RED LAKE WATERSHED DISTRICT
February 13, 2020
Agenda
9:00 a.m.

9:00 a.m.	Call to Order	Action
	Review and approve agenda	Action
	Requests to appear	Information
	January 23, 2020 Minutes	Action
	Financial Report dated February 12, 2020	Action
	Border State Bank Status	Info./Action
	Thief River Falls Westside FDR Project, RLWD Project No. 178	
	U.S. Army Corps of Engineers Permit	Information
	Plans and Specifications	Action
	MnDOT Cooperative Agreements	Action
	Payment of Damages	Action
	Ditch 16, RLWD Project No. 177	
	Pay Estimate No. 1	Action
	Change Order No. 1	Action
	CenturyLink Correspondence	Information
	Improvement to Polk County Ditch 39, RLWD Project No. 179	
	WCA Notice of Decision	Information
	US Army Corps of Engineers	Information
	Red Lake River 1W1P, RLWD Project No. 149-Watershed Based Funding Grant Approval	Information
	Thief River 1W1P, RLWD Proj. 149A	
	BWSR North Region Mtg.	Information
	Plan Final Submittal	Information
	Clearwater River 1W1P	Information
	Black River Imp., RLWD Proj. No. 179-Project Acceleration Grant	Information
	Pine Lake Project, RLWD Project No. 26	
	RCPP Close Out letter	Information
	Project Acceleration Grant	Information
	Thief River Water Quality	Information
	Permit No. 19213, Roger Hagen-Amendment	Action
	Permit Extension No. 18025, Enbridge Energy	Action

Pennington SWCD-Area 1 Envirothon	Info./Action
MAWD Legislative Breakfast and Day at the Capitol	Information
22nd RRWMB & FDR Work Group Joint Conference	Information
Technology Update	
Managed IT Services	Info./Action
Computer Purchase	Info./Action
Administrators Update	Information
Legal Counsel Update	Information
Managers' updates	Information
Executive Session	Info./Action
Adjourn	Action

UPCOMING MEETINGS

February 18, 2020	RRWMB Meeting, Ada, 10:00 a.m.
February 27, 2020	RLWD Board Meeting, 9:00 a.m.
March 4, 2020	BWSR North Region Committee Meeting
March 10-11, 2020	22nd Annual RRWMB & FDR Work Group Joint Conference
March 12, 2020	RLWD Board Meeting, 9:00 a.m.
March 18-19, 2020	MAWD Legislative Breakfast and Day at the Capitol

DRAFT

RED LAKE WATERSHED DISTRICT
Board of Manager's Minutes
January 23, 2020

President Dale M. Nelson called the meeting to order at 9:00 a.m. at the Red Lake Watershed District Office, Thief River Falls, MN.

Present were: Managers Terry Sorenson, Gene Tiedemann, Brian Dwight, Dale M. Nelson, LeRoy Ose. Absent Allan Page and Les Torgerson. Staff Present: Myron Jesme and Tammy Audette and Legal Counsel, Delray Sparby.

The Board reviewed the agenda. A motion was made by Dwight, seconded by Ose, and passed by unanimous vote that the Board approve the agenda. Motion carried.

The Board reviewed the January 9, 2020 minutes. Motion by Sorenson, seconded by Tiedemann, to approve the January 9, 2020 Board meeting minutes as presented. Motion carried.

The Board reviewed the Financial Report dated January 22, 2020. Motion by Sorenson, seconded by Ose, to approve the Financial Report dated January 22, 2020. Motion carried.

The Conflict of Interest policy was reviewed by the Board. Motion by Dwight, seconded by Tiedemann, to approve the Conflict of Interest Policy and have each Board member sign the Conflict of Interest policy and return it to staff member, Arlene Novak. Motion carried.

Staff member Arlene Novak stated that as of January 1, 2020 the Federal Allowable Mileage rate decreases to 57.5 cents per mile.

Viewer's Rob Wagner and Mike Baumgartner appeared before the Board to present the Viewers' Report for informational purposes and filing for the Improvement to Polk County Ditch 39, RLWD Project No. 179. Mr. Wagner stated that the Viewers determined that the total benefits of the project area $2,466,715.50. Motion by Tiedemann, seconded by Sorenson, to accept, for information and filing, the proposed Viewers' Report for the establishment of the Improvement to Polk County Ditch 39, RLWD Project No. 179. Motion carried.

Engineer Jerry Pribula, Pribula Engineering, Inc., presented, for informational purposes, the Detailed Engineer's Report for the Improvement to Polk County Ditch 39, RLWD Project No. 179. Pribula discussed prior comments from BWSR, and the need for the type of design due to break out flows. Motion by Ose, seconded by Tiedemann, to accept, for information and filing, the proposed Detailed Engineer's Report for the Improvement to Polk County Ditch 39, RLWD Project No. 179. Motion carried. Manager Dwight asked if there was a need for a potential impoundment in Section 14, Keystone Township. Pribula responded that the area is too flat for construction of an impoundment in terms of large-scale storage. The most you could store in the first half mile would be about one and a half feet of water.

Wayne Johnson, City of Thief River Falls, appeared before the Board to discuss the Clean Water Act as it pertains to the collection of data within the Red Lake River and Thief River. Johnson stated that the City of Thief River Falls is entertaining the idea of moving the intake of water supply for residents of the City of Thief River Falls to the Red Lake River instead of the current site on the Thief River, which would require installation of a pipe down the middle of the river. Johnson indicated that they have a good idea of where the source of contamination of the current site comes from. Johnson requested information collected by the District and other agencies, to assist in preparing a fact sheet to present to federal legislators to aid their plight. It was the consensus of the Board, that Administrator Jesme direct District staff, to work with Mr. Johnson for the development of a fact sheet with data collected by the District to assist the City of Thief River Falls.

President Nelson turned the meeting over to Vice President Tiedemann.

The Board recessed for a 5-minute break.

Vice President Tiedeman reconvened the Board meeting.

Engineer Tony Nordby, Houston Engineering, Inc., discussed three alternatives for repair to the outlet of Ditch 10, RLWD Project No. 161. Nordby stated that after the Spring 2019 event and Fall 2019 rain event, additional cracks have formed, with water starting at the top, disappearing as it goes down the riprap and then spraying out towards the bottom. FEMA is currently reviewing site information for potential federal funding. Discussion was held on Alternative 3, which would require the installation of a pipe that would outlet into the existing plunge pool. Nordby stated that with this option, the current in-place rock and concrete would be used as a secondary outlet for high flows. The estimated construction cost for Alternative 3 is $220,000, for a total of $322,000 with contingencies. Motion by Dwight, seconded by Ose, to authorize Nordby to explore Alternative 3 for additional design, specifications and cost, for the repairs to the outlet of Ditch 10, RLWD Project No. 161. Motion carried.

Administrator Jesme stated that the District was informed that the U.S. Army Corps of Engineers permit for the Thief River Falls Westside Flood Damage Reduction Project, RLWD Project No. 178, is being reviewed and waiting for signature. Jesme is hopeful that the permit will be received by the end of January. Once the permit is approved, this will allow for the execution of the Cooperative Agreement with MnDOT. Engineer Nate Dalager, HDR Engineering, Inc., stated that he is planning to submit the Plans and Specifications, to the Board, at the February 13, 2020 Board meeting, with a bid opening date scheduled for March. A pre-bid meeting would be held with interested contractors.

Engineer Nate Dalager, HDR Engineering, Inc., discussed the information he presented at the Pine Lake Project, RLWD Project No. 26, team meeting that was held January 17, 2020. Dalager discussed the achievable goals and alternatives. Administrator Jesme discussed applying for a CPL Grant due to this project having the possibility of fish passage. Additional research will need to be completed on the outlet structure. Dalager discussed the potential of an

additional 600 ac.ft. of storage, that could be used as Star Value with the RRWMB for potential funding.

Administrator Jesme stated that he received notice that the District was awarded a CPL Grant in the amount of $168,420 for the Burnham Creek Project, RLWD Project No. 43B, for repairs to a wildlife outlet structure that failed. This project is an 80-acre complex owned by the District but managed by the MnDNR. Jesme will meet with staff from HDR Engineering, Inc., next week to work towards getting the project ready for the Advertisement for Bids.

The Board reviewed the approved RRWMB Strategic Plan and Executive Summary.

The Board reviewed the permits for approval. Motion by Ose, seconded by Sorenson, to approve the following permits with conditions stated on the permit: No. 20001, Garden Valley Telephone Company, Leon Township, Clearwater County; No. 20002, Garden Valley Telephone Company, Pine Lake Township, Clearwater County; and No. 20003, BNSF Railway Company, Euclid Township, Polk County. Motion carried.

Discussion was held on the District Engineer Senior position. Since no applications where received, it was the consensus of the Board, to have the committee meet to strategize on where to go from here.

MAWD dues for 2020 were presented to the Board. Motion by Sorenson, seconded by Ose, and passed unanimously to approve paying $7,500 for the 2020 MAWD dues. Motion carried.

The Red River Basin Drainage Conference will be held January 27, 2020 at the Marriott Hotel and Convention Center, Moorhead, MN.

Administrators Update:

- Jesme and Manager Ose attended the RRWMB held January 14, 2020 in Moorhead. Included in the packet was the summary of the meeting.
- Jesme and Managers Ose, Tiedemann, Page and Sorenson attended the Red River Basin Land and Water Institute and Annual Conference in Fargo, January 14-16, 2020.
- The District received the new Canon copier on January 22, 2020.
- Staff member Corey Hanson attended the Bartlett Lake Management Plan meeting January 21, 2020 in Northhome. This session was held to get input from the public and various agencies for various civic engagement projects.
- Staff member Corey Hanson attended the Pennington County WRAC meeting January 13, 2020 at the District office.
- Jesme participated in the Red Lake River 1W1P Planning Workgroup meeting on January 16, 2020, to finalize the workplan for submittal to BWSR. Jesme was recently informed, that the plan was submitted to BWSR for review.
- Jesme and staff member Nick Olson will attend the Red River Basin Drainage Conference on January 27, 2020. Jesme will give a presentation on the partnership and collaboration for the development and design of the Thief River Falls Westside FDR Project.

- The District audit will be completed by Brady Martz on February 4-5, 2020.
- Jesme will be on vacation from February 3-12, 2020.

Legal Counsel Sparby indicated that he was served with an appeal from the attorney representing citizens of Judicial Ditch #5 Project No. 102. Sparby will contact the Clearwater County Auditor's office to see if they were served and follow through with his review of the Appeal documents.

Manager Dwight stated that he, along with staff from the Beltrami SWCD, were rescheduled for the second time to discuss the Thief River 1W1P, with the Beltrami County Commissioners.

Manager Dwight stated that he attended the Bartlett Lake meeting. Dwight indicated that the meeting was well attended, with a lot of community interest.

Discussion was held on the Viewer's Report for the Improvement to Polk County Ditch 39, RLWD Project No. 179. Administrator Jesme questioned, if the outlet fee to Polk County Ditch 66 is a one-time fee for improvement of the CD 39 system. Legal Counsel Sparby will research this issue and have a conversation with Legal Counsel Kurt Deter who represents the petitioners.

Manager Ose stated that he attended the Marshall County WRAC meeting on January 22, 2019 in Newfolden. Staff from Agassiz NWR also attended.

Motion by Dwight, seconded by Sorenson, to adjourn the meeting. Motion carried.

_____
LeRoy Ose, Secretary

RED LAKE WATERSHED DISTRICT
Financial Report for February 12, 2020

Ck#	Check Issued to:	Description	Amount
online	EFTPS	Withholding for FICA, Medicare, and Federal taxes	3,956.16
online	MN Department of Revenue	Withholding taxes	713.19
online	Public Employees Retirement Assn.	PERA contributions	2,482.84
online	EFTPS	Withholding for FICA, Medicare, and Federal taxes	4,452.16
online	MN Department of Revenue	Withholding taxes	806.28
online	Public Employees Retirement Assn.	PERA contributions	2,584.52
38006	Office of the Secretary of State	Notary Public renewal for Arlene	120.00
38007	Cenex Credit Card	Gas for vehicles	34.21
38008	City of Thief River Falls	Electricity, water, sewer, etc.	902.01
38009	Sjoberg's Cable TV	Internet expense	106.95
38010	Ameripride	Office rug rental	41.45
38011	Tammy Audette	Clean offices in January	320.00
38012	Michael Baumgartner	Viewers fees, mileage and meals-RLWD Ditch 17	3,206.00
38013	Brady Martz & Associates, P.C.	Progress billing for 2019 RLWD audit	6,000.00
38014	Farmers Union Oil	Gas for vehicles	205.68
38015	Hugo's #7	Meeting supplies and building cleaning supplies	205.89
38016	Garry Gravel	Remove beaver dams from Parnell & Euclid East Impoundments	600.00
38017	JobsHQ	District Engineer job posting	814.00
38018	Les's Sanitation	Garbage pickup	34.70
38019	Marco Technologies, LLC	*See below for explanation	2,099.84
38020	MN Assn. of Drainage Inspectors	Membership dues for Christina Slowinski	50.00
38021	MN Energy Resources	Heating expense	68.74
38022	Northern State Bank	Safe deposit box rent	14.00
38023	Northwest Beverage, Inc.	H20 for office	80.50
38024	Olson Construction	Snow plow parking lot in January	200.00
38025	Richards Publishing Company	Pine Lake aeration ads in Leader Record	37.13
38026	RV Sports, Inc.	Battery tender	79.98
38027	Sun Life Financial	Life insurance premium	125.36
38028	LeRoy Ose	Mileage	89.70
online	Blue Cross Blue Shield	Health insurance premium	3,431.00
online	Brian Dwight	Mileage	300.15
online	Terry Sorenson	Mileage	245.50
online	Les Torgerson	Mileage and per diem meals	161.70
	Payroll		
	Check #11866-11884 & 7452		27,673.52
	Total Checks		$ 62,243.16

*** Marco**

Monthly Microsoft Office 365 (15)	187.50
Monthly telephone exp. + headset	470.94
Monthly managed IT expense	1,441.43
Total	2,099.87

Banking

Northern State Bank

Balance as of January 22, 2020	$ 131,950.39
Total Checks Written	(62,243.16)
Receipt #989707 Transfer in from American Federal Bank	10,000.00
Receipt #989709 Northern State Bank-Monthly interest	215.13
Receipt #989712 Unity Bank (CDARS) Monthly interest on CDs	3,102.91
Receipt #989713 Loren/Marjean Sanderson-Reimburse for health and dental insurance	761.45
Receipt #989714 State of Minnesota-Reimburse for pay request for Proj. 157E	1,005.75
Receipt #989715 Transfer in from American Federal Bank	100,000.00
Balance as of February 12, 2020	$ 184,792.47

Border State Bank

Balance as of December 31, 2019	$ 18,302.91
Receipt #989711 Border State Bank-Monthly interest	8.51
Balance as of February 12, 2020	$ 18,311.42

American Federal Bank-Fosston

Balance as of January 22, 2020	$ 2,482,875.81
Receipt #989699 Marshall County-Delinquent tax settlement	$ 12,377.57
Receipt #989700 Paul or Dell Hoff-Remainder of annual land rent	308.13
Receipt #989701 Mahnomen County-Delinquent taxes	172.73
Receipt #989702 Beltrami County-Delinquent RE taxes and special revenue taxes	22,707.24
Receipt #989703 Pennington County-delinquent taxes	24,064.05
Receipt #989704 Polk County-Delinquent RE and special revenue taxes	38,094.33
Receipt #989705 Red Lake County-Delinquent RE and special revenue taxes	5,830.20
Receipt #989706 Koochiching County-Delinquent taxes	3,735.27
Receipt #989707 Transfer to Northern State Bank	(10,000.00)
Receipt #989708 American Federal Bank-Monthly interest	3,650.55
Receipt #989715 Transfer to Northern State Bank	(100,000.00)
Receipt #989716 Marshall County-delinquent taxes-State Ditch 83	1,625.08
Balance as of February 12, 2020	$ 2,485,440.96

Bremer Bank

Balance as of December 31, 2019	$ 2,316,330.66
Receipt #989710 Bremer Bank-Monthly interest	$ 3,346.94
Balance as of February 12, 2020	$ 2,319,677.60

BORDER State Bank
COMMUNITY BANKING AT ITS BEST!

borderstatebank.com
Customer Service: 218.528.4255
24HR Voice: 1.866.BSB.24HR

EQUAL HOUSING LENDER | BBB | MEMBER FDIC

Account	Tax ID	Date	Balance
403493	On File	01/26/2020	18,302.91

Red Lake Watershed District
1000 Pennington Ave S
Thief River Falls MN 56701

RECEIVED
JAN 28 2020
MJ

Dormancy Notice

Investment Sav

Date Opened	07/26/1993
Date Last W/D	03/02/2015
Date Last Dep	02/23/2018
Last Contact	07/26/1993

Your account will soon move to a dormant status, there may be a $2 monthly fee for this. Please contact us to learn how to avoid dormancy status and a possible fee.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

03 FEBRUARY 2020

Regulatory File No. MVP-2019-01196-LSP

Myron Jesme
Red Lake Watershed District
1000 Pennington Avenue South
Thief River Falls, Minnesota 56701

Dear Mr. Jesme:

Authority is hereby granted for the Red Lake Watershed District to discharge dredged and fill material into approximately 1,500 linear feet of an unnamed tributary of the Red Lake River. The project site is in Section 17, Township 153 North, Range 043 West, Pennington County, Minnesota.

The authorized work is shown on the enclosed drawings labeled MVP-2019-01196-LSP, Page 1 of 5 through Page 5 of 5, hereby incorporated as part of this Letter of Permission. This authorization is issued under the provisions of LOP-05-MN. The authorized work includes:

1. The discharge of dredged and fill material into approximately 1,500 linear feet of an unnamed tributary of the Red Lake River as shown on the attached drawings.

This action is based upon the recommendation of the Chief of Engineers and under the provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344). The authorization is subject to the enclosed General and Standard Conditions.

The time limit for completing this authorized work ends three years from the date of this letter.

If you sell the property associated with this permit, you must provide written notification of the name and address of the new owner, along with the Regulatory number at the top of this letter, within 60 days of the sale, to the following address:

U.S. Army Corps of Engineers
St. Paul District office
180 5th Street East, Suite 700
St. Paul, MN 55101-1678

If your project will require off-site fill material that is **not** obtained from a licensed commercial facility, you must notify us at least five working days before start of work. A cultural resources survey may be required if a licensed commercial facility is not used.

It is the permittee's responsibility to ensure that the work complies with the terms of this letter and any enclosures, AND THAT ALL REQUIRED STATE AND LOCAL PERMITS AND APPROVALS ARE OBTAINED BEFORE WORK PROCEEDS.

This letter contains an initial proffered permit. An approved jurisdictional determination (JD) for this tributary was provided in a letter dated 26 September 2019.

If you object to the terms and/or conditions of this initial proffered permit, please see Section I-A. You must complete Section II of the RFA and submit it to the **District Engineer** in accordance with 33 C.F.R. Part 331. Your objections to the initial proffered permit must be received by the **St. Paul District Office** within 60 days of the date of the NAP or you will forfeit your right to appeal the permit.

Before accepting the RFA, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. § 331.5, and that it has been received by the District or Division Office within 60 days of the date of the NAP.

It is not necessary to submit an RFA form to the Corps District or Division Office if you do not object to the initial proffered permit or the approved jurisdictional determination enclosed with this letter.

If you have any questions, please contact Larry Puchalski in our Bemidji office at (651) 290-5339 or Lawrence.S.Puchalslki@usace.army.mil. In any correspondence or inquiries, please refer to the Regulatory file number shown above.

Sincerely,

Chad Konickson
Chief, Regulatory Branch

For: Karl D. Jansen
Colonel, Corps of Engineers
District Engineer

Enclosure(s)

cc:
Bryan Malone, Pennington SWCD
Stephanie Klamm, MnDNR Waters

RED LAKE WATERSHED DISTRICT
Application for Payment
Estimate of Work Completed

ESTIMATE NUMBER: 1
PROJECT NAME: RLWD Ditch 16
OWNER: Red Lake Watershed District
CONTRACT AMOUNT: $1,572,196.70
CONTRACTOR: Burski Excavating, Inc.

DATE: 1/31/2020
PROJECT NUMBER: 177
CONTRACT DATE: 6/7/2019
WORK COMPLETED: 1/31/2020

ITEM NO.	DESCRIPTION	UNIT	CONTRACT QUANTITY	UNIT PRICE	QUANTITY COMPLETED PREVIOUS	CURRENT	TOTAL	%	TOTAL AMOUNT
1	Traffic Control	LS	1	$31,138.64	0	0	0	0.00%	$0.00
2	Anchored Silt Fence (Type PA - Preassembled)	LF	1,000	$2.97	0	0	0	0.00%	$0.00
3	Anchored 12" Bio-Roll Ditch Block (Type 3)	LF	1,040	$3.51	0	0	0	0.00%	$0.00
4	Grass Seed Mixture	LBS	8,600	$3.15	0	0	0	0.00%	$0.00
5	Grass Seeding (MnDOT 2575.3)	AC	86	$375.18	0	0	0	0.00%	$0.00
6	Anchored Wheat Straw Mulch	TON	172	$178.40	0	0	0	0.00%	$0.00
7	Riprap, Class 3 (18" & Under) w/type 4 Geotextile	CU.YD.	1,600	$67.03	0	0	0	0.00%	$0.00
8	Excavation (topsoil conservation-replacement, SWPPP Prep., Erosion Control, Minor Lateral Hauling and Clearing and Grubbing of Trees in Permanent ROW are incidental)	CU.YD.	366,920	$1.75	0	0	0	0.00%	$0.00
9	Remove Bituminous Pavement	SQ.YD.	316	$17.30	0	0	0	0.00%	$0.00
10	Bituminous Pavement (Type SP 12.5 Wearing Course Mix)	TON	270	$108.12	0	0	0	0.00%	$0.00
11	Geogrid-Tensar TX 140 (Install Under Aggregate Base)	SQ.YD.	864	$3.78	0	0	0	0.00%	$0.00
12	Aggregate Roadway Surfacing (Loose Volume), CL 1	CU.YD.	450	$34.60	0	0	0	0.00%	$0.00
13	Salvage & Reinstall Granual & Aggregate Material (CV)	CU.YD.	680	$27.03	0	0	0	0.00%	$0.00
14	Granular Backfill (Compacted Volume)	CU.YD.	200	$38.92	0	0	0	0.00%	$0.00
15	Aggregate Road Base and Shoulder Base (CL 5 MOD)(CV)	CU.YD.	288	$32.44	0	0	0	0.00%	$0.00
16	18" Corrugated Steel Pipe (CSP) Culvert (16 Gauge)	LF	2,050	$25.41	0	0	0	0.00%	$0.00
17	80' - 24" SCH 20 Steel Pipe - Directional Bore/Open Cut	EACH	2	$23,786.46	0	0	0	0.00%	$0.00
18	24" Corrugated Steel Pipe (CSP) Culvert (16 Gauge)	LF	2,680	$34.60	0	0	0	0.00%	$0.00
19	36" Corrugated Steel Pipe (CSP) Culvert (14 Gauge)	LF	190	$60.55	0	0	0	0.00%	$0.00
20	49"x33" CSAP Culvert (12 Gauge) w/3:1 Step Ends	LF	70	$92.98	0	0	0	0.00%	$0.00
21	53"x41" CSAP Culvert (12 Gauge) w/3:1 Step Ends	LF	320	$108.12	0	0	0	0.00%	$0.00
22	60"x46" CSAP Culvert (12 Gauge) w/3:1 Step Ends	LF	160	$123.26	0	0	0	0.00%	$0.00
23	81"x59" CSAP Culvert (12 Gauge) w/3:1 Step Ends	LF	385	$161.10	0	0	0	0.00%	$0.00
24	78" CSP Culvert (12 gauge) w?3:1 step ends	LF	180	$170.83	0	0	0	0.00%	$0.00
25	18" CSP Standard Flared End Section	EACH	44	$108.12	0	0	0	0.00%	$0.00
26	24" CSP Standard Flared End Section	EACH	42	$151.37	0	0	0	0.00%	$0.00
27	36" CSP Standard Flared End Section	EACH	6	$410.86	0	0	0	0.00%	$0.00
28	18" Exterior Flap-Gate	EACH	44	$491.95	0	0	0	0.00%	$0.00
29	24" Exterior Flap-Gate	EACH	42	$589.26	0	0	0	0.00%	$0.00
30	36" Exterior Flap-Gate	EACH	2	$1,027.14	0	0	0	0.00%	$0.00
31	12'x6' Reinforced Conc. Box Culvert (CL 2)	LF	96	$1,243.38	0	70	70	72.92%	$87,036.82
32	12'x 6' RC Box Cul. End Sec, (CL 2 w/15 Deg. Skewed End)	EACH	2	$33,301.04	0	0	0	0.00%	$0.00
							Subtotal		$87,036.82
	Additional Material								
			0	$0.00	0	0	0		$0.00
							Subtotal		$0.00
	Change Order								
					0	0	0	0%	$0.00
							Subtotal		$0.00
							TOTALS		$87,036.82

SUMMARY:	
Total of Work to Date	$87,036.82
Less 10% Retainage	$8,703.68
Amount Paid on Previous Payments	$0.00
Amount Due this Estimate	**$78,333.13**
Percentage of work completed	6%
Original Contract Amount Due	$1,572,196.70
Additional Material	$0.00
Change Orders	$0.00
Total Estimated Contract Costs	$1,572,196.70

RECAP OF PREVIOUS PAYMENTS:		
ESTIMATE NO	DATE	PAYMENT AMOUNT
1		$0.00
2		$0.00
3		$0.00
4		$0.00
5		$0.00
FINAL PAYMENT		
TOTAL		$0.00

KD I concur that there are no pending changed condition claims as of this date of this pay estimate _____(Initial)

Approved by Contractor: Ron Burek, Burek Excavating, Inc.

