bartlett Lake may be rooted to the bottom.

7. Fisheries

- Keep the fish population up.
- Aeration and fish stocking have been tried.
- Drawing the lake level down to facilitate consolidation of sediment and growth of wild rice. Water levels are key to the growth of wild rice. Reestablishment of wild rice has worked to improve water clarity in other lakes.
- The abundance of freshwater shrimp was mentioned. Are freshwater shrimp still present? Are there ways to increase the abundance of freshwater shrimp other than top-down management? (WS)
- There used to be tons of minnows in the lake.
- Would it be better to have perch than crappies (RR)? The lake has had high perch catches at times (KP). Crappies eat planktivores/plankton and pike eat crappie (KP). Crappie have been stocked to create a fishery and were, in part, chosen due to their tolerance of low dissolved oxygen levels. Bartlett Lake is very productive. It is hard to imagine that crappie could graze of all zooplankton. Bluegill were also considered for stocking, but they prefer clearer water. Are pumpkinseeds hardier than bluegill? Though fish stocking was recommended as an in-lake strategy in the EOR report, we probably cannot solve Bartlett Lake's problems through stocking alone (KP).
- There is a lot of positive talk around the community about crappie fishing.

8. Vegetation

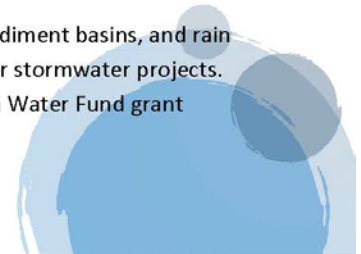
- A plant survey was completed in 2014. The lake received a high, above average rating.
- Pondweeds are good for freshwater shrimp.





**Bartlett Lake Management
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- Vegetation in the lake is beneficial for buffering shores against wave action and minimizing the mixing of phosphorus during windy weather (RR).
9. Public Water Access, parks, and recreation
- The fishing pier gets a lot of use when the fish population is good.
 - The pavilion has been a good addition
10. In-lake treatment
- There was discussion about harvesting vegetation to remove phosphorus.
 - There was some concern about tipping the lake from a macrophyte dominated state to algae dominated.
 - Local interest in harvesting vegetation to facilitate recreation
 - Would harvesting remove a significant amount of phosphorus from the lake?
 - Bartlett Lake has been a good waterfowl lake. There was a discussion about wild rice in the lake. There was not much wild rice this year. Rice typically grows in the shallow bays. Cattails and lily pads may have choked-out the rice in the western portion of the lake.
 - If harvesting or removal of aquatic vegetation is done, it would be important to only cut small areas.
 - The city didn't get a permit for harvesting in 2019 but may consider getting a permit to do some harvesting in the future (harvesting plans would be an important part of a lake management plan). It was stated that the permitting process isn't too hard. The hardest part would be finding someone to do the work. Concern was expressed about potential risk of introducing invasive species from traveling harvesting equipment. There was a discussion about getting a grant for the city to buy its own harvester. They could cost around \$300,000! In a grant application, it would be important to show that it is part of the plan for improving water quality in the lake and that it was recommended by the EOR report.
11. Stormwater
- There was interest in getting the plans for the street work that is underway to see how stormwater runoff is going to be treated.
 - Address stormwater runoff from the city with holding ponds, sediment basins, and rain gardens. The SWCD may have some grant/cost-share funding for stormwater projects. There could be a collaboration among entities to submit a Clean Water Fund grant application to complete stormwater projects.





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- Discussion about whether there are concerns about future development: There is some development on the north and east side of the lake. The owners of a large chunk of privately-owned land along the lake haven't done anything with the land for 40 years. The city owns the bulk of the land on the point.

12. Geese

- Geese are all over the place and can be a nuisance at the public access and beach.
- Improving buffer vegetation along the lakeshore could be a deterrent for the geese.
- Wayne asked about where they are being raised.
- **Shoreline restoration project at the public access park to discourage geese at the swimming beach and boat landing.**
 - There was a recommendation to plant conifers, plant them close together, and don't mow between them.
 - Fences?
 - Make a plan
 - Get help with the plan from the Joint Power Board engineer or Prairie Restorations, Inc.
 - What is growing there now?
 - Who would be in charge of maintenance

13. Outlet

- The outlet gets "blown" at times to remove beaver dams
- Keep the outlet open to flush nutrients

IV. Future Public Meeting?

- Bartlett Lake Management Planning Kick-Off
- The group decided that it was best to have a public meeting to get public input for the plan. A public meeting will be held in early December and we can hopefully have monthly meetings after that so we can complete a plan before spring.
- **Where: Northome City Hall**
- **When: Thursday, December 5-2019, 5:00 pm to 7:30 pm**
- Open house style
- People can visit and look at reports.
- Pitch the meeting as a "kick-off" meeting for the lake management plan
- Get input on known problems (sediment plumes, erosion problems)





**Bartlett Lake Management
Plan Meeting Minutes**

- Brain storming
- Tables and posters for different topics
 - Kevin Peterson can talk about the lake's fishery
 - Water quality
 - Waterfowl – DNR Wildlife
 - Aquatic plant management – DNR staff
 - Denise Oakes could set up a station within information about lakes monitoring and the TMDL/WRAPS reports. She may already have a poster ready about Bartlett Lake.
 - Chad Severts could talk about Clean Water Funds (**Contact Chad to see if his schedule is open on that day**)
- Solicit volunteers for monitoring or other tasks
- Pictures of the lake and people using the lake
- Advertising:
 - Greta can create a **Facebook Event** that can be shared by partner agencies
 - Jolén Simon, Koochiching SWCD is very good at putting together **flyers** and Eric will see if she would help make something to publicize this meeting.
 - A radio ad wouldn't do too much good.
- Provide food
 - Popcorn and other snacks
 - Something to drink (coffee, hot chocolate, lemonade)