Date: 2-3-2020 Signature: Ron Burek

I concur that there are no pending changed condition claims as of this date of this pay estimate _____(Initial)

Approved by Contractor: Jerry Pribula, Pribula Engineering, PLLC

Date: 1-31-2020 Signature: Jerry Pribula

Approved by Administrator: Myron Jesme, Red Lake Watershed District

Date: _____ Signature: _____

Change Order No. 1

Project Name: Ditch 16
RLWD Project No. 177

Contract Date:

Owner: Red Lake Watershed District

To: **Burski Excavating, Inc.**
PO Box 130
Rice, MN 56367

This change is requested by the Owner and made under the terms of or is supplemental to your present contract. When aprpoved, you are ordered to perform the work in accordance with the additions, changes, or alteratoins hereafter described.

Description of Change:

Replace the Two (2), 15 degree skewed, Type 2, End Sections for the 12' x 6' RC Box Culvert located through Minnesota Trunk Highway No. 220 bid as bid under Bid Item No. 31 with Two (2) straight, Type 1 End Sections for the 12' x 6' RC Box Culvert. The shop drawings for the straight end sections to be provided have been approved by the engineer and have been constructed and stored by Hancock Concrete at their Devils Lake, North Dakota plant.

No adjustmentes of working days or the project completion date are provided as part of any of these referenced Contract changes.

Item of Work	Item	Unit	Orig or Prev. Changed Qty.	Revised Qty	+ or - Changed Qty.	New Unit Price	Increase Amount	Decrease Amount
32	12'x6' RC Box Cul. End Sec. (CL2 w/15 Deg. Skewed End)	EACH	2	0	-2	33301.04	$ -	$ (66,602.08)
32	12'x6' RC Box Cul. End Sec. (CL1 Straight End)	EACH	0	2	2	31326.56	$ 62,653.12	$ -
Total Increase							$ 62,653.120	
Total Decrease								$ (66,602.08)
Net Increase or Decrease							$ -	$ (3,948.96)

Quantities shown are not necessarily pay quantities and are subject to change.

This Change Order - Net Change $ (3,948.96)

Change Orders to date - Net Change $ (3,948.96)

Total Original Contract Amount: $ 1,572,196.70

Total Contract Amount to date: $ 1,568,247.74

Approved: _____ (Owner) Date: 1-30-2020

Approved: _____ (Engineer) Date: 1-30-2020

Approved: Burski's (Contractor) Date: 1-29-2020

Red Lake Watershed District

President
Dale M. Nelson

Vice President
Gene Tiedemann

Treasurer
Terry Sorenson

1000 Pennington Avenue South
Thief River Falls MN, 56701
218-681-5800
218-681-5839 FAX
E-mail: RLWD@redlakewatershed.org
www.redlakewatershed.org

Secretary
LeRoy Ose

Managers
Les Torgerson
Allan Page
Brian Dwight

February 6, 2020

Charles Grummons
Eastern North Dakota Field Engineer
Century Link Communications
302 29th Street North
Fargo, North Dakota 58102

Dear Mr. Grummons,

The Red Lake Watershed District and the project engineer for Red Lake Watershed Ditch No. 16 have been observing the progress of work CenturyLink Communications and Master Construction have been doing on the phone lines that needed to be relocated along the east and west sides of Minnesota Trunk Highway No. 220. The specific location is in the vicinity of Minnesota Trunk Highway No. 220 and 110th Street Northwest.

On September 23, 2019, Jerry Pribula, project engineer and Nick Olson, a Red Lake Watershed District engineering specialist, met with you at the site to agree on who should do what portions of the work needed for the relocation of CenturyLink phone lines so that work could be completed in an easy and efficient manner. PKM Power Cooperative and Marshall & Polk Rural Water System officials were also on site as they also had utilities needing to be relocated. All utilities agreed that the Red Lake Watershed District would hire Olson Underground, Inc. from Warren, Minnesota to directionally bore all the bores that would be necessary to relocate all three utilities. Olson completed the required 4 bores in one (1) day. Two of these bores were for CenturyLink. One bore for CenturyLink pulled back two conduits on the west side of Highway 220 and another bore for CenturyLink pulled back two conduits on the east side of Highway 220. Olson Underground completed all of their work in one day even though they encountered some complications such as needing to pick up the CenturyLink conduit themselves. This was to be onsite when they got to the construction site however it hadn't been delivered yet. They also had problems with the conduit breaking off and had to redo two bores. They worked hard and diligently to get their job done. PKM and Marshall & Polk Rural Water also made their necessary connections to their lines that very same day.

We have been watching Master Construction and CenturyLink at the site on and off for the past 5 months. There appears to be no concerted effort by either entity to accomplish what needs to be done in an efficient manner. For two days late last fall, we did observe CenturyLink employee's working on the west side of the highway. This seems to be the extent of work by CenturyLink employees. On the other hand, Master has had a tractor backhoe out on site for weeks without an operator. They have moved some snow around and dug a few holes. Most of the hole and snow removal work is within the highway right-of-way. There seems to be no supervisory direction or concern given to neither getting the work done efficiently nor the cost of getting work done efficiently.

It is not our intention to tell CenturyLink how to run their business. It is our intent to express our concerns regarding progress and the efficiency of the work needing to be completed. We feel after freeze up there has been no meaningful progress and all require work could and should have been done in the spring. We are sending you this letter not to tell you how to do your work but to express that we will not pay an excessive amount to get the required connections done.

We look forward to working with to get things done as easily and painlessly as possible.

Sincerely,

Myron Jesme
Administrator

BOARD OF WATER AND SOIL RESOURCES

Minnesota Wetland Conservation Act
Notice of Decision

Local Government Unit: West Polk SWCD	**County:** Polk
Applicant Name: Red Lake Watershed District	**Applicant Representative:** Myron Jesme
Project Name: RLWD Drain No. 17	**LGU Project No. (if any):** WP 19-03
Date Complete Application Received by LGU: 01/02/2020	
Date of LGU Decision: 02/05/2020	
Date this Notice was Sent: 02/06/2020	

WCA Decision Type - check all that apply

☐ Wetland Boundary/Type ☐ Sequencing ☐ Replacement Plan ☐ Bank Plan (not credit purchase)
☒ No-Loss (8420.0415) ☐ Exemption (8420.0420)
Part: ☒ A ☐ B ☐ C ☐ D ☐ E ☐ F ☐ G ☐ H Subpart: ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9

Replacement Plan Impacts (replacement plan decisions only)

Total WCA Wetland Impact Area:
Wetland Replacement Type: ☐ Project Specific Credits: ☐ Bank Credits:
Bank Account Number(s):

Technical Evaluation Panel Findings and Recommendations (attach if any)

☒ Approve ☐ Approve w/Conditions ☐ Deny ☐ No TEP Recommendation

LGU Decision

☐ Approved with Conditions (specify below)[1] ☒ Approved[1] ☐ Denied
List Conditions:

Decision-Maker for this Application: ☒ Staff ☐ Governing Board/Council ☐ Other:

Decision is valid for: ☒ 5 years (default) ☐ Other (specify):

[1] *Wetland Replacement Plan approval is not valid until BWSR confirms the withdrawal of any required wetland bank credits. For project-specific replacement a financial assurance per MN Rule 8420.0522, Subp. 9 and evidence that all required forms have been recorded on the title of the property on which the replacement wetland is located must be provided to the LGU for the approval to be valid.*

LGU Findings – Attach document(s) and/or insert narrative providing the basis for the LGU decision[1].

☒ Summary:

Proposed project T152 R48 S14,15,16,17,18 (Keystone) & T152 R49 S13,14,15,16,17,18 (Sullivan) RLWD Drain No. 17 ~10.2 mile legal (Polk County Ditch 39) ditch improvement- Joint Application WP 19-03, including improved dimension ditch outlet (daylight; existing 7'x4' box culvert to remain in place – elevation 816.10' west invert) ~430' east of Public Water 6005a Grand Marais creek has been analyzed/reviewed in accordance with 1987 USACE Wetland Delineation Manual (& Great Plains Regional Supplement LRR F) methodology (routine Level 1), in concurrence with (the) BWSR drainage project guidance for Wetland

Conservation Act compliance and TEP findings and recommendations. Due to the scope of drainage improvement, an extensive WCA analysis was conducted to identify potential wetland impacts (in agriculture fields) along entirety of proposed ditch improvement reach and extent of work (permanent and temporary); no WCA exemptions are applicable (none required). Proposed RLWD Drain No. 17 qualifies as meeting MN Rule 8420.0415 No-Loss Criteria (A.) and is approved as designed in 12/2019 submitted Preliminary Construction Plans (Pribula Engineering, PLLC.) and BMPs are consistently employed as outlined in Joint Application.

[1] *Findings must consider any TEP recommendations.*

Attached Project Documents

☒ Site Location Map ☒ Project Plan(s)/Descriptions/Reports

Appeals of LGU Decisions

If you wish to appeal this decision, you must provide a written request within 30 calendar days of the date you received the notice. All appeals must be submitted to the Board of Water and Soil Resources Executive Director along with a check payable to BWSR for $500 *unless* the LGU has adopted a local appeal process as identified below. The check must be sent by mail and the written request to appeal can be submitted by mail or e-mail. The appeal should include a copy of this notice, name and contact information of appellant(s) and their representatives (if applicable), a statement clarifying the intent to appeal and supporting information as to why the decision is in error. Send to:

Appeals & Regulatory Compliance Coordinator
Minnesota Board of Water & Soils Resources
520 Lafayette Road North
St. Paul, MN 55155
travis.germundson@state.mn.us

Does the LGU have a local appeal process applicable to this decision?

☐ Yes[1] ☒ No

[1] *If yes, all appeals must first be considered via the local appeals process.*

Local Appeals Submittal Requirements (LGU must describe how to appeal, submittal requirements, fees, etc. as applicable)

Notice Distribution (include name)

Required on all notices:

☒ SWCD TEP Member: Nicole Bernd	☒ BWSR TEP Member: Steve Hofstad
☐ LGU TEP Member (if different than LGU contact):	
☒ DNR Representative: Stephanie Klamm	
☒ Watershed District or Watershed Mgmt. Org.: Myron Jesme	
☒ Applicant:	☐ Agent/Consultant:

Optional or As Applicable:

☒ Corps of Engineers: Larry Pulchalski	
☐ BWSR Wetland Mitigation Coordinator (required for bank plan applications only):	
☐ Members of the Public (notice only):	☐ Other:

Signature:	Date:
	02/06/2020

This notice and accompanying application materials may be sent electronically or by mail. The LGU may opt to send a summary of the application to members of the public upon request per 8420.0255, Subp. 3.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
180 FIFTH STREET EAST, SUITE 700
ST. PAUL, MN 55101-1678

02/06/2020

Regulatory File No. MVP-2020-00217-LSP

THIS IS NOT A PERMIT

Myron Jesme
Red Lake Watershed District
1000 Pennington Avenue South
Thief River Falls, MN 56701

Dear Mr. Jesme:

We have received your submittal described below. You may contact the Project Manager with questions regarding the evaluation process. The Project Manager may request additional information necessary to evaluate your submittal.

File Number: MVP-2020-00217-LSP

Applicant: Myron Jesme

Project Name: Red Lake Watershed District / Drain No. 17 Improvements

Project Location: Section 13 of Township 152 North, Range 49, Polk County, Minnesota (Latitude: 47.9926562048902; Longitude: -96.8756841275134)

Received Date: 02/06/2020

Project Manager: Lawrence Puchalski
(651) 290-5339
Lawrence.S.Puchalski@usace.army.mil

Additional information about the St. Paul District Regulatory Program, including the new Clean Water Rule, can be found on our web site at http://www.mvp.usace.army.mil/missions/regulatory.

Please note that initiating work in waters of the United States prior to receiving Department of the Army authorization could constitute a violation of Federal law. If you have any questions, please contact the Project Manager.

Thank you.

U.S. Army Corps of Engineers
St. Paul District
Regulatory Branch

Red Lake River 1W1P Biennial Work Plan: 2020 – 2021

I. INTRODUCTION

In 2019, Red Lake River Comprehensive Watershed Management Plan was amended to include Appendix N – Water Management Districts (WMDs). WMDs identified in the amendment include; The Thief River Falls Flood Damage Reduction Project, Thief River Falls -West Side Flood Damage Reduction Project, and the Black River Impoundment Project. The Tailored Targeted Implementation Plan with Measurable Water Quality Outcomes was also completed for the Red Lake River Watershed. Houston Engineering was contracted to run scenarios using the PTMApp to support the original plan's implementation schedule. Sediment reduction goals were more accurately quantified and further divided into treatment types, number of practices tied to goals, sediment reduction numbers in tons/year, and cost-effectiveness. The information was used to create Implementation Profiles for each management area in the Plan to assist local staff with project implementation.

The 2020 and 2021 Biennial Work Plan is a joint plan between the Local Government Units (LGUs) included in the Red Lake River Comprehensive Watershed Management Plan. It will guide project implementation by identifying priority projects and goals for the watershed-based funding. Also, projects identified in this plan do not limit individual LGUs from implementing projects within their jurisdiction. Priority projects are identified by members of the Planning Workgroup made up of LGU staff and will be presented to the Policy Committee for approval prior to the completion of the Watershed-Based funding workplan submittal. Priority projects are identified in section II and IV.

II. PRIORITY PROJECTS

Project	Type	M. Area	Location Description	Number	Total Cost	Funding Source
1	Grade Stabilization Structure	M3, M4	Black and Little Black	1	$38,000	1W1P
2	Grade Stabilization Structure	M3, M4	Black and Little Black	1	$35,000	1W1P
3	Stabilization of Ditch Outlet	M7	RLWD Ditch 10 Outlet	1	$180,000	1W1P
~~4~~	~~Grade Stabilization Structure~~ Moved to 12	~~L4~~	~~Burnham Creek~~	~~1~~	~~$20,000~~	~~1W1P~~
5	Grade Stabilization Structure or WASCOB	M3, M4	Black and Little Black River	2	$40,000	1W1P

6	Grade Stabilization Structure	M7	Middle Red Lake River	1	$20,000	1W1P
7	Grade Stabilization Structure	M7	Middle Red Lake River,	1	$60,000	1W1P
8	Exclusion Fencing/Grazing Management	M3, M4, M5, M7, M9,	Black, Little Black, Middle Red Lake River, Gentilly River, and Kripple Creek	160 acres	$77,920	EQIP/RCPP
9	Stabilization of CD96 Outlet	M5	CD 96 South of St. Hilaire	1100’	$75,000	1W1P
10	Grade Stabilization Structure	M7	Red Lake River, Louisville, Sec. 26 & 27	1	$100,000 (Phase 1)	1W1P
11	Source Reduction Practices (ex. cover crop or nutrient management	Priority PTMApp Areas	Priority Management Areas	2000 Acres	$50,000	1W1P
12	Ag. Practices (Priority Projects from PTMApp)	M3, M4, M5, M7, L4, M8, L5,	Black River, CD96, Middle RLR, Burnham & Cyr Creek, and CD 100	NA	$151,804	1W1P
	Total Project Expense (1W1P)				**$749,804**	

III. 1W1P FUNDING

Funding to implement the 1W1P will come from a variety of sources that include local, state, and federal sources. For budgeting purposes, this plan identifies funding from the Board of Water and Soil Resources (BWSR). For fiscal years 2020 and 2021 the Red Lake River

1W1P will receive $1,071,149 to implement the plan. The Red Lake Watershed District was appointed as the fiscal agent for 2019 and will enter into the grant agreement.

Along with project costs, project development, design and engineering, and administration expenses are allowable under the grant. Project development includes expenses such as landowner meetings, project mailings, and developing necessary agreements or contracts. Design and Engineering expenses include surveying and design of the project from a licensed engineer or staff with NRCS Job Approval Authority for the practice. Administration expenses include tracking financials and required reporting. Project cost expense is for construction of the project. The BWSR grant is performance based and one factor considered is local contribution. Although the required match is 10%, a higher match amount is a goal.

1W1P PROJECT COST BREAKDOWN	
Task	**Budget**
Project Development (5%)	$53,558
Design and Engineering (20%)	$214,230
Administration (5%)	$53,557
Project Cost (70%)	$749,804
TOTAL BWSR GRANT	**$1,071,149**
Match (10%) REQUIREMENT	$107,115

IV. PROJECT DESCRIPTION AND REDUCTION GOALS

Project descriptions and reduction goals are identified below by project number to provide additional detail on priority projects for the Planning Workgroup. This information will be used to complete the BWSR workplan and further guide project implementation.

Project 1: A project is identified for Kelley Mosbeck to install a grade stabilization structure in the NE ¼ of section 9 in Polk Centre Township on a ditch that outlets into the Black River. An existing 48" CMP is failing, and the berm above the CMP has been eroded. Head-cutting of the ditch is active during high flow events. The project has been surveyed and design is near completion.

Reduction Estimate: 23 tons of sediment with a plan goal of 755 tons/year

Project 2: A project is identified for Peter Mosbeck to install a grade stabilization structure in the SW ¼ of section 16 in Polk Center Township on a ditch that outlets into the Black River. The project has been surveyed and design is near completion.

Reduction Estimate: 1,526 tons of sediment with a plan goal of 755 tons/year

Project 3: Stabilize the outlet of RLWD Ditch 10

Reduction Estimate: Stabilize 100 feet of legal ditch outlets with a plan goal of 1 mile. The annual sediment reduction goal for M7 is 3,265 tons. Sediment reduction estimate is 20 tons/year and phosphorus reduction estimate is 16 lbs/year.

Project 4: ~~A project is identified for John Sorenson to install a Grade Stabilization Structure in Section 2 of Roome Township in the Burnham Creek subwatershed. A 24" drop inlet structure, along with an 80' by 18" dual wall gasketed pipe is planned to stabilize sediment entering a public water tributary to the Red Lake River. Survey and design work have been completed by Area 1 TSA.~~

~~Reduction Estimate: xxx tons of sediment with a plan goal of 870 tons/year~~

Project 5: Two potential projects are identified for Michael Seeger in Browns Creek Township to install a grade stabilization structure in section 32 of Browns Creek Township.

Reduction Estimate: Reduce 94 tons/year of sediment and 88 lbs/year of phosphorus

Project 6: Install a grade stabilization structure for Kurt Beyer in section 10 of Louisville Township along the lower reach of the Black River located in M7.

Reduction Estimate: Reduce 32 tons/year of sediment towards an annual goal of 3,265. Phosphorus reduction estimate is 29 lbs/year.

Project 7: Install a Grade Stabilization Structure in section 14 of Red Lake Falls Township near the outlet of County Ditch 28.

Reduction Estimate: Reduce 60 tons of sediment/year and 56 lbs/year phosphorus.

Project 8: Utilizing EQIP funds, work with eligible landowners to provide cost-share for exclusion fencing and grazing management in multiple management areas 160 acres of the middle planning zone due to E. coli impairment.

Reduction Estimate: Reduce E.coli bacteria by 15MPN/100ml. Measurable goals to decrease E.coli in the plan vary depending on current monitoring results from 27MPN/100ml to 152 MPN/100.

Project 9: CD96 Ditch Outlet Project - Geotechnical work will be completed this fall utilizing a Clean Water Fund grant from the Red Lake SWCD. Survey and design work will follow the geotechnical report. The stabilization project is expected to exceed the current Clean Water Fund grant and remaining funding will come from Watershed-Based funding.

Reduction Estimate: Reduce 233 tons of sediment/year with a management area goal of 458 tons/year.

Project 10: Potential multi-phase project for Demarais-Hanson Project in Louisville Twp. Sections 26 and 27 and may be considered a capital project by the RLWD. Phase one would include survey, design, geotechnical work, and an assessment to determine how much sediment is reaching the River.

Project 11: Source Reduction Practices such as cover crops practices will be targeted in priority areas identified by the PTMApp in four priority Management Areas including CD96, Black River, Middle Red Lake River, and Burnham Creek.

Reduction Estimate: Reduce 329 tons of sediment

Project 12: Agricultural Practices will be targeted using the PTMApp in priority Management Areas. Staff will identify and work with landowners in priority areas to implement Agricultural Best Management Practices.

Reduction Estimate**:** Reduce 538 Tons of sediment targeting source reduction and protection practices from the PTMApp.

V. PROJECT DESIGN AND ENGINEERING

Survey and design work is needed to implement structural practices and also provides local staff a cost-estimate, assists with pollution reduction estimates and allows for better prioritization of projects in the workplan. An estimated 20% of Watershed-Based Funding will be used for Technical and Engineering work. Projects identified for survey and design work in addition to priority projects in section II include:

- Demarais-Hanson multiple phase grade stabilization project in Louisville Township, section 26 and 27
- County Ditch 96 Outlet Stabilization – Upstream (west) of Hwy 32
- St. Hilaire Park Streambank Stabilization
- Lafave Park Streambank Stabilization - Upstream of Dam in Thief River

VI. PLAN REFERENCES:

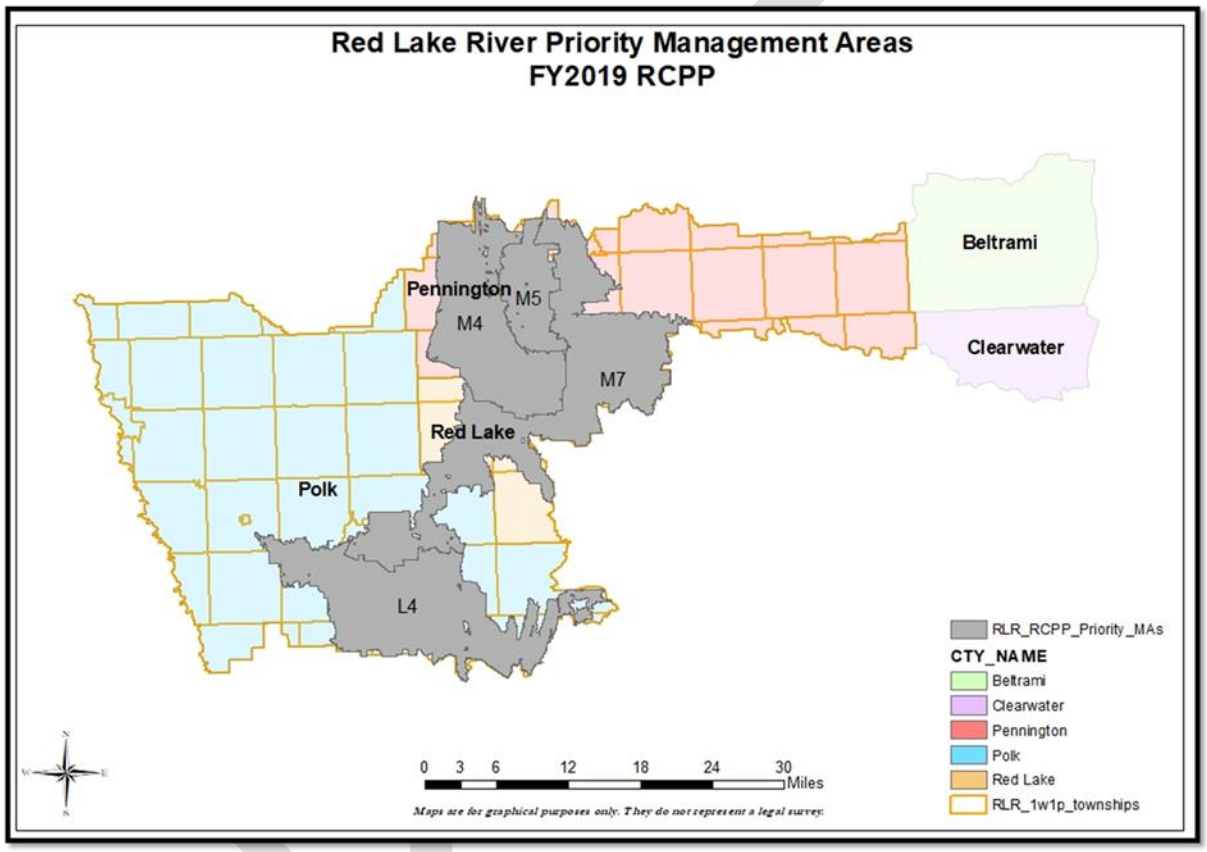
The Red Lake River Comprehensive Watershed Management Plan identifies Resources of Concern for the Upper, Middle, and Lower Planning zones in Tables 5-1, 6-1, and 7-1. Management classes and priority statements are identified in the plan to assist with project prioritization. The Red Lake River downstream of CD96 to Crookston (M7) is impaired for TSS and is identified in the management class as Restorable (Table 6-1 on page 6-3).

Measurable goals are listed in Tables 5-2, 6-2, and 7-2 and further refined in the Tailored Targeted Implementation Plan with measurable Water Quality Outcomes. The sediment reduction goal for M7 is 3,265 tons of sediment/year.

Burnham Creek (L4) is a Resource of Concern and the management class for TSS is identified as Needs Protection (Table 5-1). The priority statement that applies to Burnham Creek is to Protect high-quality unimpaired waters at greatest risk of becoming impaired. The sediment reduction goal for L4 is 870 tons/year.

VII. PRIORITY MANAGEMENT AREAS

The Red Lake River Planning Workgroup identified priority management areas to target practices. The Red Lake River in Management Area 7 ranked second (AUID 3-504) and third (AUID 3-502) in the plan to Restore Impaired Waters that are Closest to Meeting State Water Quality Standards for Total Suspended Solids (TSS). The top ranked management area for that category was also on the Red Lake River further downstream in the L3 Management Area. The Black River (M4) and CD96 (M5) outlet into the Red Lake River just upstream of sediment impairments. Targeting projects in upstream management areas will provide sediment reduction benefits downstream.



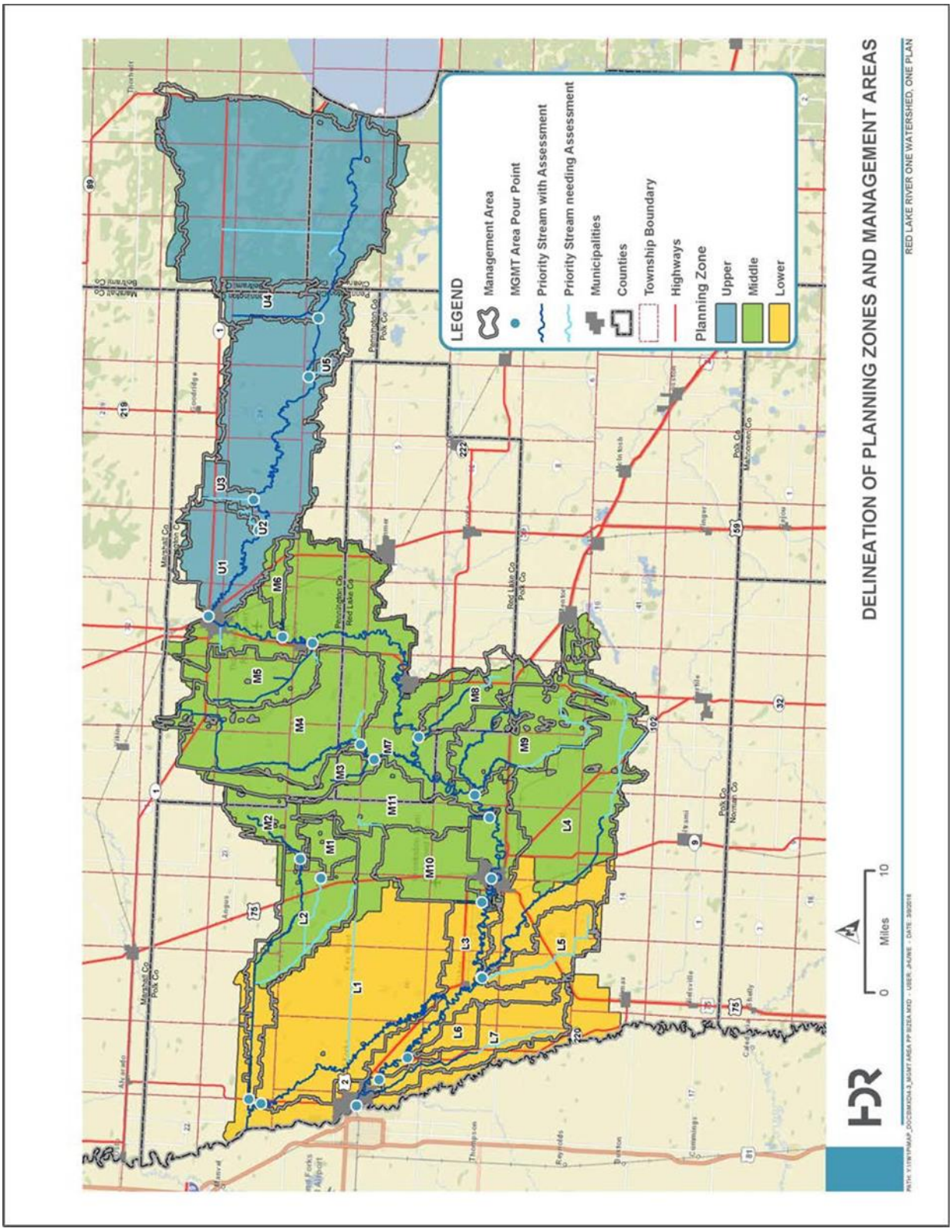
VIII. Tracking Progress

The Planning Workgroup will track progress of project implementation using the ArcOnline Collector Application. The Planning Workgroup coordinated with Area 1 GIS staff to develop a database. The database can be accessed and edited by the RLWD and SWCD staff involved in project implementation. Project information collected through the application include; GPS location, project type, NRCS practice code, management area, LGU lead, and project units. Annual evaluation of progress will be made by the Planning Workgroup at quarterly meetings and an annual report will be made to the Advisory and Policy Committee at the annual meeting.

IX. MANAGEMENT AREA DESCRIPTIONS

Management Area	Description	Pour Point Location	Planning Zone(s)	HUC10 Subwatershed
L1	Grand Marais Creek	110th St. NW Crossing of Grand Marais Creek	Lower, Middle	0902030602
L2	Polk County Ditch 2 and RLWD Ditch 15 downstream of impoundments	Hwy. 220 crossing of Polk County Ditch 2	Lower, Middle	0902030601
L3	(Lower) Red Lake River downstream of Crookston	Louis A. Murray Bridge over the Red Lake River in East Grand Forks	Lower	0902030307
L4	Burnham Creek	Confluence with the Red Lake River	Lower, Middle	0902030306
L5	Polk County Ditch 100/74/10/28	Confluence with the Red Lake River	Lower	0902030307
L6	Polk County Ditch 115/123/124/107/163	Confluence with the Red Lake River	Lower	0902030307
L7	Heartsville Coulee	Confluence with the Red Lake River, upstream side of the dike along the Red Lake River	Lower	0902030307
M1	Euclid East Impoundment	Euclid East Impoundment outlet	Middle	0902030601
M2	Brandt Impoundment	Brandt Impoundment inlet at 260th Ave SW	Middle	0902030601
M3	Little Black River	Outlet of the dam on the Little Black River	Middle	0902030304
M4	Black River upstream of Schirrick Dam	Schirrick Dam outlet	Middle	0902030304
M5	Pennington County Ditch 96	Confluence with the Red Lake River	Middle	0902030303
M6	Pennington County Ditch 21	Confluence with the Red Lake River	Middle	0902030303
M7	(Middle) Red Lake River between the Thief River and Crookston	Woodland Avenue crossing of the Red Lake River in Crookston, at the 05079000 USGS Gage	Middle	0902030303 0902030305
M8	Cyr Creek	Confluence with the Red Lake River	Middle	0902030305
M9	Gentilly River and Kripple Creek Drainage Area	Confluence with the Red Lake River	Middle	0902030305
M10	Polk County Ditch 1	Confluence with the Red Lake River	Middle	0902030305
M11	Judicial Ditch 60	Confluence with the Red Lake River	Middle	0902030305
U1	(Upper) Red Lake River upstream of the Thief River confluence	Thief River and Red Lake River confluence	Upper	0902030302
U2	Pennington County Ditch 35	Confluence with the Red Lake River	Upper	0902030302
U3	Pennington County Ditch 44	Confluence with the Red Lake River	Upper	0902030302
U4	Pennington County Ditch 43	Confluence with the Red Lake River	Upper	0902030302
U5	Pennington County Ditch 55	Confluence with the Red Lake River	Upper	0902030302

X. PLANNING ZONES AND MANAGEMENT AREAS



XI. PROJECTS FOR CONSIDERATION

The Planning Workgroup identified additional projects for consideration if there is remaining Watershed Based Funding and to assist with future workplan development. These projects are not prioritized but rather a list of projects for further discussion from the Planning Workgroup on alignment of priorities and goals of the Red Lake River Comprehensive Watershed Management Plan. The list of projects are arranged by management areas as follows:

Watershed-Wide

- Conduct a ditch outlet assessment for the remaining planning area in Red Lake and Polk Counties. An Accelerated Implementation Grant (Clean Water Fund) will be sought for project funding.
- Identify and protect streambanks where meanders and cutoffs are occurring
- Septic System inventory

Judicial Ditch 60 (M11)

- Grade Stabilization project at the outlet JD60

Polk County Ditch 1 (M10)

- Grade Stabilization project at the outlet of Polk County Ditch 1
- Grade Stabilization project on County Ditch 1 west of Crookston

Gentilly River and Kripple Creek (M9)

- Streambank stabilization project on Kripple Creek located near 180th Ave north of Gentilly
- Coordinate with Polk County Environmental Services on a septic system inventory in Kripple Creek subwatershed
- County Ditch 158 stabilization project southwest of Gentilly

Burnham Creek (L4)

- Phase III of Burnham Creek Watershed Project: Side inlet controls, vegetative buffer strips and grade stabilization structure installation

Red Lake River Downstream of Crookston (L3)

- County Ditch 20 stabilization near Fisher
- County Ditch 56 stabilization near Mallory

Middle Reach of Red Lake River (M7)

- Stormwater Assessment for the City of Crookston
- Fish passage at the Thief River Falls Dam
- County Ditch 99 ditch stabilization in sections 28/29/33/34 of Crookston Township, 230th (Hwy 11) to the Red Lake River

Red Lake Watershed District

President
Dale M. Nelson

Vice President
Gene Tiedemann

Treasurer
Terry Sorenson

1000 Pennington Avenue South
Thief River Falls, MN 56701
218-681-5800
218-681-5839 FAX
e-mail: RLWD@redlakewatershed.org
www.redlakewatershed.org

Secretary
LeRoy Ose

Managers
Les Torgerson
Allan Page
Brian Dwight

Date: February 11, 2020

To: Thief River Watershed State Plan Review Agencies

From: Thief River Planning Group

Re: Thief River Comprehensive Watershed Management Plan, final submittal.

The Thief River Planning Group, on behalf of the members, is pleased to submit the Thief River Comprehensive Watershed Management Plan for final review. Prior to this submittal, a review period was held from August 15, 2019 to October 16, 2019, to gather comments, and a public hearing was held on December 2, 2019. The Comprehensive Watershed Management Plan, a record of the public hearing, a copy of all written comments, and a summary of responses to comments and changes incorporated as a result of the review process can be found on the Red Lake Watershed District website: https://www.rlwdwatersheds.org/thiefriver1w1p

Inquiries about this submittal can be made to:

Myron Jesme
Administrator
Red Lake Watershed District
1000 Pennington Avenue South
Thief River Falls, MN 56701
218-681-5800
RLWD@redlakewatershed.org

Peter Nelson
Water Plan Coordinator
Pennington SWCD
201 Sherwood Avenue South
Thief River Falls, MN 56701
218-683-7075
Peter.nelson@mn.nacdnet.net

Thank you on behalf of the members of the Thief River Planning Group:

Red Lake Watershed District
Pennington County
Pennington Soil & Water Conservation District
Marshall County
Marshall Soil & Water Conservation District
Beltrami County
Beltrami Soil & Water Conservation District

USDA United States Department of Agriculture

Farm Production and

Business Center

1400 Independence Ave., S.W.
Washington, DC 20250

January 10, 2020

Sent via email to: rlwd@redlakewatershed.org

Myron Jesme
Administrator
Red Lake Watershed District
1000 Pennington Avenue South
Thief River Falls, MN 56701

Re: Natural Resources Conservation Service (NRCS) Closeout Notice for Agreement No. 68-6322-16-503 for the project titled, "Pine Lake Watershed"

Dear Sir/Madam:

The United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has completed a review of the above referenced agreement. NRCS has determined that agreement has expired and that all funds have been expended.

NRCS officially closes out this Agreement in accordance with the general closeout principles and guidance provided in 2 CFR Part 200, as applicable. However, should there be any audit or review findings, e.g. under the Single Audit Act, NRCS may have to reopen the agreement until those issues are resolved. Further, it is understood that the Red Lake Watershed District will comply with retained property regulations, equipment disposition, and requirements for retention and access of records in accordance with 2 CFR Part 200, Subpart D.

Please distribute this letter to appropriate officials within your organization. If you have any questions regarding this closeout, please contact me at 801-524-4587 or michele.devaney@usda.gov, or Deb Walchuk, Program Contact, at 218-751-1942 or debra.walchuk@usda.gov. We appreciate your effort and cooperation in successfully completing this project.

Sincerely,

MICHELE DEVANEY
Digitally signed by MICHELE DEVANEY
Date: 2020.01.10 14:04:19 -07'00'

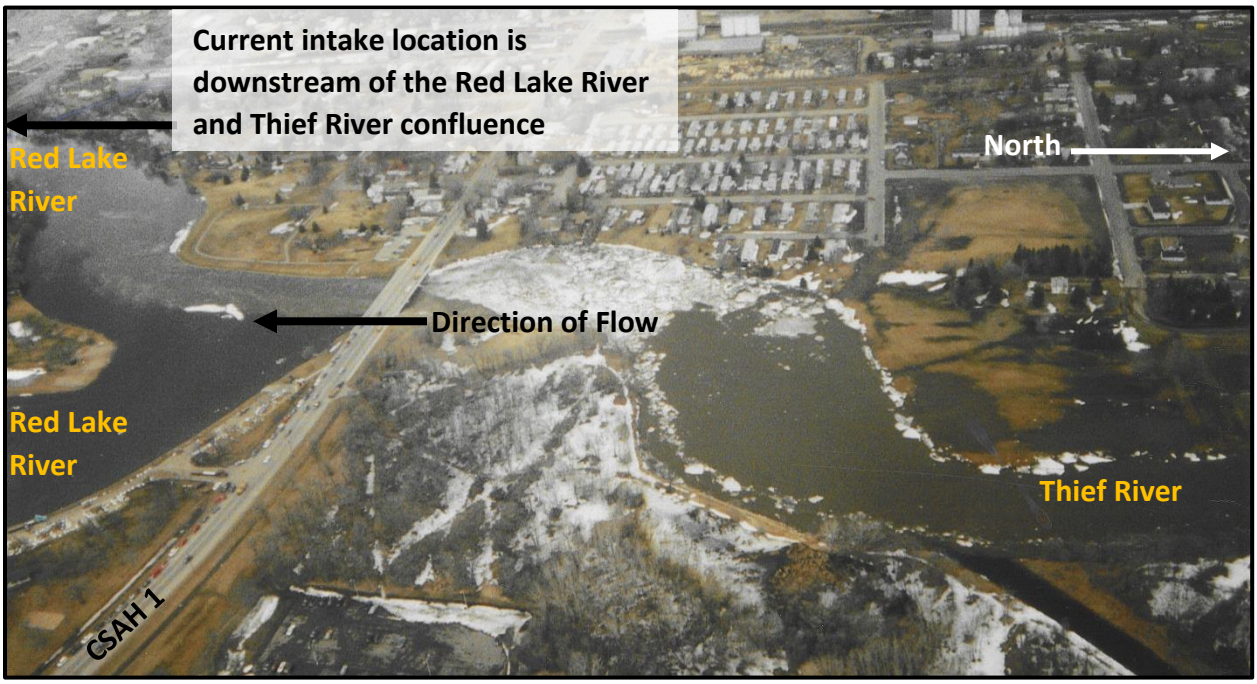
Grants Management Specialist
FPAC-BC, Grants and Agreements Division

cc (via email): Deborah Walchuk, Red River Basin Coordinator, FPAC-NRCS, Bemidji, MN

City of Thief River Falls Drinking Water Supply:
Upstream Water Quality in the Thief River and Red Lake River

Current Water Quality Conditions in the Thief River and Red Lake River

- The city of Thief River Falls obtains its drinking water from a surface water intake on the Red Lake River downstream from the Red Lake River's confluence with the Thief River.
- High concentrations of total suspended solids (TSS) and other pollutants in the Thief River, between Agassiz Pool in Agassiz and the Red Lake River confluence in Thief River Falls have violated state water quality standards for the protection of aquatic life, contributed to violations of Safe Drinking Water Act drinking water standards in the City of Thief River Falls' water supply, contributed to taste and odor complaints, affected water treatment costs, and contributed to sedimentation within the Thief River Falls Reservoir.



- The Thief River, between Agassiz Pool and the Red Lake River, is listed as impaired by excess turbidity and exceeds the 30 mg/L total suspended solids (TSS) water quality standard at a frequency that exceeds the 10% impairment threshold. The TSS impairment of the Thief River extends upstream to a monitoring station near the outlet of Agassiz Pool.
- Exceedances of the TSS standard are infrequent in the Thief River and Mud River upstream of Agassiz Pool and infrequent in the Red Lake River upstream of Thief River Falls. Only one sample (4.35% of 23 samples) exceeded the 30 mg/L standard at the CSAH 7 crossing of the Red Lake River (S007-063) in 2007-2016 data.

Station	Stream	Location	Average 2007-2016 April - Sept. TSS Concentration (mg/L)	90th Percentile 2007-2016 April - Sept. TSS Concentration (mg/L)
S002-078	Mud River	Hwy 89, upstream of Agassiz Pool	8.7	19
S004-055	Thief River	380th St. NE, upstream of Agassiz Pool	9.3	18.5
S002-088	Thief River	Marshall CSAH 7, downstream of Agassiz Pool	32.3	60
S002-079	Thief River	140th Ave, near Thief River Falls	22.9	45.4
S007-063	Red Lake River	Pennington CSAH 7, upstream of Thief River Falls	9.0	23.8

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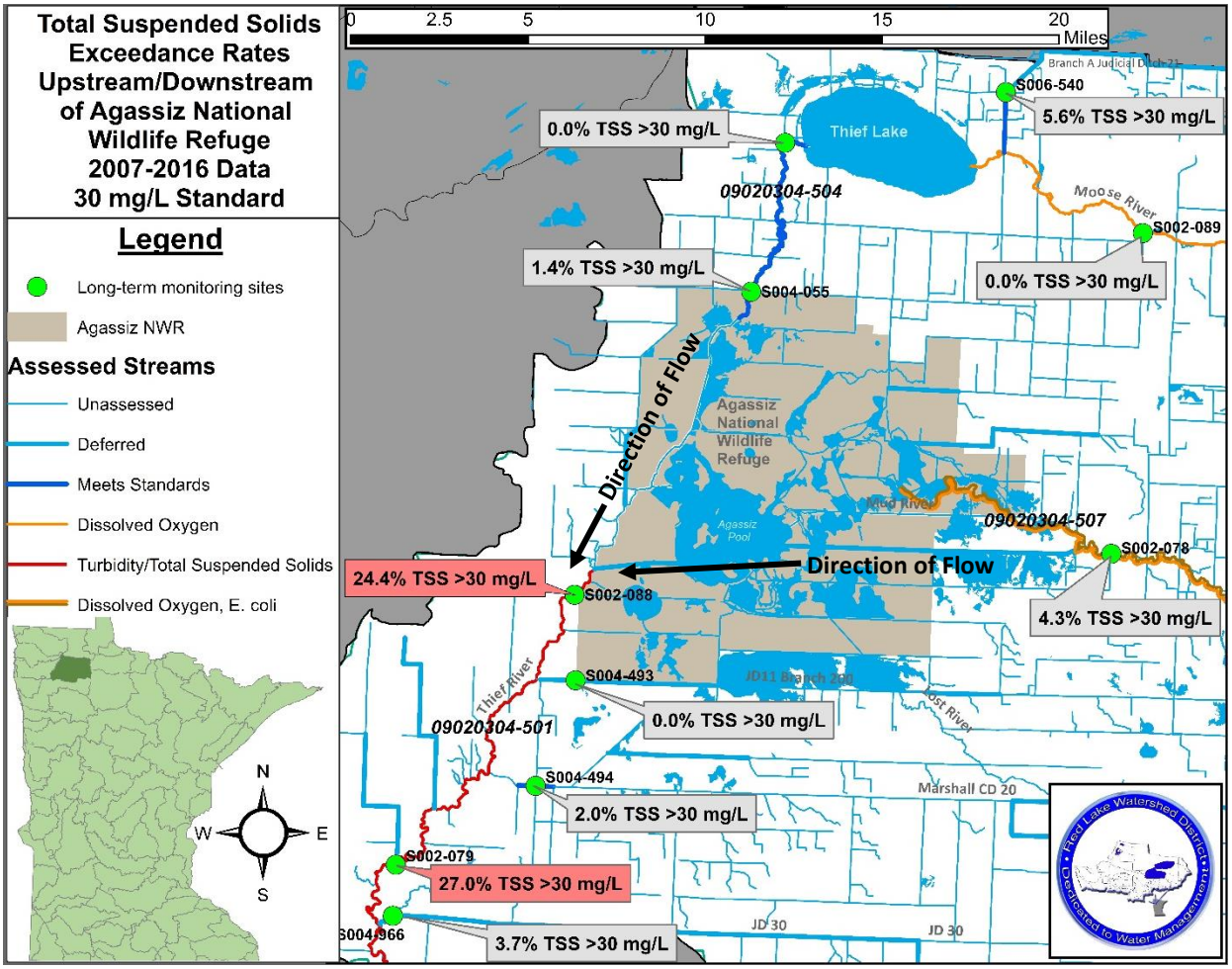
Sources of Excess Sediment and other Pollutants

- Concentrations of TSS have been strongly trending upward in the Thief River at CSAH 7, downstream of Agassiz Pool. Trends in the Thief River and Red Lake River near Thief River Falls have been a mixture of upward, downward, and steady trends.



- High flows and erosion (streambank erosion and agricultural runoff) contribute to total suspended solids (TSS) concentrations. Riparian buffers were lacking in extent or quality along some channels. The Minnesota Buffer Law has helped by requiring perennial vegetative buffers along rivers and ditches.
- Hydrological Simulation Program Fortran (HSPF) models identified relatively high sediment yield rates for subwatersheds along the Thief River compared to the upstream, eastern portion of the Thief River Watershed and compared to the Red Lake River upstream (east) of Thief River Falls.
- Unstable streambanks have been documented along the length of the Thief River and its tributaries. Fluvial geomorphology studies found unstable Pfankuch stability ratings at 2 of 3 stations along the Thief River between Agassiz Pool and the Red Lake River. Each station along the Red Lake River, upstream of Thief River Falls, received a “stable” Pfankuch stability rating. Erosion rates along the Agassiz Pool to Red Lake River portion of the Thief River ranged from

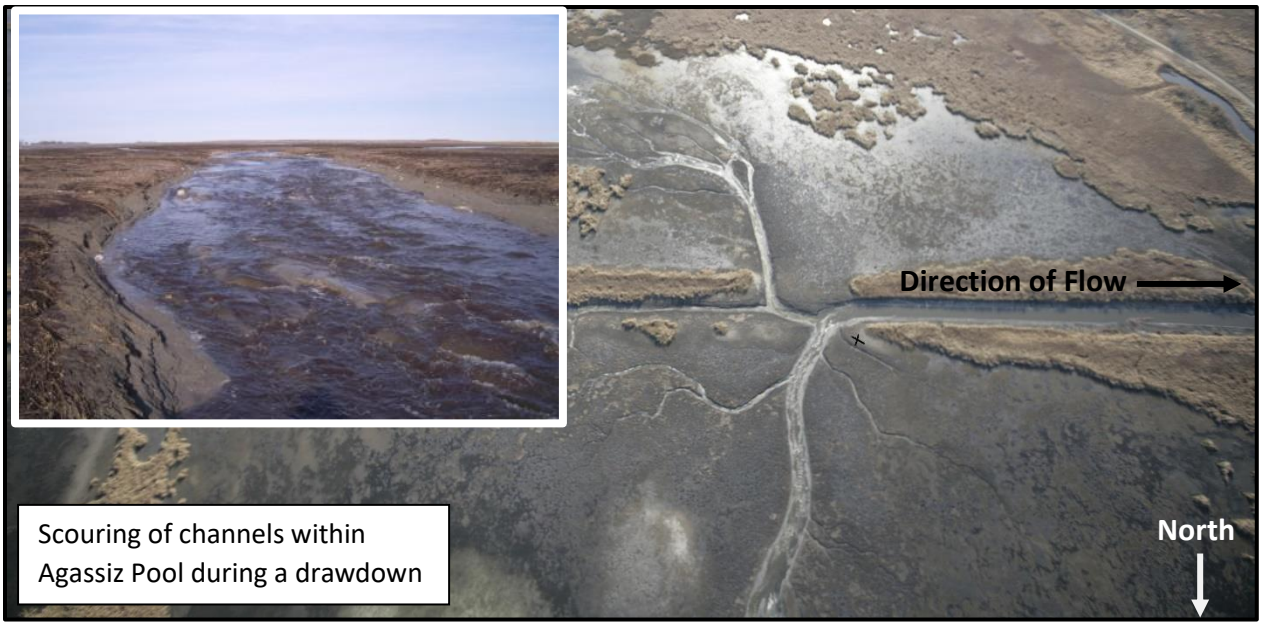
31.7 tons/mile/year to 161 tons/mile/year. Erosion rates along the Red Lake River were lower with a range of 12.7 tons/mile/year to 45.8 tons/mile/year.

- A stormwater drainage system within the city of Thief River Falls, was found to be contributing high concentrations of *E. coli* bacteria to the Thief River Falls Reservoir. Progress has been made on reducing pollutants in that channel through septic system upgrades and city sewer hook-ups.

Sedimentation and Water/Sediment Management of Agassiz Pool

- Multiple rivers/ditches flow into Agassiz Pool, within Agassiz National Wildlife Refuge. The Mud River (also known as Judicial Ditch 11) enters the pool from the east. The Thief River (State Ditch 83) enters the pool from the north. The Sediment (suspended and bed load) accumulates within Agassiz Pool. A portion of the Judicial Ditch 11 channel crosses the pool from east to west. The pool has been accumulating sediment since its construction. A radial gate dam is used to flood and drain the pool. The accumulation of sediment has filled-in portions of the pool and affected waterfowl habitat.
- Analysis of water quality data in figures on page 59 of the Thief River Watershed Restoration and Protection Strategy show that TSS concentrations have generally decreased in the Mud River upstream of Agassiz Pool and increased in the Thief River downstream of Agassiz Pool since regular monitoring began in the 1990s.
- A 2008-2010 study by the United States Geologic Survey recorded higher loads of sediment at the two Agassiz Pool outlets (12,939 tons/year plus 2,175 tons/year) than the total of loads that were recorded at three monitored inlets (3,065 tons/year).
- The 2011 Sediment Loading and Sources to Agassiz National Wildlife Refuge study by Shawn Schottler and Daniel Engstrom used sediment cores and radioisotope soil fingerprinting to characterize the amount of sedimentation within Agassiz Pool and likely sources. The dominant source of the sediment within Agassiz Pool was erosion of upland and fields. The study estimated that 1.2 million metric tons of inorganic sediment have accumulated in Agassiz Poll since controlled inundation of the refuge (approximately 1940). The study identified a concern that the Judicial Ditch 11 channel was full of sediment and infilling of the pool could accelerate.
- A project was funded in 2012 by the Clean Water Fund (Agassiz Pool Accelerated Sediment Reduction) to target the watershed of Agassiz Pool with grassed filter strips, grade stabilization structures, and windbreaks to reduce runoff.
- The United States Fish and Wildlife Service adopted a strategy for removing existing sediment from the Refuge through flushing and scouring from multiple drawdowns and breaches over several years. High TSS concentrations have been recorded during drawdowns, especially while flow rates are receding. The pooled water is relatively low in TSS, but erosion within the pool begins as the water levels drop. The high TSS concentrations occurred after much of the pooled water had drained and flow became concentrated within the ditch channel and gullies that formed at breaches in the Judicial Ditch 11 spoil bank.
- A 2012 study by the United States Fish and Wildlife Service examined the effects of a drawdown and reported that “the drawdown within the pool caused significant disturbance to emergent wetland vegetation and substrate in the immediate vicinity of the Ditch-11 Outlet. The head differential created between water surface elevations in the main ditch system extending upstream of the Ditch-11 Outlet and water surface elevations within Agassiz Pool appear to have created velocities sufficient to flatten vegetation and scour multiple networks of channels.

City of Thief River Falls Drinking Water Supply: Upstream Water Quality in the Thief River and Red Lake River



Scouring of channels within Agassiz Pool during a drawdown

Potential Actions/Solutions

- Move the Thief River Falls drinking water intake to a point upstream of the confluence
- Adoption and implementation of the Thief River Watershed One Watershed One Plan
- Agricultural best management practices
- Inspection of channels for compliance with the Minnesota Buffer Law.
- Streambank and grade stabilization projects
- Re-route the Mud River to reduce sediment deposition within Agassiz Pool and reduce or eliminate the need to flush sediment from the pool into the Thief River.

References

- Thief River Watershed Restoration and Protection Strategy (WRAPS) Report:
  - https://www.pca.state.mn.us/sites/default/files/wq-ws4-49a.pdf
- Thief River Watershed Total Maximum Daily Load (TMDL) Report:
  - https://www.pca.state.mn.us/sites/default/files/wq-iw5-11e.pdf
- Assessment of Nutrients and Suspended Sediment Conditions in and near the Agassiz National Wildlife Refuge, Northwest Minnesota, 2008–2010:
  - https://pubs.usgs.gov/sir/2012/5112/sir2012-5112.pdf
- Assessment of Water Quality Conditions: Agassiz National Wildlife Refuge, 2012:
  - http://ecos.fws.gov/ServCatFiles/reference/holding/23563?accessType=DOWNLOAD
- Sediment Loading and Sources to Agassiz National Wildlife Refuge:
  - https://catalog.data.gov/dataset/sediment-loading-and-sources-to-agassiz-national-wildlife-refuge
- Decision Analysis of Mitigation and Remediation of Sedimentation Within Large Wetland Systems—A Case Study Using Agassiz National Wildlife Refuge:
  - https://pubs.usgs.gov/of/2014/1180/pdf/ofr2014-1180.pdf
- Sediment Loading and Sources to Agassiz National Wildlife Refuge
  - By Shawn Schottler and Daniel Engstrom (not currently available online)

Thief River/Agassiz National Wildlife Refuge Summary

This memo summarizes the issue of the impacts on the drinking water supply of the City of Thief River Falls and water quality impairments from pollutant discharges from the Agassiz National Wildlife Refuge (NWR), and the on-going attempts to address the issue.

Agassiz NWR was created in Marshall County after the county created a drainage system to drain land for agriculture. That effort to create farmland failed and nearly bankrupted the county. Subsequently, the State of Minnesota took over the land and in turn, gave it to the federal government, which established it as a National Wildlife Refuge 70+ years ago. Judicial Ditch 11 (JD11), which is also the Mud River, runs from east to west through the entire Agassiz NWR (see Figure 1 below). The JD11 system consists of 500 miles of ditch laterals (see Figure 2 below). Sediment from upstream sources has deposited in the ditch and the Agassiz NWR pools (by way of intentional breaches in the ditch berms to create nesting islands), and has been a chronic problem for many years.

On December 3, 2014, during a Marshall County Water Resource Advisory Committee (WRAC) Meeting, Craig Mowry, Manager of Agassiz NWR, briefed the committee on remedial actions that Agassiz NWR staff had been taking within the Agassiz NWR since September of 2012, to reduce the sediment deposits in the refuge pools. Prior to this meeting, the WRAC, Minnesota Pollution Control Agency (MPCA), Minnesota Department of Natural Resources (DNR) and Board of Water and Soil Resources (BWSR) staff had been unaware of the remedial actions taking place. After that meeting, Mr. Mowry sent a copy of the United States Geological Survey (USGS) publication that detailed the process for the decision on these remedial actions (*Decision Analysis of Mitigation and remediation of Sedimentation Within Large Wetland Systems—A Case Study Using Agassiz National Wildlife Refuge, USGS Publication 2014-1180* (Attachment 1)). However, the actions being taken at the Agassiz NWR are not meeting the means objectives defined on page 6 of the document to include 'maintain or improve water quality for downstream entities, and 'minimize water purification/reservoir maintenance costs for the City of Thief River Falls'.

Actions Agassiz NWR staff has been taking include cleaning out (excavating) stretches of JD11 from west to east, and discharging water from the radial gate dam which opens from the bottom rather than the top. This has resulted in head-cutting in the ditch, increased erosion, gully formation within the refuge pools, and flushing of organic and inorganic sediment down-stream, both from the ditch and the Agassiz NWR pools, through the breaches in the ditch berms. Other activities have includes wide-spread spraying herbicide on, and burning hybrid and narrow leaf cattails (invasives). They have been conducting these activities each year since the fall of 2012.

After the December 3, 2014 notification of remedial activities at the Agassiz NWR, and to accurately evaluate the watershed for the Watershed Restoration and Protection Strategy (WRAPS) and Total Maximum Daily Load (TMDL) Studies, MPCA staff requested the plan for remedial activities and a summary of activities already completed at the Agassiz NWR. Agassiz NWR management responded, stating that there was no written plan and activities already completed were not formally documented.

The flushing of sediment down-stream contributes to an already existing Turbidity/Total Suspended Solids (TSS) impairment in the Thief River (Assessment Unit ID 09020304-501) from Agassiz Pool to the confluence with the Red Lake River, which is a violation of Section 401 of the Clean Water Act. It also impacts the City of Thief River Falls drinking water supply. The City drinking water intake is approximately one mile down-stream of the Thief River confluence with the Red Lake River. The excess sediment in the river causes the City to have to use additional disinfection chemical to properly disinfect the drinking water, which causes increased levels of a disinfection byproduct, Trihalomethane, in their drinking water at levels many times in excess of the Department of Health's (MDH) Drinking Water Standard. MPCA staff has been working with MDH and city of Thief River Falls Public Works staff on trying to resolve this issue since 2015.

MPCA staff has investigated whether the Agassiz NWR was required to obtain any permits for the work that they are doing to remove sediment from the Agassiz NWR. Those permits are listed below:

1. DNR Public Waters Permit: JD11 runs through Mud Lake which is a DNR public water (DNR PWI #45-000200). Work done within public waters requires a public waters permit from the DNR if it changes the course, current or cross-section of a public water. MPCA staff was told by Agassiz NWR management that a DNR public waters

permit was not required at the direction of DNR permitting staff. MPCA staff contacted DNR staff regarding this and on May 4, 2017, DNR staff stated that a site visit would be required to determine if a permit was needed. It is unknown if a DNR site visit has been completed.

2. US Army Corps of Engineers Section 404 Dredging Permit and MPCA Section 401 Certification: Excavating or dredging activities within waters of the United States usually require a Clean Water Act Section 404 permit from the US Army Corps of Engineers (USACE), which then also requires a Section 401 Certification from the MPCA. The USACE has a General Permit #27 for Restoration of Aquatic Habitat, which MPCA staff believe to be the most relevant permit for this situation, however, Agassiz NWR management stated that the USACE did not require a permit because the actions at the refuge were considered 'ditch maintenance' which is exempt from 404 permitting requirements. MPCA's 401 Certification staff stated that without a Section 404 permit, a 401 Certification was not triggered, however, if a 404 permit was applied for, a 401 Certification would likely not be granted for the activities that are being conducted at the Agassiz NWR.
3. Marshall County Ditch Work Permit: Marshall County is the ditch authority for JD11 and requires permits for work completed in its county ditches. However, there is a disagreement between Marshall County staff and commissioners, and Agassiz NWR management as to whether JD11 within the boundaries of the Agassiz NWR are part of the legal JD11 system. Agassiz NWR management believes that all of the county ditches within the Agassiz NWR boundary were legally abandoned when the land was given to the federal government. Marshall County commissioners believe that those ditches are still part of the legal JD11 ditch system. MPCA staff requested documentation of the ditch abandonment from Agassiz NWR management, however, none was provided.
4. MPCA NPDES Construction Stormwater Permit: MPCA Stormwater staff stated that 'ditch maintenance' is exempt from Construction Stormwater Permits, however, it is debatable that the actions that are being taken at the Agassiz NWR constitute 'ditch maintenance' because JD11 has a dam at the downstream western boundary of the Agassiz NWR to hold back water, has had the berms breached so it doesn't function as a drainage ditch, and is submerged do to the dam.

MPCA staff also contacted US Environmental Protection Agency (USEPA) National Environmental Policy Act (NEPA) staff regarding actions at the Agassiz NWR. USEPA NEPA staff indicated that there is no enforcement of NEPA policies and directed MPCA staff to the Department of the Interiors NEPA policies on the website www.nepa.gov .

May 19, 2016, the draft Thief River WRAPS Report was sent to the project's core team for review. MPCA and Red Lake Watershed District received a letter from Agassiz NWR staff dated August 29, 2016, objecting to much of the WRAPS document because Agassiz NWR staff felt as though the WRAPS Report targeted the Agassiz NWR as the major cause of Turbidity/TSS impairment in the Thief River (Attachment 2). Agassiz NWR staff assert that the excess sediment issues originate upstream of the Agassiz NWR from agriculture and ditch erosion sources, and that the Agassiz NWR staff is left to deal with the issues as best it can. (Note that agriculture is also exempt from Clean Water Act requirements.) MPCA staff decided that these issues needed to be resolved prior to public noticing the TMDL and WRAPS Reports.

On December 22, 2016, MPCA and MDH staff met with Agassiz NWR staff to try to better understand what remedial activities were taking place and why, as well as to explain MPCA's roll in administering the Clean Water Act and MDH's roll in administering the Safe Drinking Water Act, in an attempt to resolve the issues. Agassiz NWR staff provided MPCA staff with a list of questions at the end of the meeting. MPCA and Agassiz NWR staff held another meeting and a tour at Agassiz NWR on May 25, 2017, which also included MDH staff. MPCA staff provided responses to Agassiz NWR staff's previous questions at this meeting (Attachment 3). MPCA staff's response also included some questions for Agassiz NWR staff that were answered and submitted on July 31, 2017 (Attachment 4 and 4a).

Sections of the WRAPS report that were edited based on Agassiz NWR staff's comments were submitted to Agassiz NWR staff again for review and comment on December 15, 2017. On December 22, 2017, an email was received from Agassiz NWR staff with 6 pages of additional comments objecting to information and language in the WRAPS report (Attachment 5). MPCA staff determined that there would be no resolution to the sediment issues and that the WRAPS and TMDL Reports needed to be finalized and placed on public notice. Both reports were public noticed on June 25, 2018 for 30 days. No comments were received from Agassiz NWR staff during the public notice comment period. The Thief River WRAPS Report was finalized and approved by the MPCA Commissioner's designee, the MPCA Watershed

Division Director, on March 18, 2019. The Thief River TMDL Report was finalized and approved by USEPA on March 28, 2019.

The Board and Water and Soil Resources One Water One Plan local watershed planning process started in August 2017. MPCA, MDH, DNR, city of Thief River Falls, and Agassiz NWR staff were invited, and accepted, invitation to participate in those planning activities as part of a larger Technical and Citizen Advisory Committee (TCAC). TCAC meetings were held approximately once a month until November 2019 for the purposes of providing technical and local input on local water management priority resources, priority issues, and priority actions relating to surface water, groundwater, flood control, drainage, and natural resources. Agassiz NWR staff attendance at those meetings was sporadic, and participation was low. During one of the meetings, Agassiz NWR management gave a presentation on the priorities of the Agassiz NWR operation. It was stated that Agassiz NWR staff's #1 operational priority was to manage for wildlife. When the One Water One Plan document was in a full draft form and was reviewed by all of the participants during the 60-day review period, it included very little information on the impacts Agassiz NWR actions have on the downstream water quality and impairment, or what actions are needed to remedy the situation. MPCA and MDH staff, as well as Pennington Soil and Water Conservation District and city of Thief River Falls staff, submitted letters identifying those deficiencies and provided potential solutions. These comment letters are attached as Attachments 6, 7, 8, and 9 respectively. The Agassiz NWR staff also submitted a comment letter during the 60-day review period (Attachment 10). During the next meeting on November 7, 2019, these deficiencies were discussed and Agassiz NWR staff was very resistant to any suggestion of inclusion of information or actions for Agassiz NWR management in the One Water One Plan document. It was suggested that an advisory committee, that included county and state agencies, be created to help Agassiz NWR staff manage the sediment and water in the Agassiz NWR. However, Agassiz NWR staff stated that it was illegal for Agassiz NWR to allow citizen input in management decisions. Currently, the One Water One Plan document is in its final stages of completion prior to BWSR board approval.

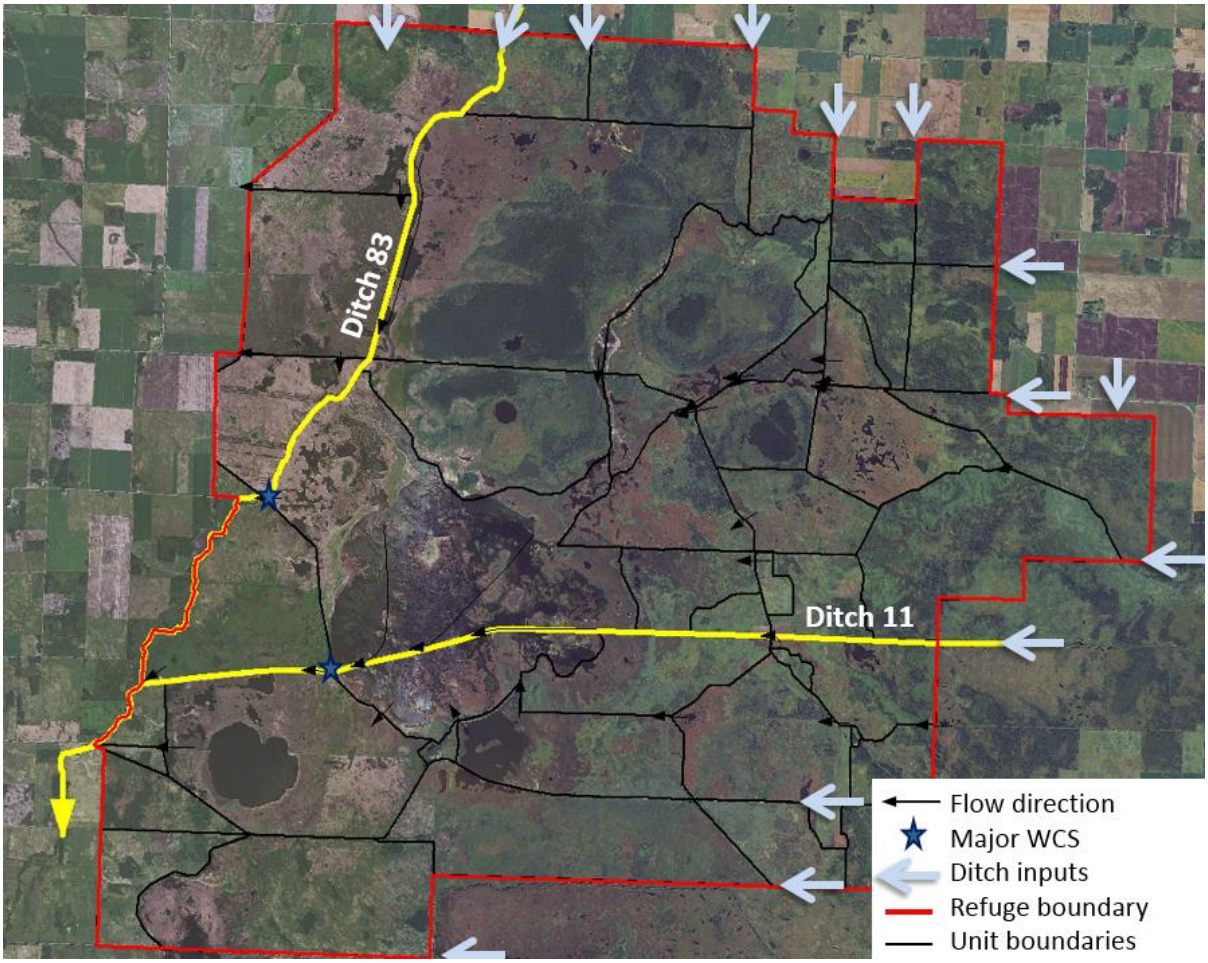


Figure 1: Agassiz National Wildlife Refuge Boundary with Marshall County Ditch 11 identified.

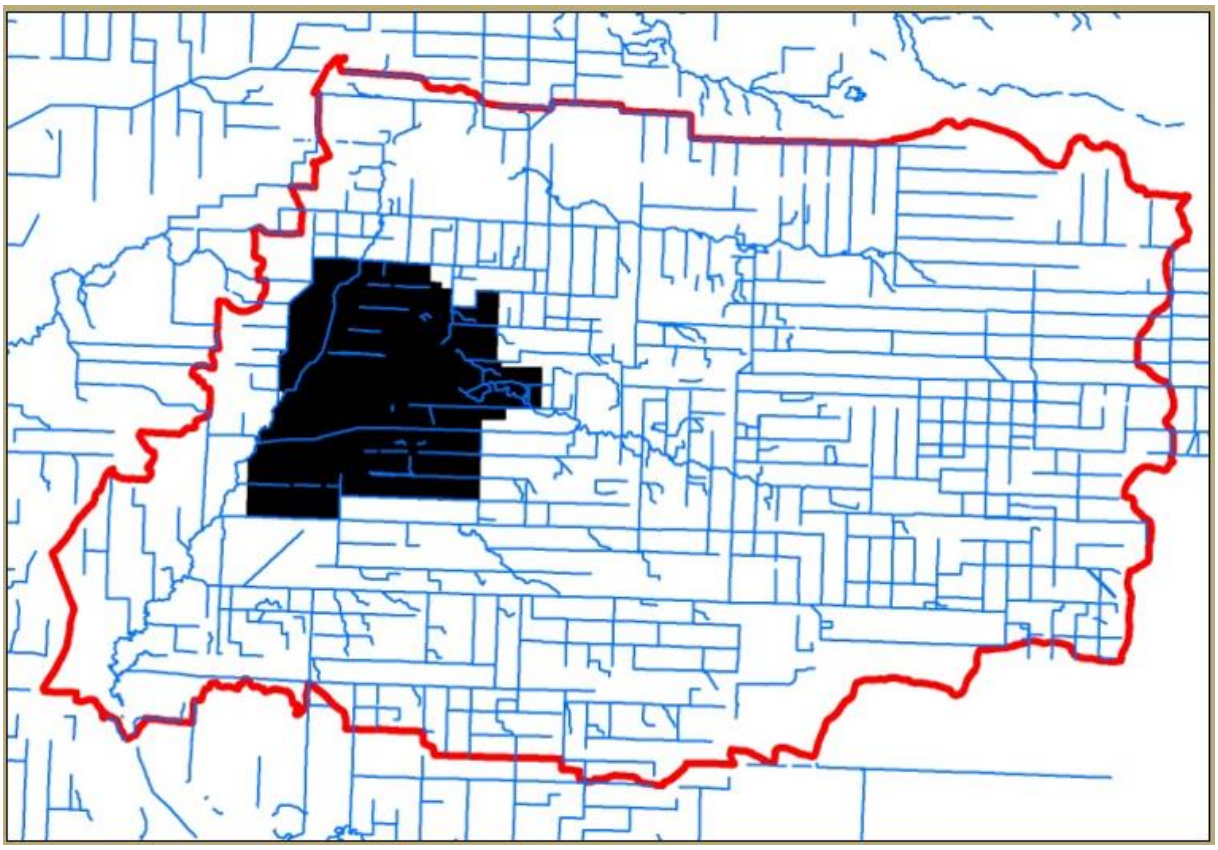


Figure 2: Thief River Watershed Boundary with ditches and streams identified (Agassiz NWR identified in black).

DEPARTMENT OF HEALTH

Thief River Falls Drinking Water Source Surveillance Report

01/23/2020

Thief River Falls Drinking Water Source Surveillance Report

January 2020

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Contents

Glossary of Terms Used in This Report

- **ANWR**: Agassiz National Wildlife Refuge, operated by the U.S. Fish and Wildlife Service
- **CPWS**: community public water system
- **DBP**: disinfection byproduct
- **DOC**: dissolved organic carbon
- **EPA**: U.S. Environmental Protection Agency
- **MDH**: Minnesota Department of Health
- **MPN**: most probable number
- **N/A (Not applicable):** Does not apply
- **NWS:** National Weather Service
- **ppb (parts per billion)**: One part per billion in water is like one drop in one billion drops of water, or about one drop in a swimming pool. ppb is the same as micrograms per liter (µg/l).
- **ppm (parts per million)**: One part per million is like one drop in one million drops of water, or about one cup in a swimming pool. ppm is the same as milligrams per liter (mg/l).
- **PWS**: public water system
- **SDWA**: Safe Drinking Water Act
- **SUVA**: specific ultraviolet absorbance
- **TOC:** total organic carbon, an indicator of potential DBP formation.
- **TSS**: total suspended solids
- **CFS**: cubic feet per second
- **RLR**: Red Lake River
- **USGS**: U.S. Geological Survey

Background

The city of Thief River Falls obtains its drinking water from a surface water intake on the Red Lake River downstream from the Red Lake River's confluence with the Thief River. These two watersheds have been heavily altered by ditching to facilitate agricultural land uses, with most of the 624,422-acre Thief River watershed drained by altered water courses. According to the Minnesota Pollution Control Agency's (MPCA) Altered Water Course Project, 95.8% of the stream miles within the watershed are considered altered (MPCA, 2020). These alterations have drained and improved lands throughout the western half of the watershed for agriculture, although 49% of the watershed area is currently occupied by wetland complexes (MPCA, 2014). Additionally, the U.S. Fish and Wildlife Service operates the Agassiz National Wildlife Refuge (hereafter referred to as ANWR) approximately 24 miles upstream from the Red Lake River confluence along the Thief River, and manages the 61,500 acres within the ANWR for wildlife management.

The city of Thief River Falls is pursuing moving their drinking water treatment plant intake to the Red Lake River, above the confluence. The treatment plant struggles to stay in compliance with turbidity and other parameters when the ANWR conducts annual flushing, which is when they flush sediment that has accumulated in their pools into the Thief River. The ANWR also lowers the water levels in their pools throughout the year. The ANWR normally controls these processes through the operation of a Tainter gate that opens from the bottom to discharge water to the Thief River. The Thief River then flows south to Thief River Falls where it combines with the Red Lake River. The Red Lake River is also periodically influenced by operating a gate to lower Red Lake levels. Lake effluent flows west within the Red Lake River towards the confluence with the Thief River.

Introduction

This cooperative project between the MDH Drinking Water Protection Section and the Thief River Falls PWS surveyed the PWS's source water to determine any influence from upstream wildlife management activities at the ANWR. Investigators collected numerous grab samples between September 6 and October 17, 2019 in an attempt to observe conditions before, during, and after ANWR drawdown or flushing events. This study monitored chemical and microbiological water quality at both the PWS intake, located downstream of the confluence of the Thief and Red Lake rivers, and from the proposed location of a new intake on the Red Lake River above the confluence. Samples were shipped to laboratories for analysis of 15 parameters, including *E.coli*, *Giardia*, *Cryptosporidium*, ammonia, phosphorus, total organic carbon (TOC), dissolved organic carbon (DOC), ultraviolet absorbance, specific ultraviolet absorbance, alkalinity, chloride, hardness (CaCO3), total suspended solids (TSS), sulfate, and turbidity. During the same period, the MDH collected precipitation and river flow information from nearby USGS stream gages and an ANWR National Weather Service (NWS) precipitation gage.

Results

Timeline

Table 1 shows the chronological order of major events that happened during this study. Figure 1 shows an aerial view of the watersheds and sample locations.

Date	Event	Description
September 6, 2019	Sampling began	Baseline data from PWS intake and Red Lake River
September 9, 2019	ANWR drawdown began	Initial discharge to Thief River roughly 400 CFS
September 12, 2019	ANWR drawdown peak	Discharge of 1080 CFS with RLR flow at 380 CFS
September 20, 2019	ANWR drawdown reduced	Discharge of 300 CFS with RLF Flow at 350 CFS
September 21, 2019	Precipitation event	Precipitation of 5 inches at ANWR over 48 hours
September 22, 2019	ANWR discharge increased	Discharge of 2,250 CFS with RLR flow at 470 CFS
October 12, 2019	ANWR peak discharge	Discharge of 3,140 CFS with RLR flow at 1,220 CFS
October 17, 2019	Sampling ended	Thief River flow of 2720 CFS with RLR at 820 CFS

Table 1. Project timeline

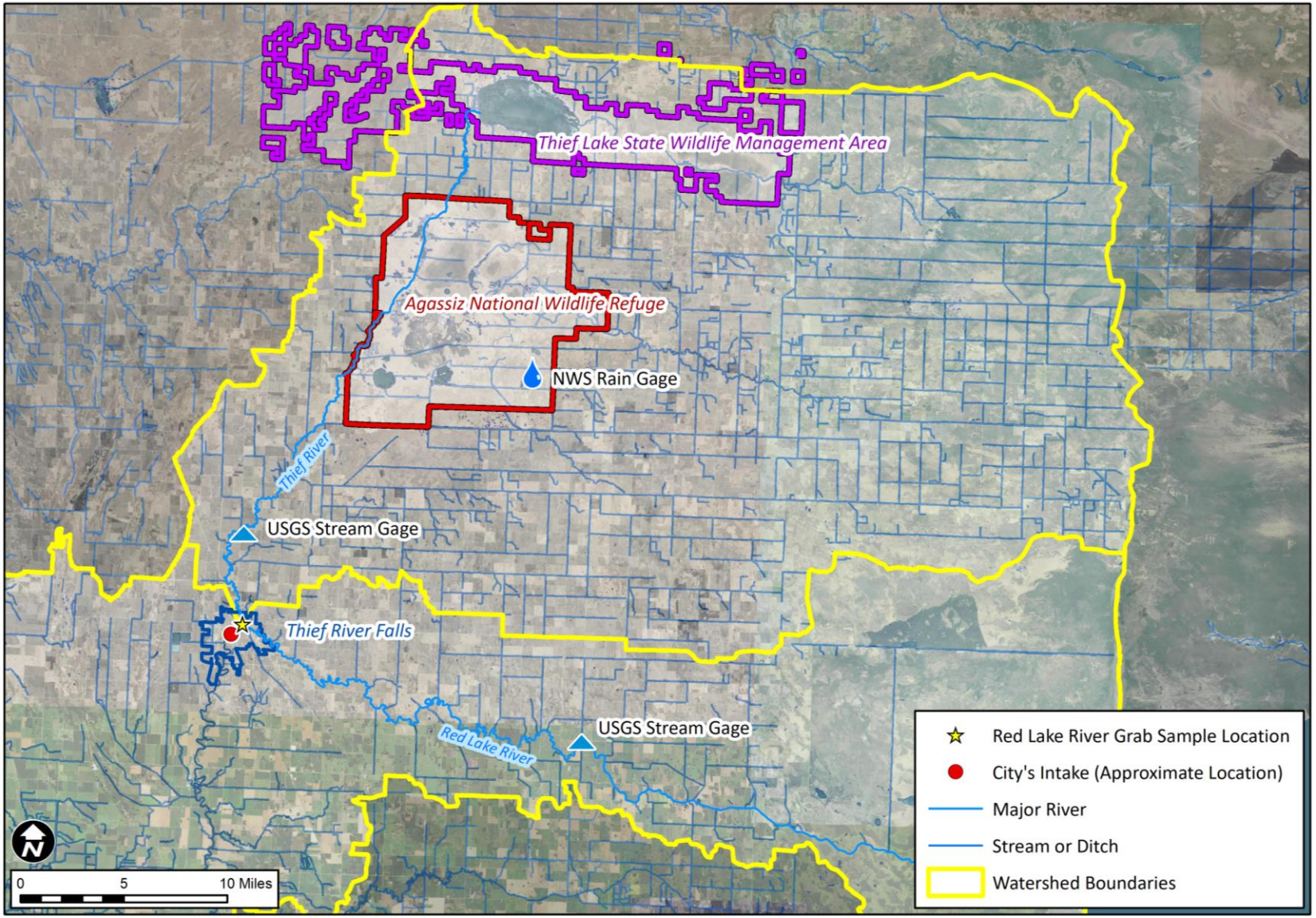

Figure 1. Map showing the Thief River and Red Lake River watersheds and data source locations.

Discharge and Precipitation

Both the Agassiz National Wildlife Refuge (ANWR) and Lower Red Lake were discharging water during the sampling study. As evident in Figure 2, ANWR started their flushing event, tapered off, and then discharged more water due to precipitation events shown in Figure 3. Discharge velocities in the Thief River were much greater than the Red Lake River. Effects of the precipitation event around September 22 were observed in discharge velocities as well as several chemical and microbiological measurements. Spikes in discharge were not as great in the Red Lake River. The ANWR gate remained open long after the last rainfall precipitation event and remained open at the time of this report due to ice.

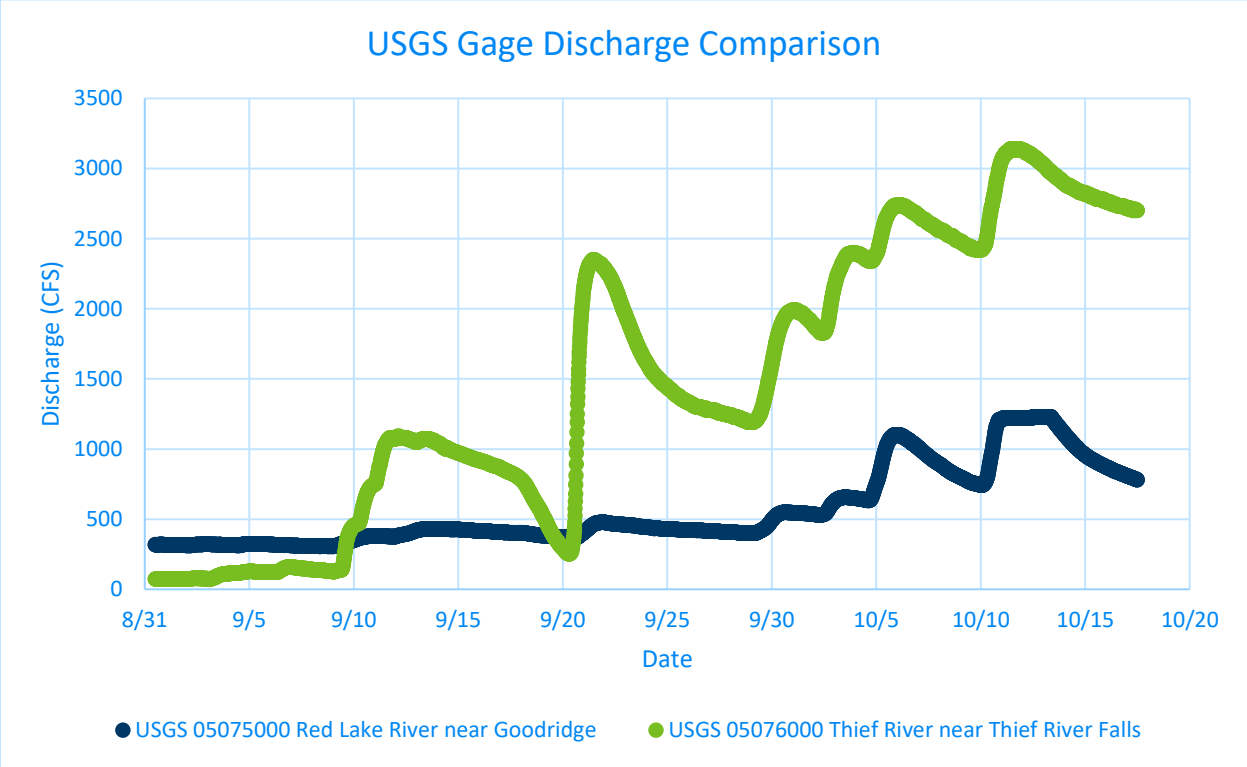

Figure 2: Discharge comparison

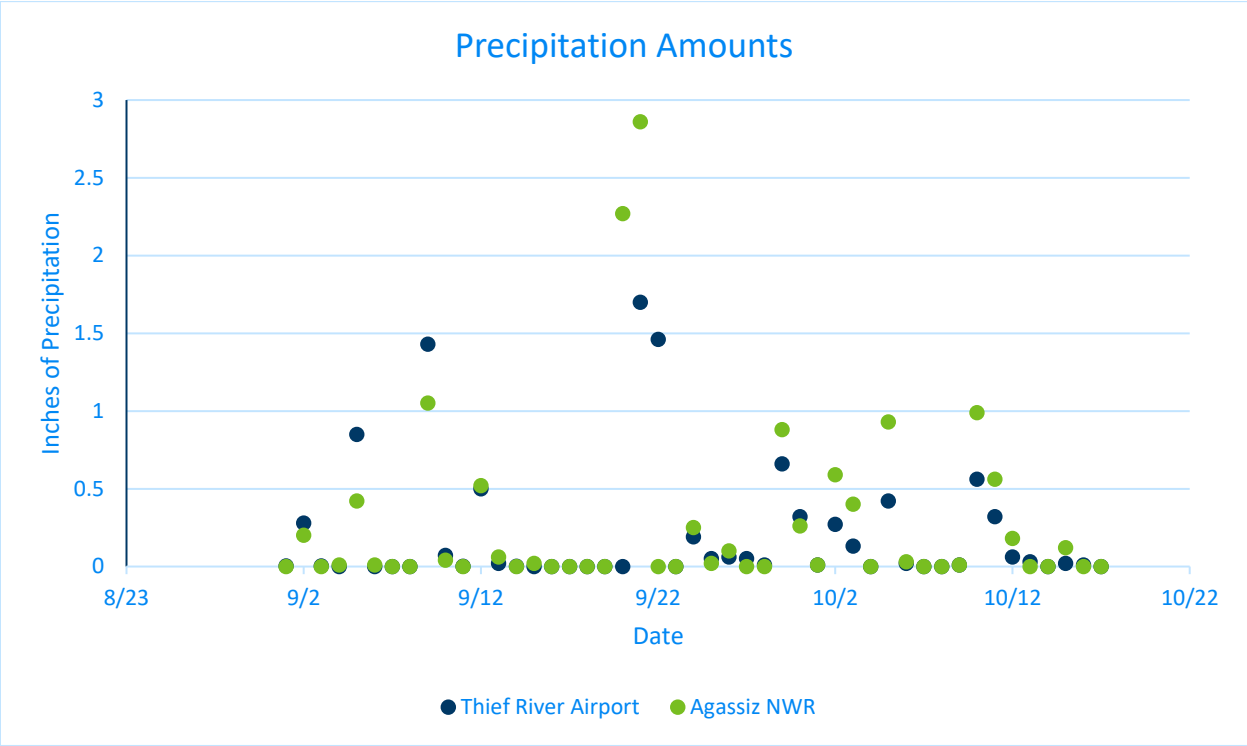

Figure 3: Precipitation events

Microbiology

Laboratories analyzed samples for *E.coli*, *Cryptosporidium*, and *Giardia*. RMB Environmental Laboratories, Inc. analyzed *E. coli* samples and Eurofins Eaton Analytical analyzed *Cryptosporidium* and *Giardia* samples. Figures 4 and 5 show a comparison between sample sites for *E.coli*. Figure 4 shows all of the data, including a spike in *E.coli* during the large rain event that happened around September 21. Figure 5 shows the *E.coli* results without the spike to give a more detailed look at results. Investigators expected the initial discharge spike from the ANWR to arrive at the Thief River Falls treatment plant intake on September 10 based on modeling and discussions with Thief River Falls PWS staff. Both sample locations showed initial spikes that could be from the drawdown, but soon after *E.coli* counts approached 200 per 100 milliliters (/100 mL) for the treatment plant intake and results for the Red Lake River decreased. This section of Figure 5, from September 10 through September 15, is most indicative of the flushing event that occurred at the ANWR.

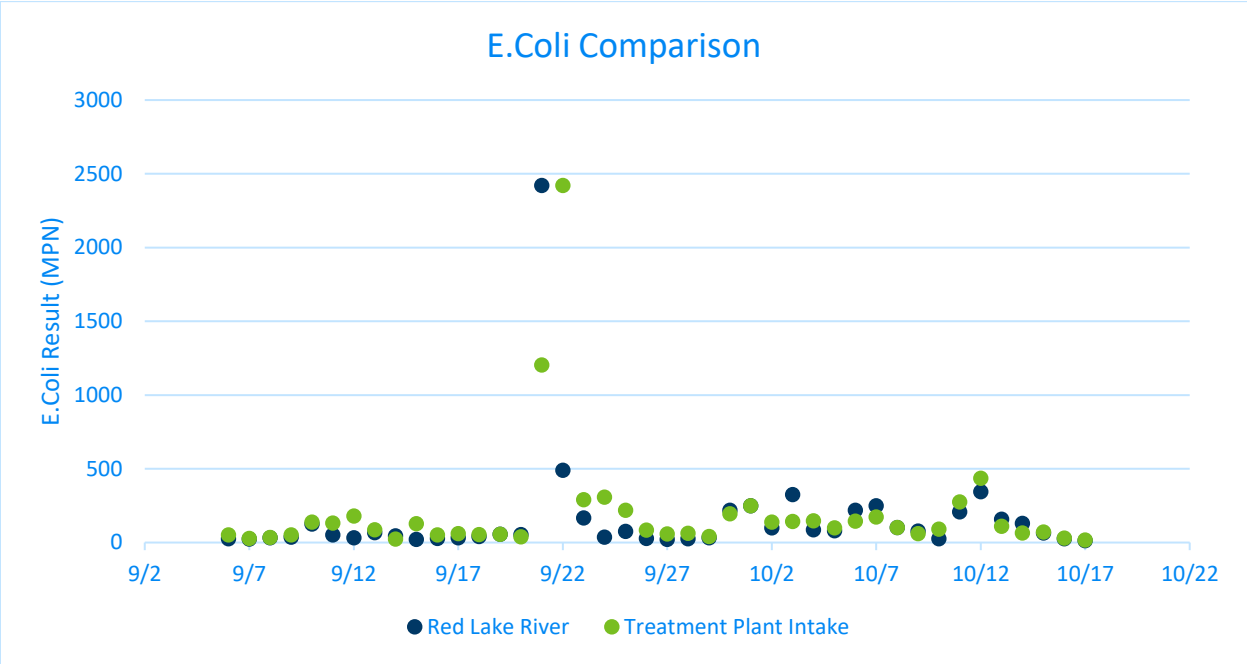

Figure 4: *E.coli* comparison

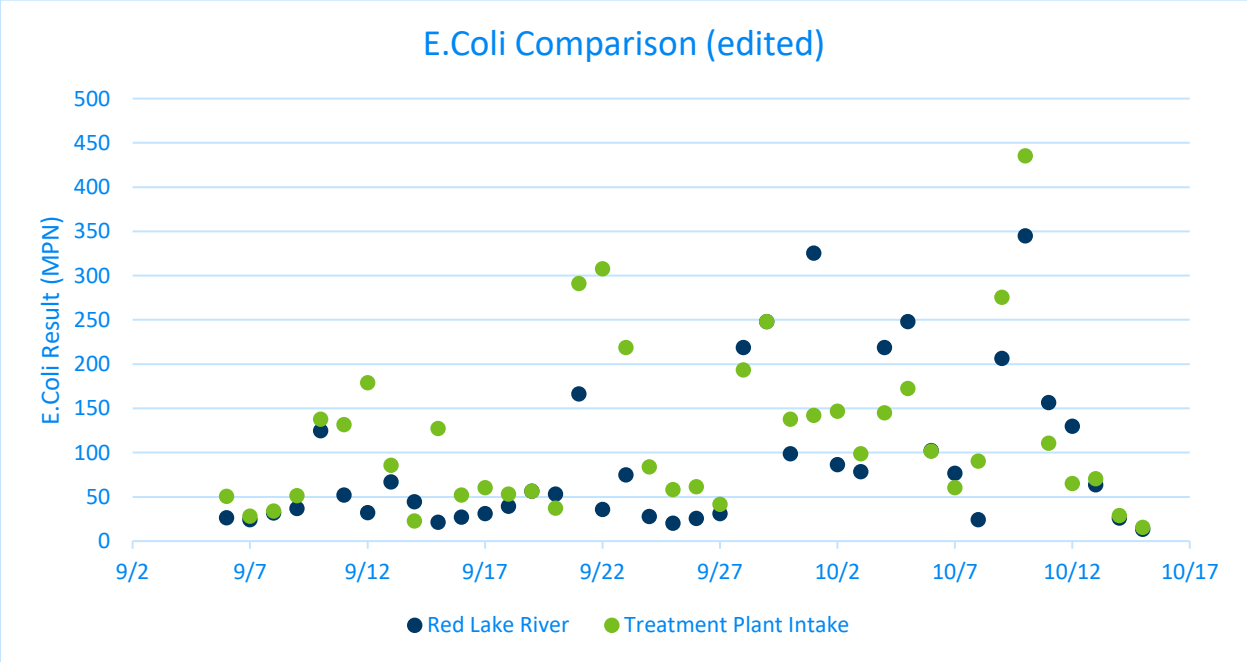

Figure 5: *E.coli* comparison (edited)

Figure 6 shows results for *Giardia* and Figure 7 shows results for *Cryptosporidium*. All Red Lake River samples contained *Giardia* during the study. The treatment plant intake only had *Giardia* during the first sample taken on September 11. The treatment plant intake did show *Cryptosporidium* from the September 18 sample and the Red Lake River had *Cryptosporidium* detections on September 30 as well as October 7.

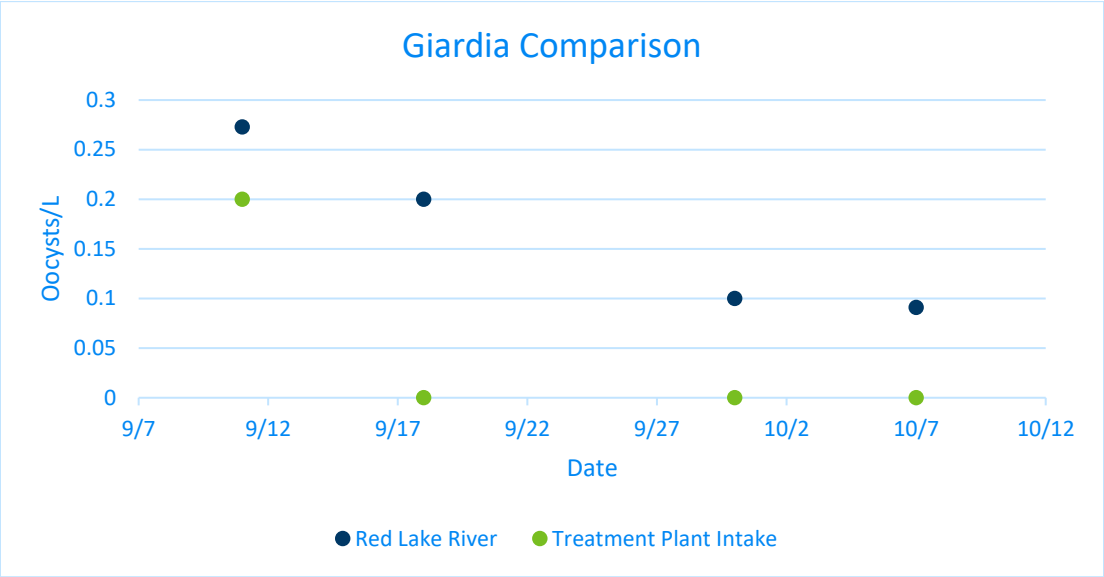

Figure 6: *Giardia* comparison

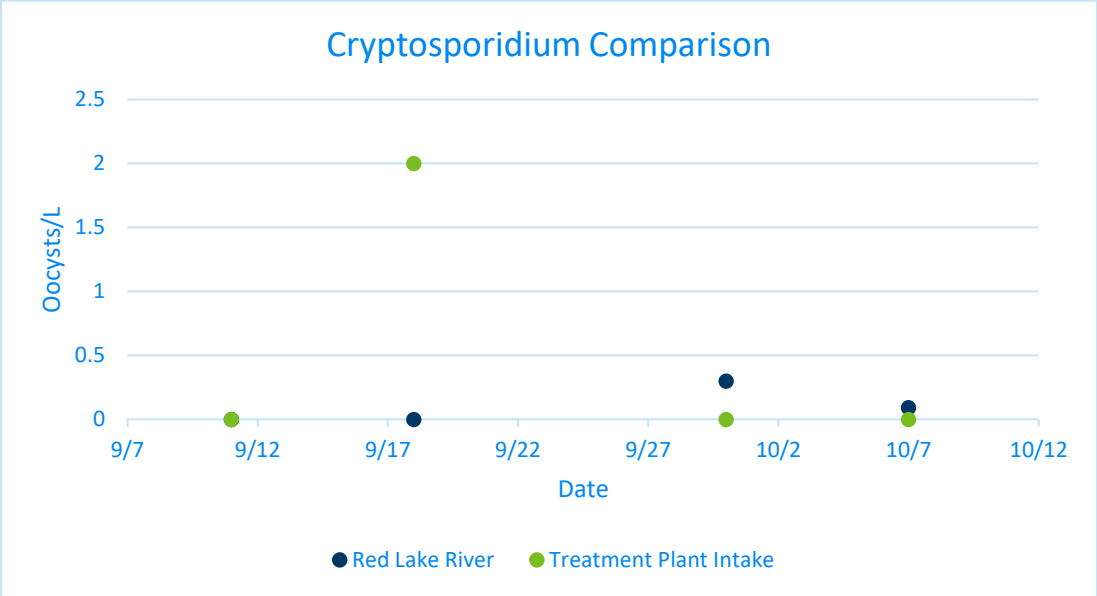

Figure 7: *Cryptosporidium* comparison

Ammonia

Ammonia was not found at the treatment plant intake or the Red Lake River.

Phosphate

Phosphate in water can come from sources like fertilizers, human and animal waste, and industrial chemicals. Figure 8 shows total phosphate results. For the majority of the study the treatment plant intake had higher amounts of phosphate than the Red Lake River. Once again, there was a significant spike during the large rain event around September 22.

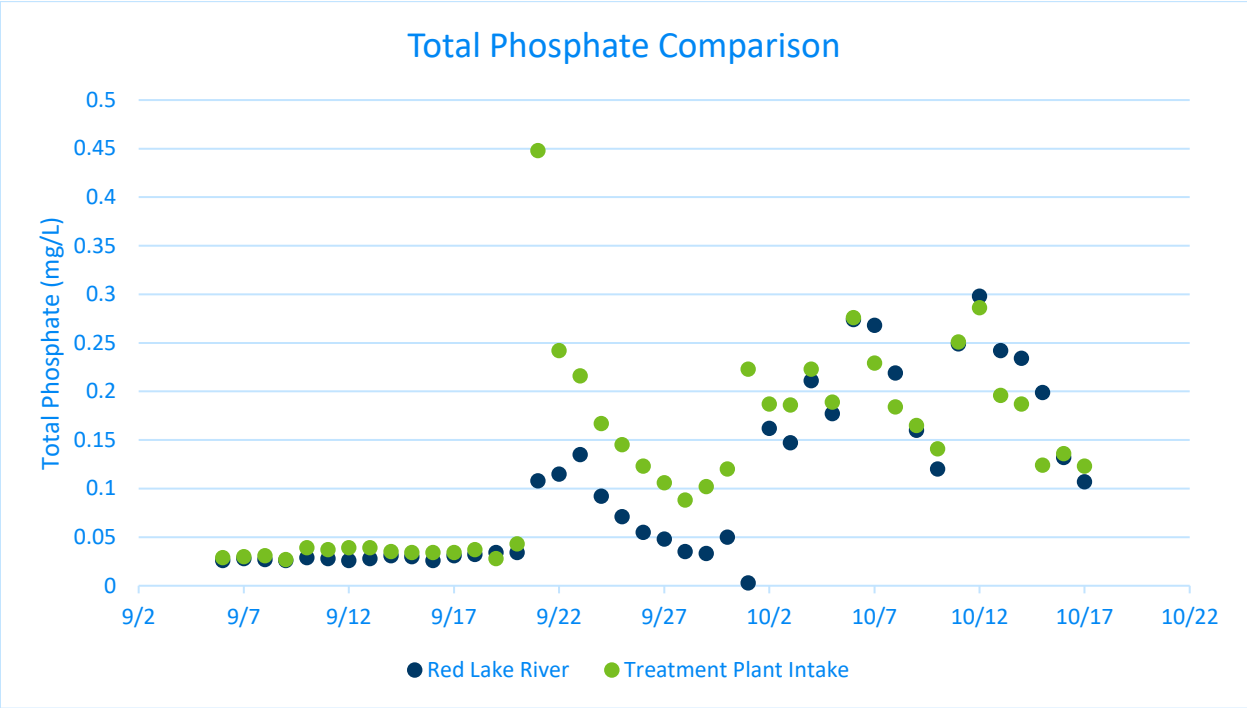

Figure 8: Total phosphate comparison

Total Organic Carbon

PWSs disinfect drinking water to protect consumers from waterborne diseases. The most common method of disinfection is through the addition of chlorine to drinking water. Chlorine can react with organic materials in raw water, creating disinfection byproducts (DBPs). Total organic carbon (TOC) is a measure of organic materials and is a good indicator of whether there is a potential for DBPs to form in drinking water.

Surface waters are more likely to contain TOC. Groundwater TOC levels are generally lower and less variable. Although TOC by itself is not a health concern, high levels of TOC can create challenges for water systems to maintaining water quality.

Figure 9 shows a TOC comparison. Interestingly enough, around the large rain event on and around September 22, there was a decrease in TOC in both the Thief River and Red Lake River. Once again the treatment plant intake has higher amounts of TOC compared to the Red Lake River.

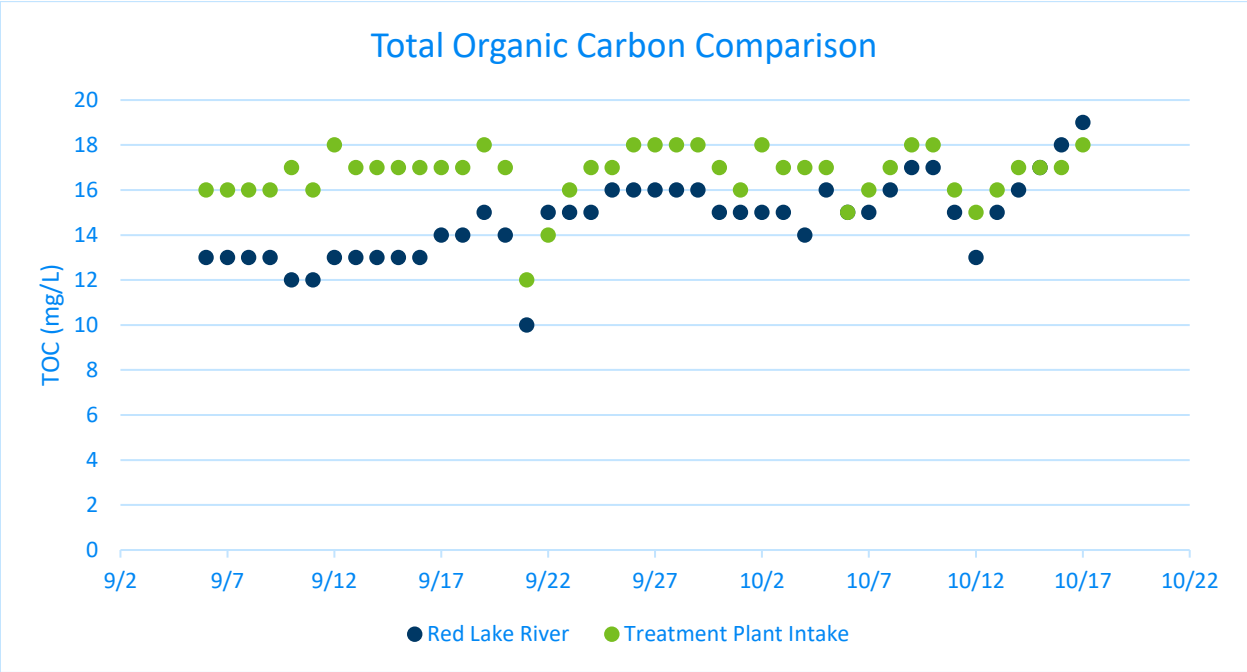

Figure 9: Total organic carbon comparison

Dissolved Organic Carbon

Figure 10 shows the results of dissolved organic carbon (DOC). The treatment plant intake had higher levels of DOC for the majority of the sampling study.

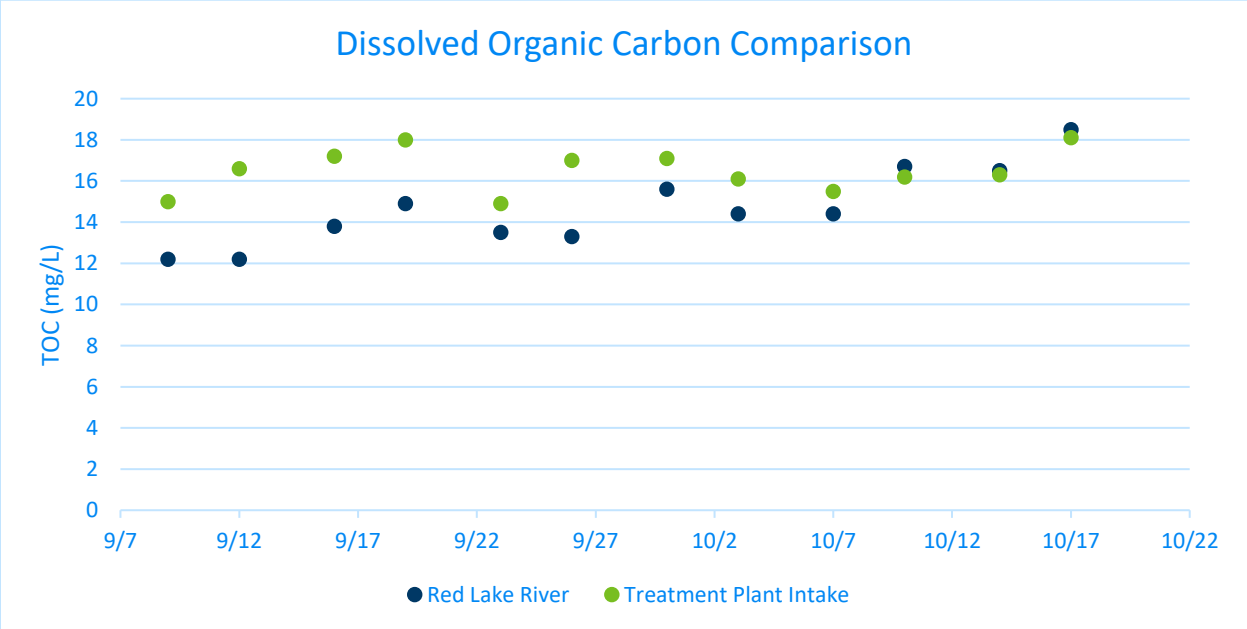

Figure 10: Dissolved organic carbon comparison

Ultraviolet Absorbance

Figure 11 shows the results of ultraviolet absorbance (UVA) measurements. The treatment plant intake had higher levels of UVA for the majority of the sampling study.

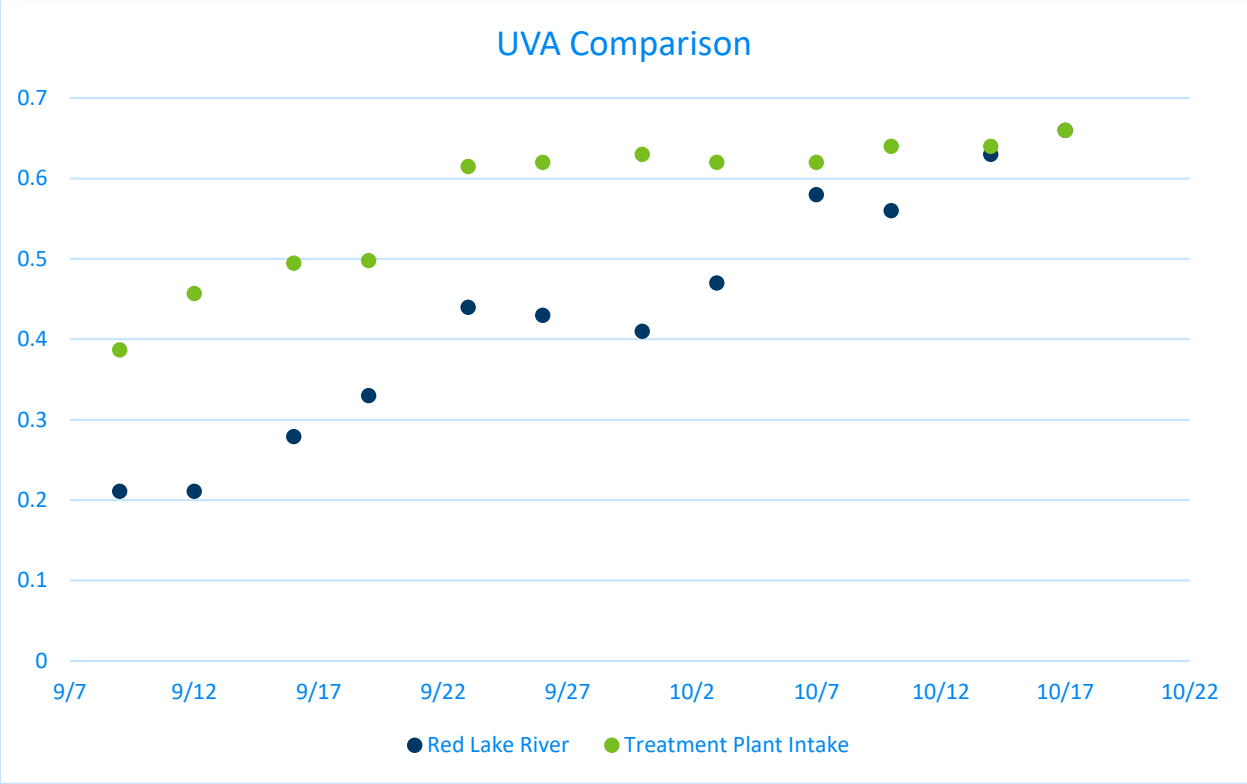

Figure 11: UVA comparison

Specific Ultraviolet Absorbance

Specific ultraviolet absorbance (SUVA) is the ratio of UVA to DOC. It indicates the aromatic character of the DOC, and can be used to estimate removability through conventional surface-water treatment. Generally, DOC associated with lower SUVA values will be more difficult to remove. Figure 12 shows the results of SUVA analyses. The treatment plant intake had higher levels of SUVA for the majority of the sampling study.

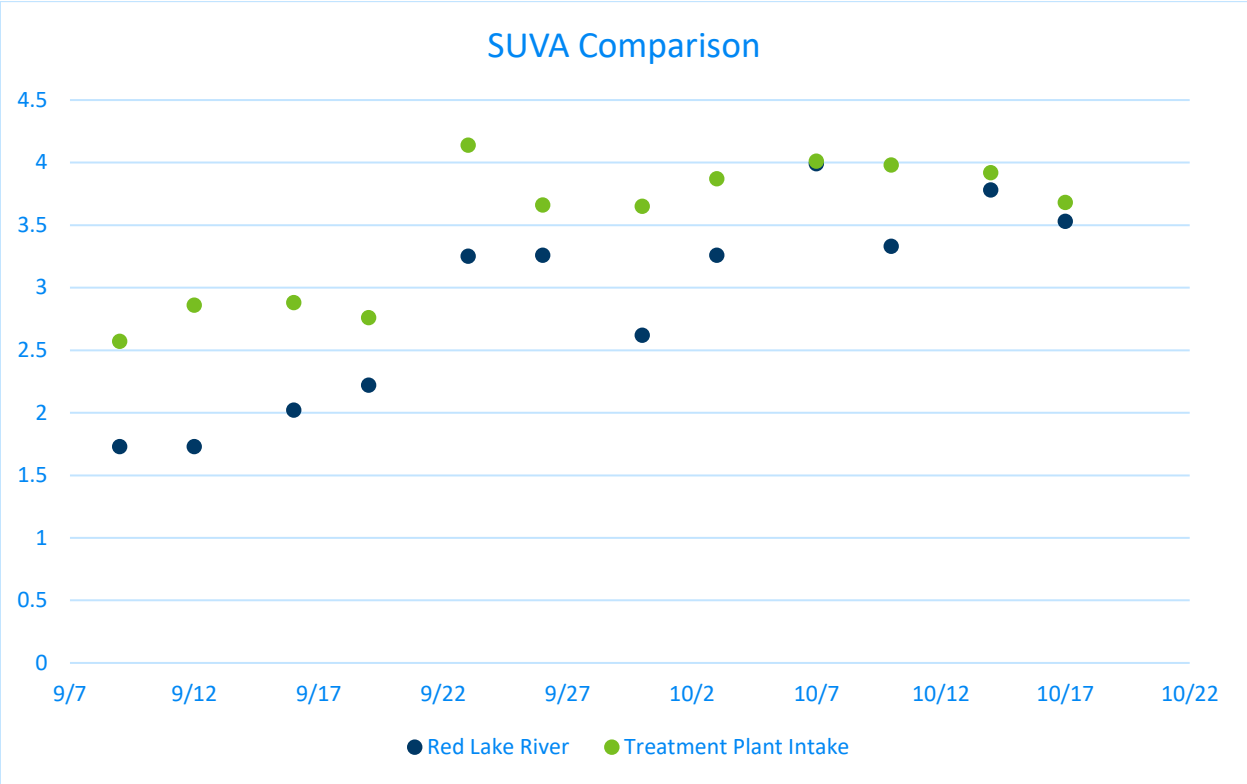

Figure 12: SUVA comparison

Alkalinity

Alkalinity is the ability of water to neutralize acid. It is useful in assessing and optimizing treatment processes such as lime softening, disinfection, and corrosion control. Figure 13 shows the results of alkalinity analyses. The treatment plant intake and Red Lake River sampling locations had similar alkalinity throughout the study.

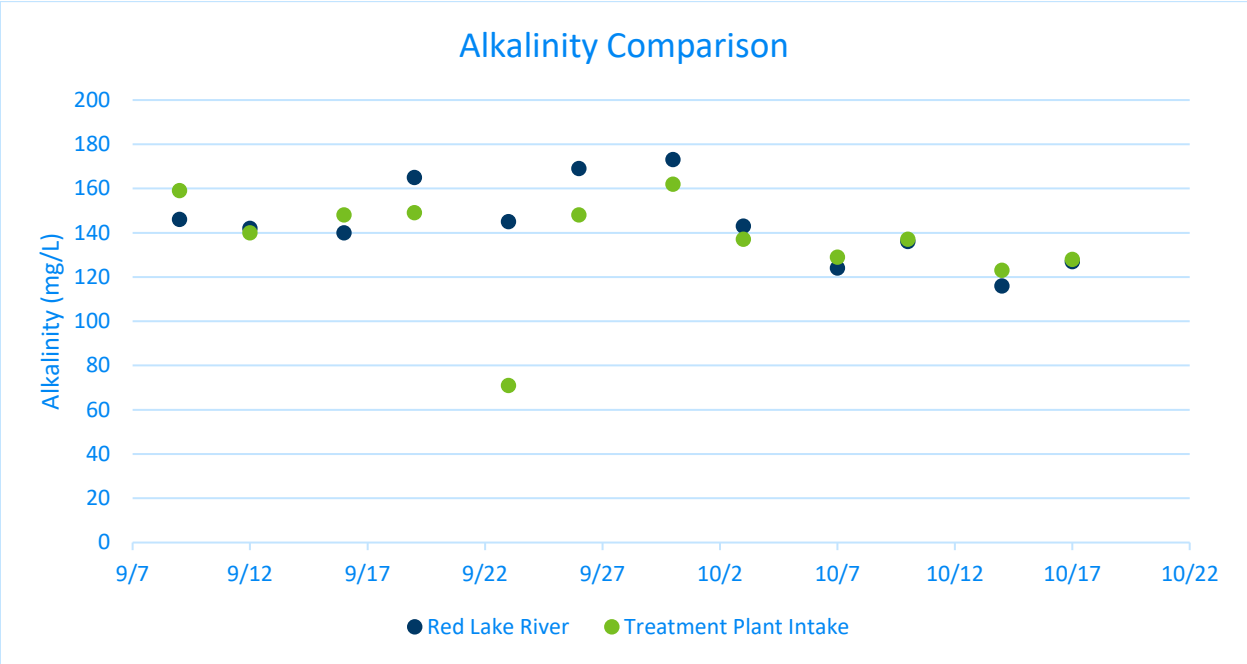

Figure 11: Alkalinity comparison

Chloride

Chloride analyses can be valuable for assessing the degree of human impact on water. Figure 14 shows the results of chloride analyses. . The treatment plant intake and Red Lake River sampling locations had similar chloride levels throughout the study.

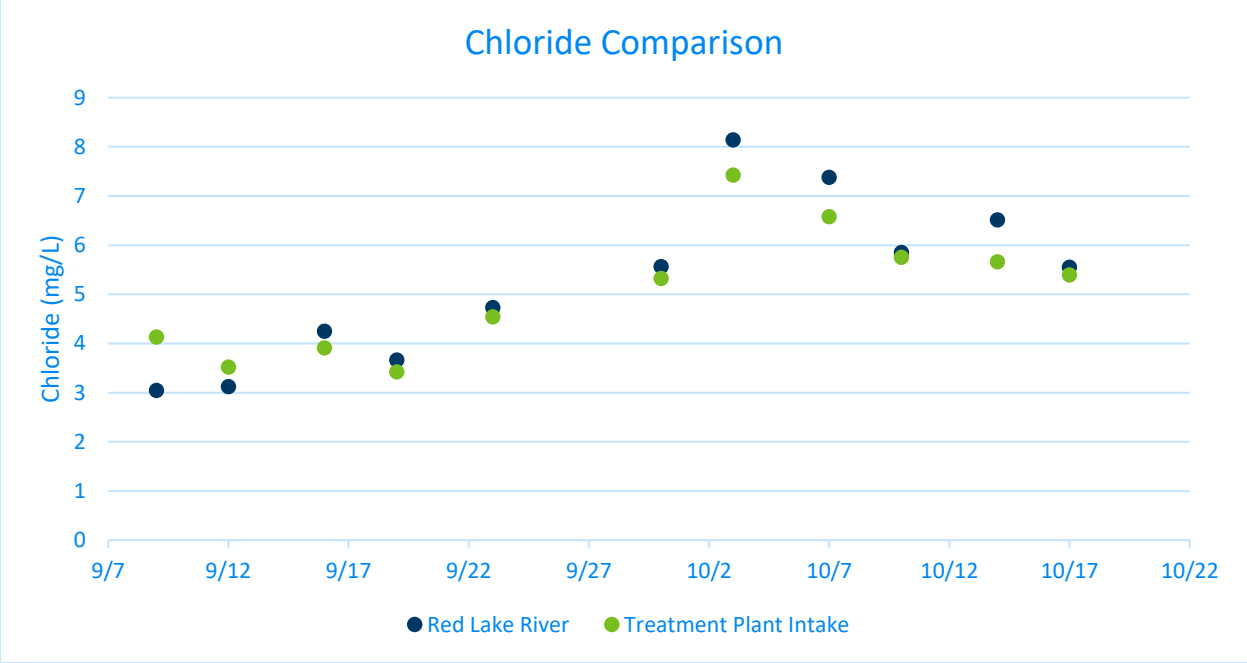

Figure 12: Chloride comparison

Hardness

Calcium and magnesium are the main components of hardness in water. Figure 15 shows the results of hardness analyses. . The treatment plant intake and Red Lake River sampling locations had similar hardness levels throughout the study, although the treatment plant intake had higher levels from late September until the end of the study.

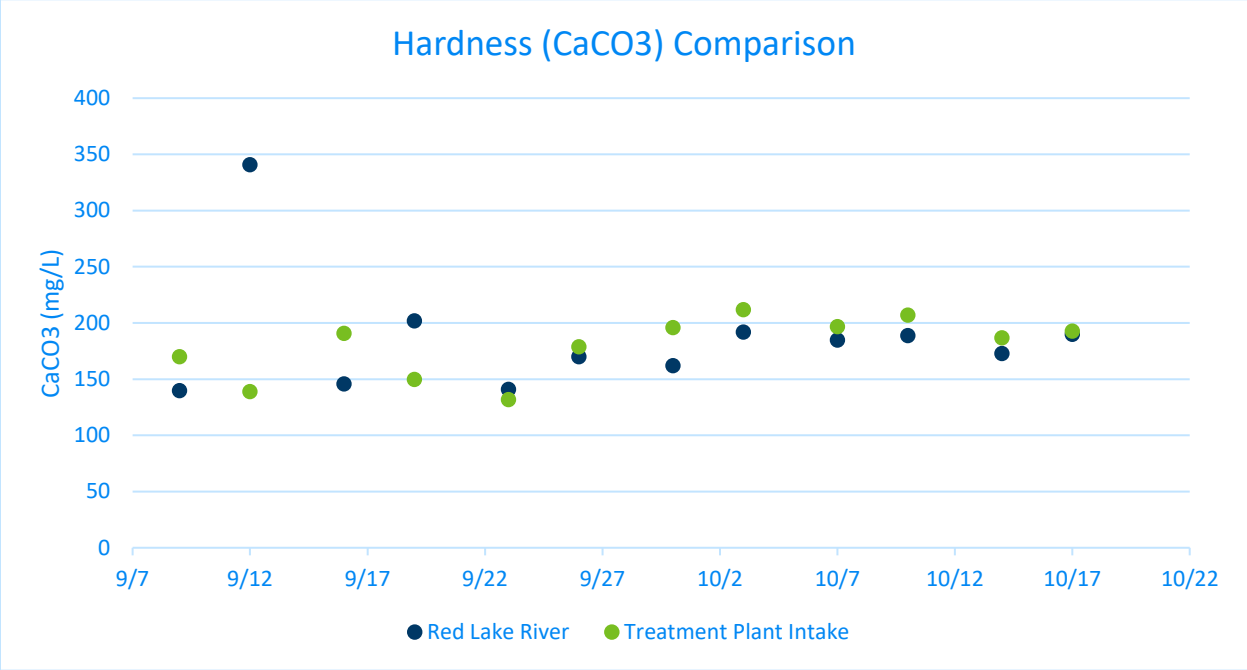

Figure 13: Hardness comparison

Total Suspended Solids

Figure 16 shows the results of total suspended solids (TSS) analyses. The treatment plant intake had higher levels of TSS for the majority of the sampling study.

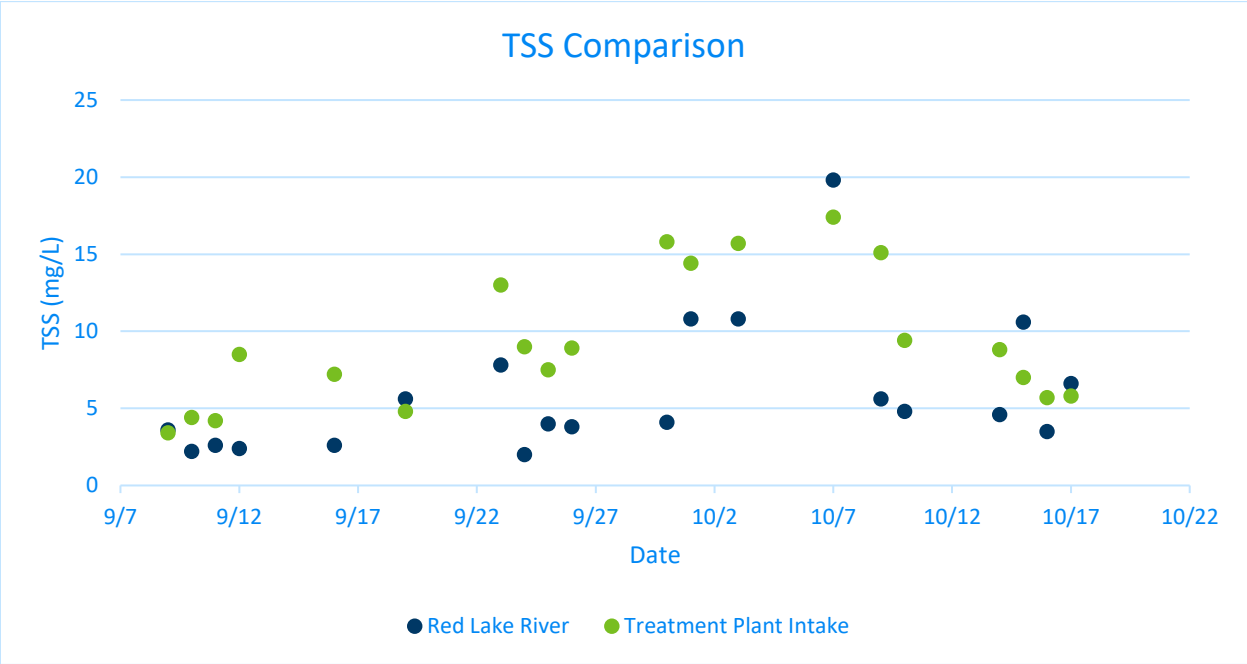

Figure 14: TSS comparison

Sulfate

Figure 17 shows the results of sulfate analyses. The treatment plant intake had higher levels of sulfate for the majority of the sampling study.

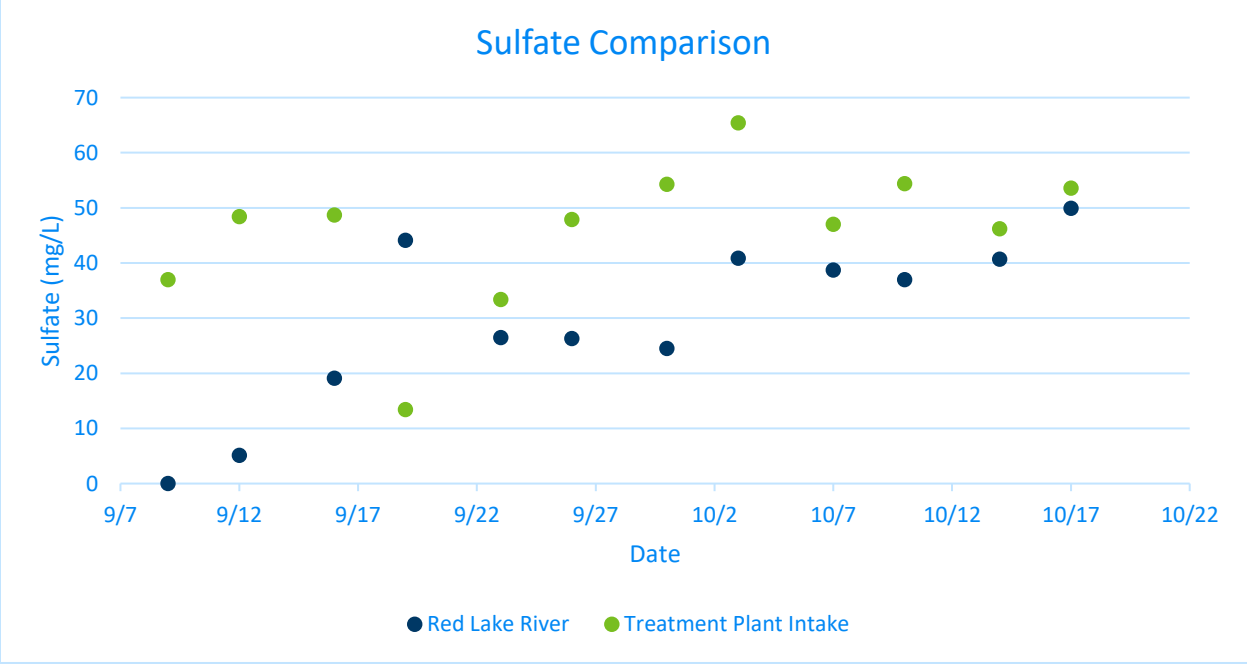

Figure 15: Sulfate comparison

Turbidity

Figure 18 shows the results of turbidity analyses. The treatment plant intake had higher levels of turbidity for the majority of the sampling study. Turbidity in water is a measurement of how

dirty or cloudy the water is and is a vital indicator of water quality. High turbidity can increase costs of treating water and is directly related to TSS. Varying levels of turbidity can give processes in treatment plants issues as well.

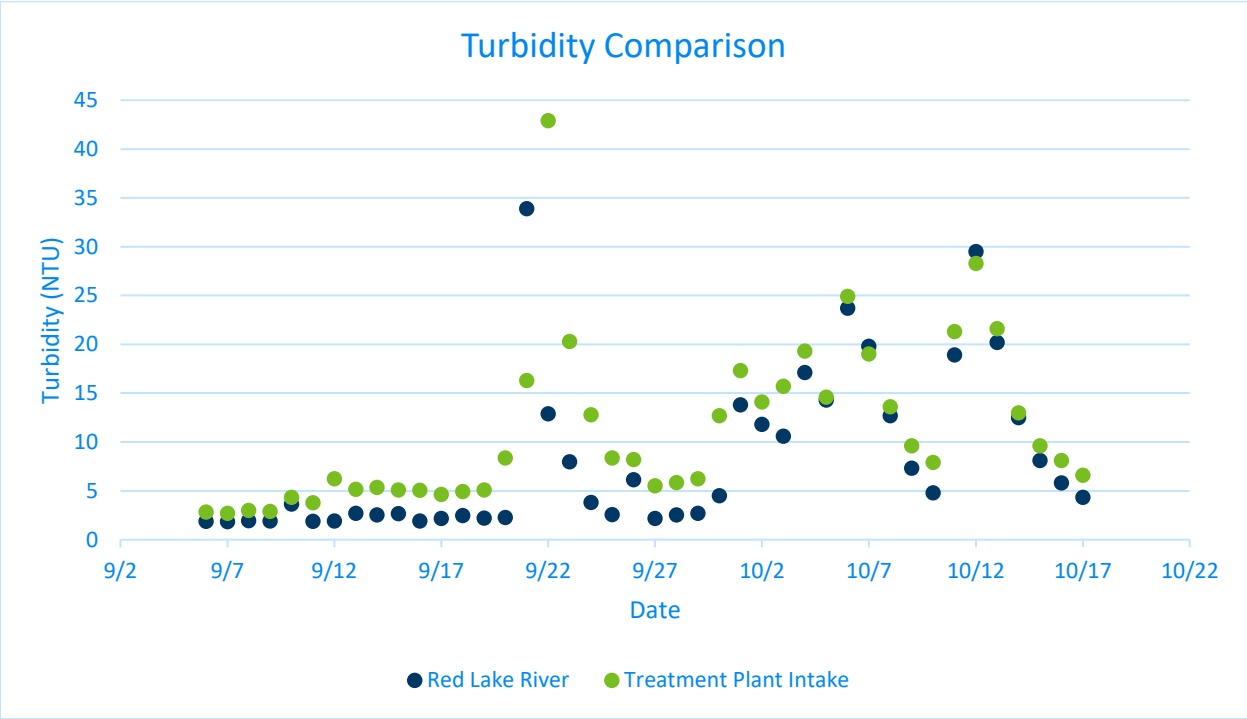

Figure 16: Turbidity comparison

Summary

This report presents the results of a cooperative project between the MDH and the Thief River Falls PWS to conduct a surveillance of the PWS's source water during times of influence from upstream wildlife management activities. Investigators collected numerous grab samples between September 6 and October 17, 2019. Several flow regimes occurred during the project: three days of baseline flow (confluent flow was approximately 30 percent Thief River water); 11 days of ANWR drawdown flushing (confluent flow was between 50 and 75 percent Thief River water); 27 days including and following a major precipitation event (confluent flow varied between 75 and 85 percent Thief River water). Although flow regimes may have an impact on the quality of water at the treatment plant intake, the siting of the intake within a dam pool may dampen some water quality changes.

Several chemical parameters were observed to be higher than baseline conditions during the period between the drawdown and precipitation events: sulfate, organic carbon (measured as TOC and DOC), the ultraviolet absorbance of organic compounds (measured as UVA and SUVA), and particulate matter (measured as turbidity and TSS). Differences in these parameters between the two sampling locations were not consistent after the larger precipitation events in late September and early October. Moreover, alkalinity, chloride, and hardness concentrations showed little difference between PWS intake and Red Lake River throughout the study.

In addition, this study included microbiological sampling. Results of these analyses showed consistently higher *E. coli* concentrations at the PWS intake than in the Red Lake River during

baseline and drawdown conditions. However, levels observed after the precipitation event dwarfed those found during the previous weeks. Finally, limited *Giardia and Cryptosporidium* sampling yielded mixed observations: all four Red Lake River samples contained *Giardia* compared to only one of four PWS intake samples; one sample from each location contained *Cryptosporidium*, but the measured concentration at the PWS intake was higher than at the Red Lake River site.

Surveillance results showed that the treatment plant intake location had higher levels of organics (dissolved and total), particulate matter (in the form of turbidity and total suspended solids), and sulfate than the Red Lake River monitoring location when the ANWR was conducting flushing but before significant rainfall occurred. Precipitation events, primarily following 12 ANWR flushing days, contributed to water quality changes during the latter half of this study. Moreover, the hydraulics of the treatment plant intake location (within a dam pool) and Red Lake River monitoring site may have attenuated rapid water quality changes that may have occurred upstream.

The project sampling protocol yielded higher observed levels of most chosen parameters at both sample locations following precipitation events. These results, while not useful for identifying drawdown effects, offer ideas for consideration during future flood resiliency-planning efforts. Further surveillance monitoring, including high-frequency probe measurements, may provide better observations at the chosen monitoring locations.

Citations

Minnesota Department of Health, 2020. Fall 2019 Thief River Ambient Water Chemistry Monitoring Study. 9 pp.

Minnesota Pollution Control Agency, 2014. Thief River Watershed Monitoring and Assessment Report. https://www.pca.state.mn.us/sites/default/files/wq-ws3-09020304b.pdf

Minnesota Pollution Control Agency. Minnesota Statewide Altered Watercourse Project https://www.pca.state.mn.us/water/minnesota-statewide-altered-watercourse-project. Accessed January 17, 2020.

Fall 2019 Thief River Ambient Water Chemistry Monitoring Study

January 22, 2020

Fall 2019 Thief River Ambient Water Chemistry Monitoring Study

Minnesota Department of Health
Drinking Water Protection – Source Water Protection
PO Box 64975
St. Paul, MN 55164-0975
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To obtain this information in a different format, call: 651-201-4700.

Contents

Brief History of the Issue

The city of Thief River Falls obtains its drinking water from a surface water intake on the Red Lake River downstream from the Red Lake River's confluence with the Thief River. These two watersheds have been heavily altered by ditching to facilitate agricultural land uses, with most of the 624,422 acre Thief River watershed drained by altered water courses. According to the Minnesota Pollution Control Agency's (MPCA) Altered Water Course Project, 95.8% of the stream miles within the watershed are considered altered (MPCA, 2020). These alterations have drained and improved lands throughout the western half of the watershed for agriculture, although 49% of the watershed area is currently occupied by wetland complexes (MPCA, 2014). Additionally, the U.S. Fish and Wildlife Service operates the Agassiz National Wildlife Refuge (hereafter referred to as Agassiz NWR) approximately 24 miles upstream from the Red Lake River confluence along the Thief River, and manages the 61,500 acres within Agassiz NWR for wildlife management.

Historically, erosion in the upland portions of the Thief River watershed have contributed sediment to the Agassiz NWR. A 2015 report by the Minnesota Department of Natural Resources (DNR) indicated that very few of the waterways within the watershed are stable, and that channelization, higher frequencies of high discharge events, and lack of riparian buffers all contribute to the problem (DNR, 2015). Buildup of sediments in the Agassiz Pool has required periodic dredging, flushing, and scouring of those sediments from the pool to maintain a viable ecosystem for the vulnerable species found at Agassiz NWR. These sediment flushes contribute to water quality concerns for the city, as outlined in the Thief River Watershed Monitoring and Assessment and Total Maximum Daily Load reports published by the MPCA (2019). The 2012 Impaired Waters List included the Thief River from the Agassiz Pool to the Red Lake River due to turbidity for aquatic life uses, however high turbidity flows have also contributed to Safe Drinking Water Act violations for turbidity at Thief River Falls' intake. Frequently the high-turbidity flows coincide with increased reporting of taste and odor complaints for the city. These high turbidity flows typically accompany Agassiz NWR drawdowns from the Agassiz Pool and have led the city to consider moving their primary water intake to an upstream reach along the Red Lake River, which has not historically had high turbidity flow events as large as the Thief River. Movement of the intake infrastructure remains a financial obstacle for the city at this time.

Study Description

The purpose of this study was to monitor an Agassiz NWR release event to determine the conditions that cause the most source-water quality problems for the city.

To evaluate this issue, physical, chemical, and biological monitoring was conducted at several points in the watershed. The Minnesota Department of Health (MDH) collaborated with the city of Thief River Falls and the Red Lake Watershed District (RLWD) to collect high-frequency water quality measurements upstream from the public water system (PWS) intake. MDH provided the RLWD a Hydrolab HL4 multiparameter water quality sonde for deployment in the Thief River to collect high frequency data along the reach downstream from the Agassiz Pool. The MDH also facilitated daily grab sample collection at the PWS intake and along the Red Lake

River near the city's proposed new intake location. The grab sample study is covered in a separate document (MDH, 2020).

Stream water level and discharge data were collected from a stream gage located along the Thief River downstream from the Agassiz NWR. The USGS stream gage (USGS 05076000) is located approximately 16 miles downstream from the gates opened by Agassiz NWR staff for drainage of the Agassiz Pool, and approximately 8 miles upstream from the Red Lake River confluence. The Hydrolab sonde was deployed approximately one quarter-mile downstream from the stream gage. Figure 1 shows a map of the Thief River watershed, with locations of both gages and the sonde deployment site indicated.

The Hydrolab HL4 sonde was deployed downstream from the USGS gage on the Thief River (gage number 05076000) one week prior to the scheduled Agassiz NWR autumn drawdown. Logging began on September 3, 2019. The sonde was set up to measure water temperature, pH, specific conductivity, dissolved oxygen, and turbidity. MDH and RLWD staff calibrated all parameters prior to deployment. Measurements were programmed to occur every half hour.

The Hydrolab collected data until 4:30 pm on September 18, when it was extracted for cleaning, calibrating, and data downloading. The sonde was redeployed on the afternoon of September 19 and the first measurement from this second deployment occurred at 3:00 pm. The sonde ceased functioning at 5:00 am on September 20, 2019, likely due to a malfunctioning battery or sonde battery contact corrosion. The sonde was not recovered until November 25 due to high water and safety concerns at the deployment site.

Monitoring of precipitation and stream discharge was critical for this project. Precipitation data was collected from the National Weather Service (NWS) gage located within the Agassiz NWR. This gage was chosen because of its close proximity to the release gates, with the assumption that any precipitation patterns observed there would be more representative of the conditions affecting the greater Thief River watershed.

Event Description and Data Collected

Communications with the Agassiz NWR indicated that the release began at approximately 3:15 pm on September 9 (Graham, 2019) and the approximate discharge at the gate after opening was 300 cubic feet per second. The Agassiz NWR opened a second gate on the afternoon of September 10 to about 300 cubic feet per second, and opened both gates further on the afternoon of September 11 (Graham, 2019). The gates were intentionally left open through freeze up, and as of this document's publication the all gates are still open due to icing (Graham, 2020).

Figure 2 shows hourly rainfall at the NWS gage and discharge data from the USGS streamflow gage during the time period that the Hydrolab sonde was collecting data. The date range shown in the figure correlates with the time that the Hydrolab was functioning. The first of the three discharge increases roughly coincided with an increase in flow at the USGS gage site that occurred late on September 9, at between 10:00 and 11:00 pm, as shown in Figure 2. An approximate time of travel of just over 7 ± 1 hour was calculated from the Agassiz Pool to the USGS gage based on the gate opening time cited by Agassiz NWR representatives. The exact beginning of the discharge increase was somewhat obscured by a period of rainfall, totaling just over an inch, that occurred between 2:00 pm on September 9 and 2:00 am on September 10.

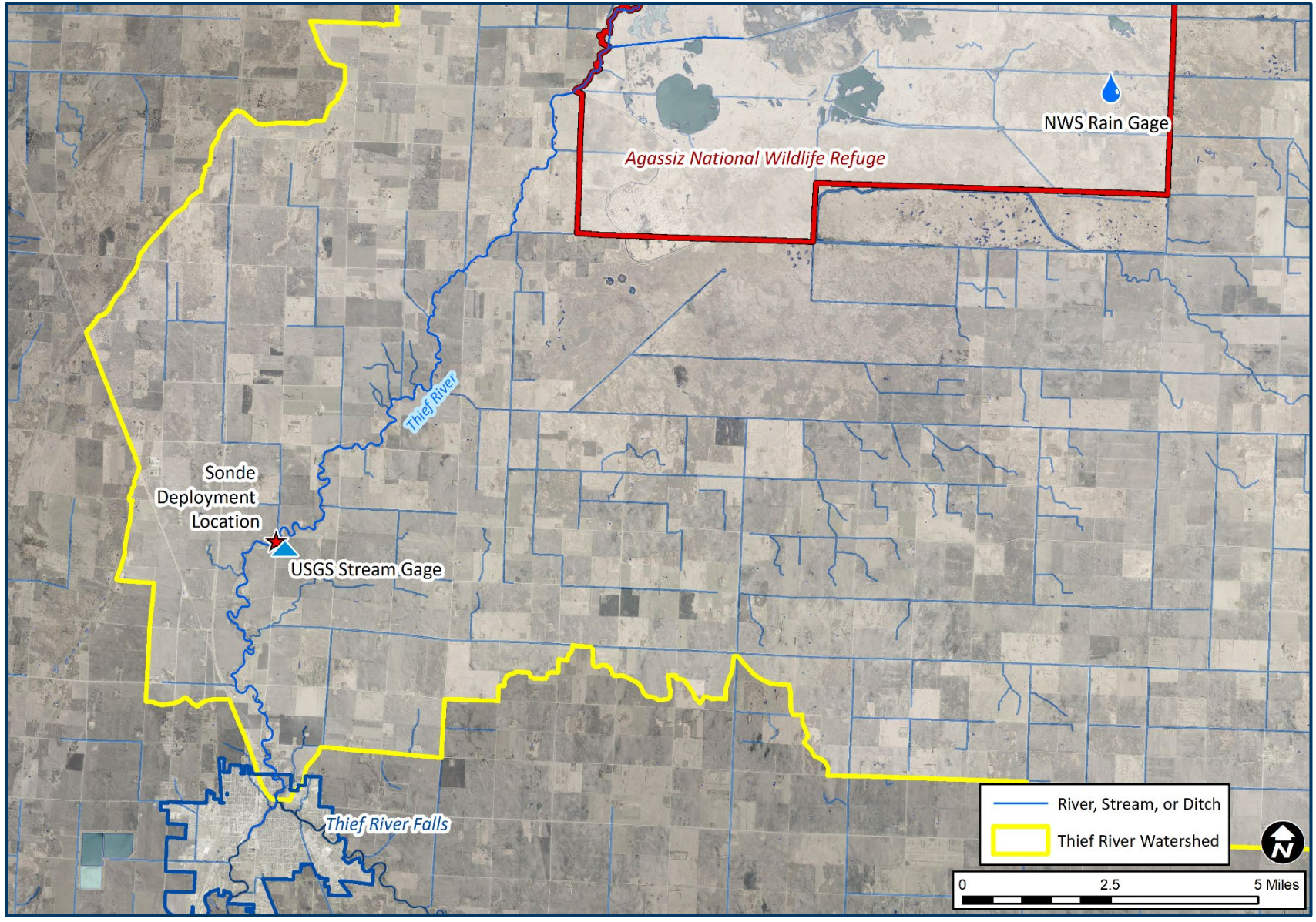

Figure 1 – Locations of the gages and sonde within the Thief River watershed.

Discharge began to slowly decrease from September 12 through 18, then decreased at a much higher rate from September 18 through 20. Only one other rainfall event occurred during the time that the Hydrolab was in operation. On September 12 and 13 about 0.58 inch of rain fell, resulting in a small increase in discharge on the Thief River. The Hydrolab ceased monitoring about 7 hours before the beginning of the next rainfall event on September 21 and 22, when 5.13 inches fell, with some hourly totals exceeding one inch per hour.

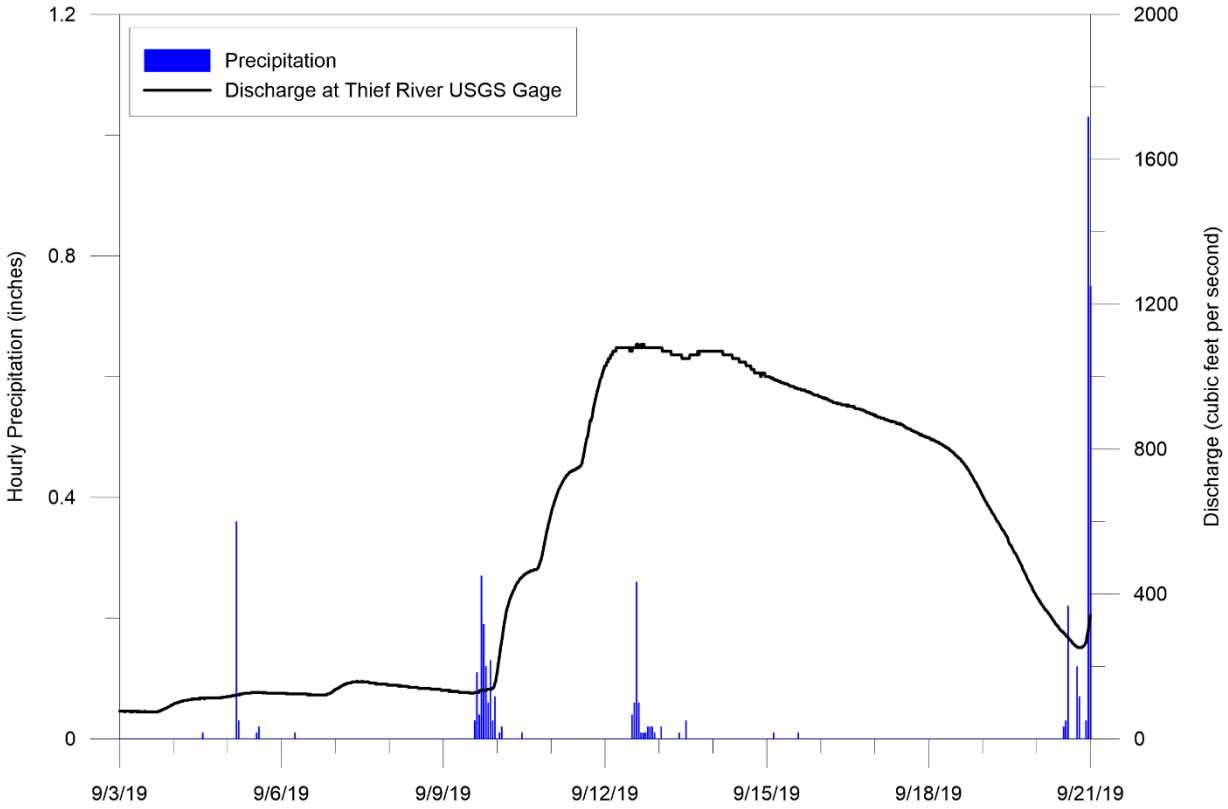

Figure 2 – Hourly precipitation and Thief River discharge through the Hydrolab data collection period.

Water temperature measurements are shown below (Figure 3). Water temperature trends until the release event are most likely influenced by ambient air temperatures and daily sun exposure. During the three days that the gates were being opened and manipulated the temperature stayed relatively steady before dropping. As discharge at the USGS gage steadily dropped from September 15-18 the water temperature increased from 12.47 degrees to 21.77 degrees Celsius (°C). Temperature then decreased, with the second deployment data continuing the downward trend until the Hydrolab shut down.

pH measurements are shown in Figure 4. The most prevalent trend in the data is the daily cycling of pH, which is likely due to photosynthesis in the water column and adjacent vegetation. Pre-release, the cycles were of similar range, about 0.3 pH units, except when rainfall occurred on September 5, when the increase was reduced to about 0.1 pH unit increase during daylight hours. Rainfall on September 9 also reduced the amount of pH change. After the gate was opened, the cycling magnitudes were consistently less than 0.1 pH unit through September 15. From the 16th through the 18th, the cycling magnitude became progressively larger, with an increase of 0.36 pH units observed on the 18th. The second deployment was not able to capture a full pH cycle before powering down.

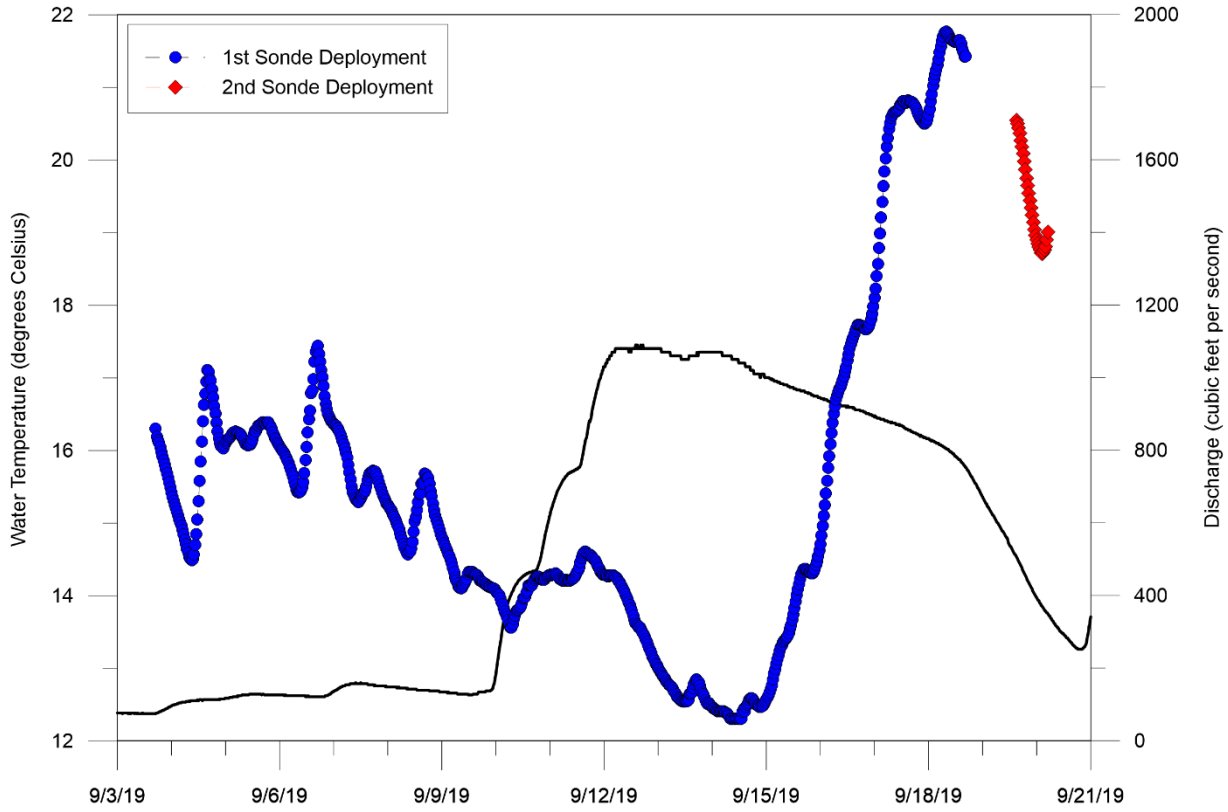

Figure 3 – Discharge and Hydrolab-measured water temperature during the data collection period.

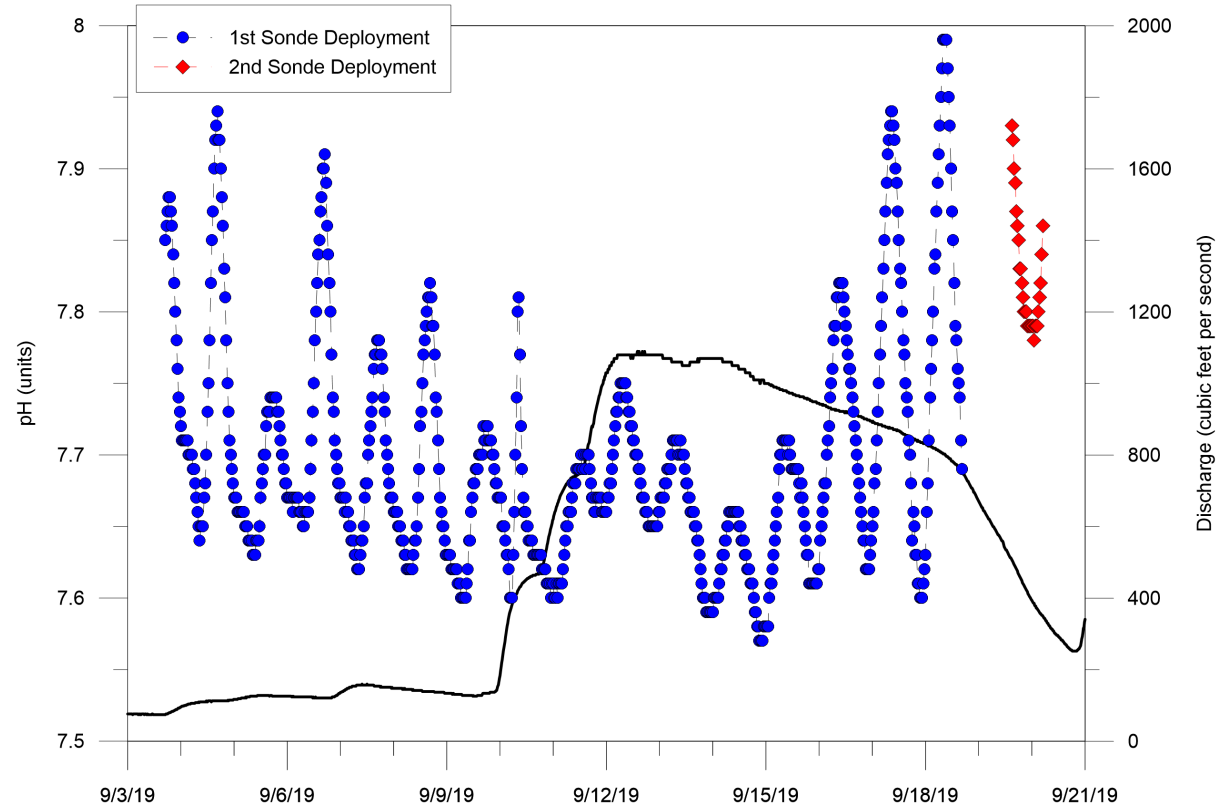

Figure 4 – Discharge and Hydrolab-measured pH during the data collection period.

Dissolved oxygen measurements are shown in Figure 5 and they also show daily cycling trends. Water column photosynthesis is the main source for dissolved oxygen presence in the water column. Under normal conditions, photosynthesis adds oxygen to the water column during daylight hours when sunlight is plentiful, then the dissolved oxygen concentration falls during the night as organisms continue to take in oxygen for respiration. This phenomenon is seen in data from the beginning of the deployment period through September 9. The cycles changed when the gates were opened, however, as the highest concentration each day during the early release period occurred in the early morning, rather than late afternoon.

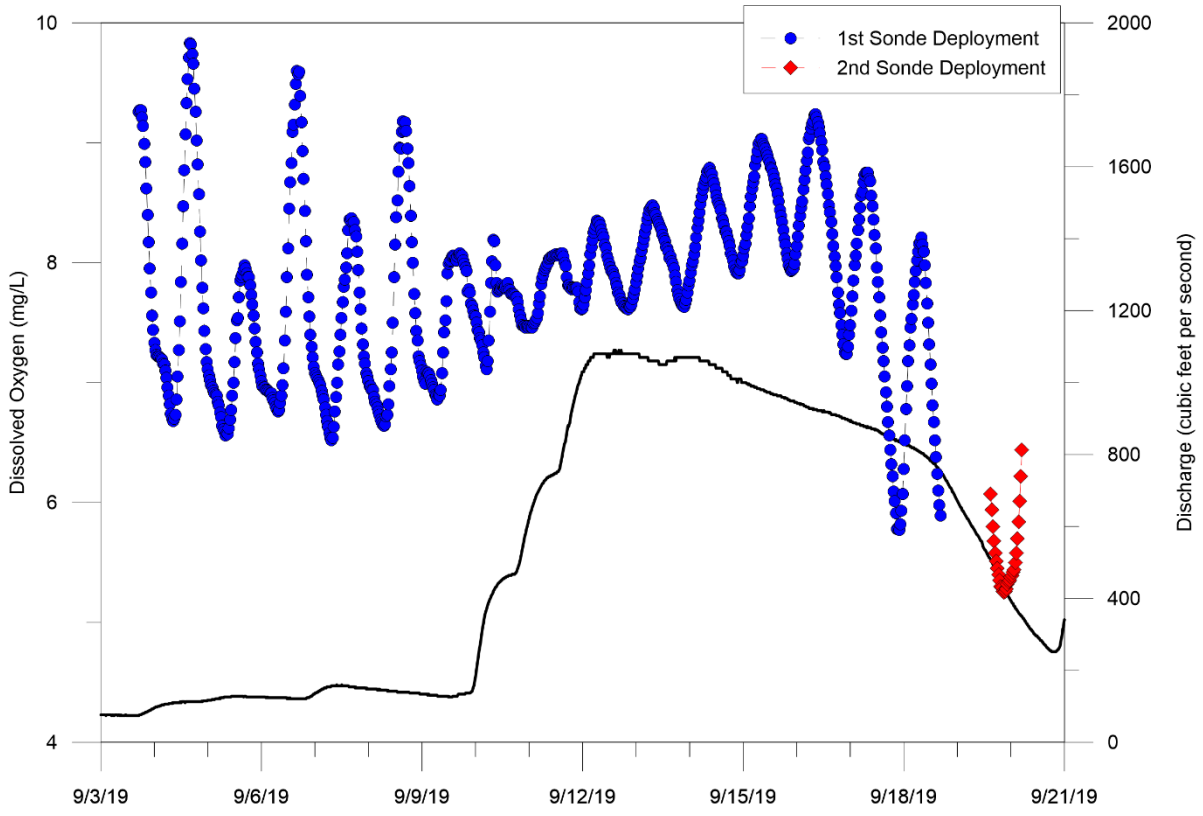

Figure 5 – Discharge and Hydrolab-measured dissolved oxygen during the data collection period.

The magnitude of the dissolved oxygen cycles also changed with the opening of the gates at Agassiz NWR. Before the release, oxygen levels oscillated over a 3 mg/L range, with rainfall events reducing the measured range. As the release began, dissolved oxygen oscillations reduced to less than 1 mg/L per day for several days, and minimum and maximum daily values steadily increased until the 16th, when concentrations began decreasing steadily. Near the end of the Hydrolab dataset, dissolved oxygen concentration dropped to 5.25 mg/L. It is important to note that this value encroached upon the established Class 2 aquatic life use standard of 5 mg/L that is applicable to this reach of the Thief River (MPCA, 2019).

Specific conductivity measurements are shown in Figure 6. Prior to the 9th, some changes in conductivity did occur but they did not show any obvious diurnal cycling. On the 9th, some rainfall dilution occurred, as the conductivity dropped from 0.507 mS/cm to about 0.485 mS/cm. Then, at 5:30 am on September 10, the conductivity dropped from 0.485 to 0.435 mS/cm in three hours. This sudden drop in conductivity was not obviously related to the

rainfall or gate opening, but may have been due to a combination of both events, as it lagged behind the marked increase in discharge at the USGS gage by about 6 hours.

Specific conductivity decreased more slowly from the 10th through the 13th before steadily increasing through the rest of the first deployment. The second deployment did not follow along the same trend observed in the first, complicating any cohesive story for this parameter.

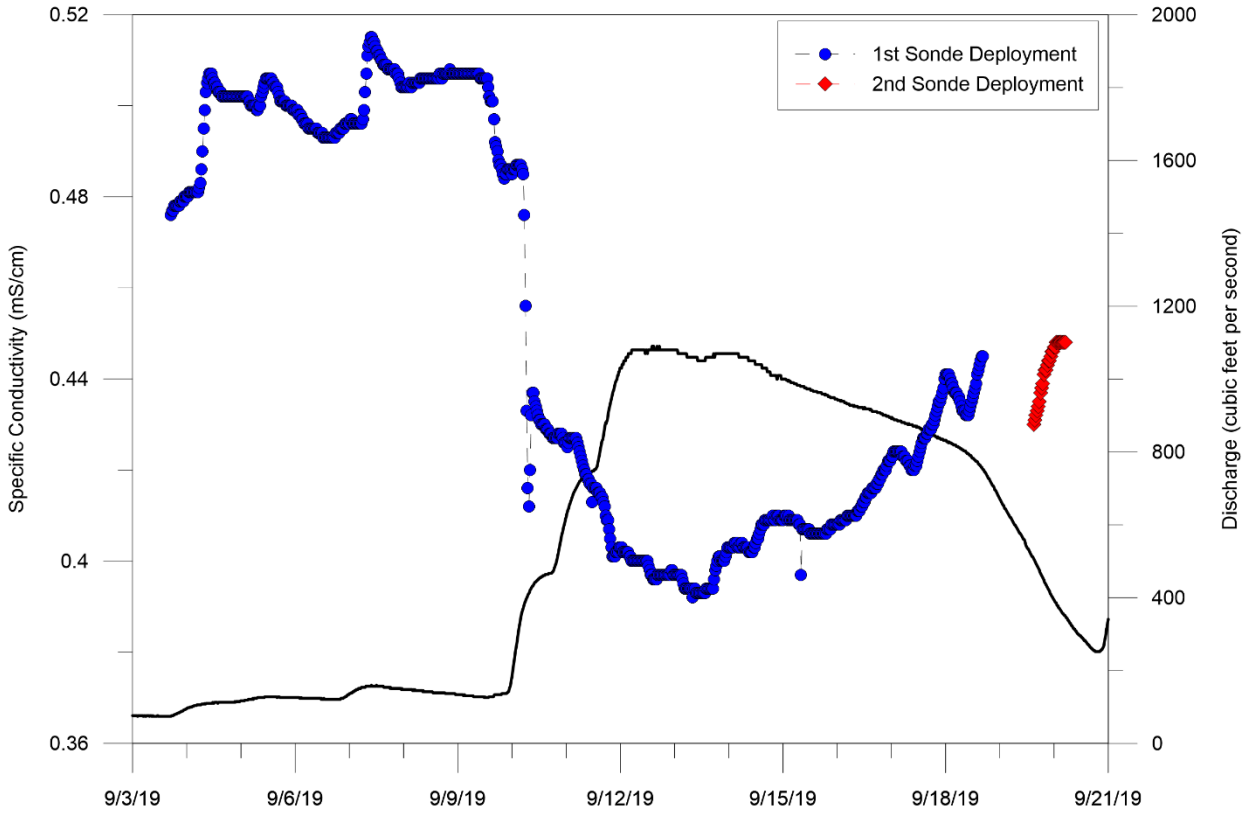

Figure 6 – Discharge and Hydrolab-measured specific conductivity during the data collection period.

Turbidity measurements are shown in Figure 7. Prior to the release, any changes in turbidity were small and not linked to any known precipitation or discharge events. Beginning at approximately 4:00 pm on September 9th, turbidity began to rise slightly, trending upward until around 11:00 pm, when turbidity increased dramatically. The first upward deflection was most likely due to rainfall that had been occurring for a couple of hours by that time. The dramatic deflection roughly coincided with the first slug of water moving downstream from the gate opening at Agassiz NWR.

After the 10th of September turbidity values varied widely, with some outliers evident in the data. These outliers likely reflect sediment pulses moving downstream, and were simply the result of flood-related erosion likely occurring upstream from the sonde and gage. There is some evidence that turbidity was beginning to increase again on the 18th when the sonde was pulled from the stream for cleaning, and the data from the second deployment appeared to corroborate that scenario, although the difference between the end of the first dataset and beginning of the second dataset is too great to interpolate between the two.

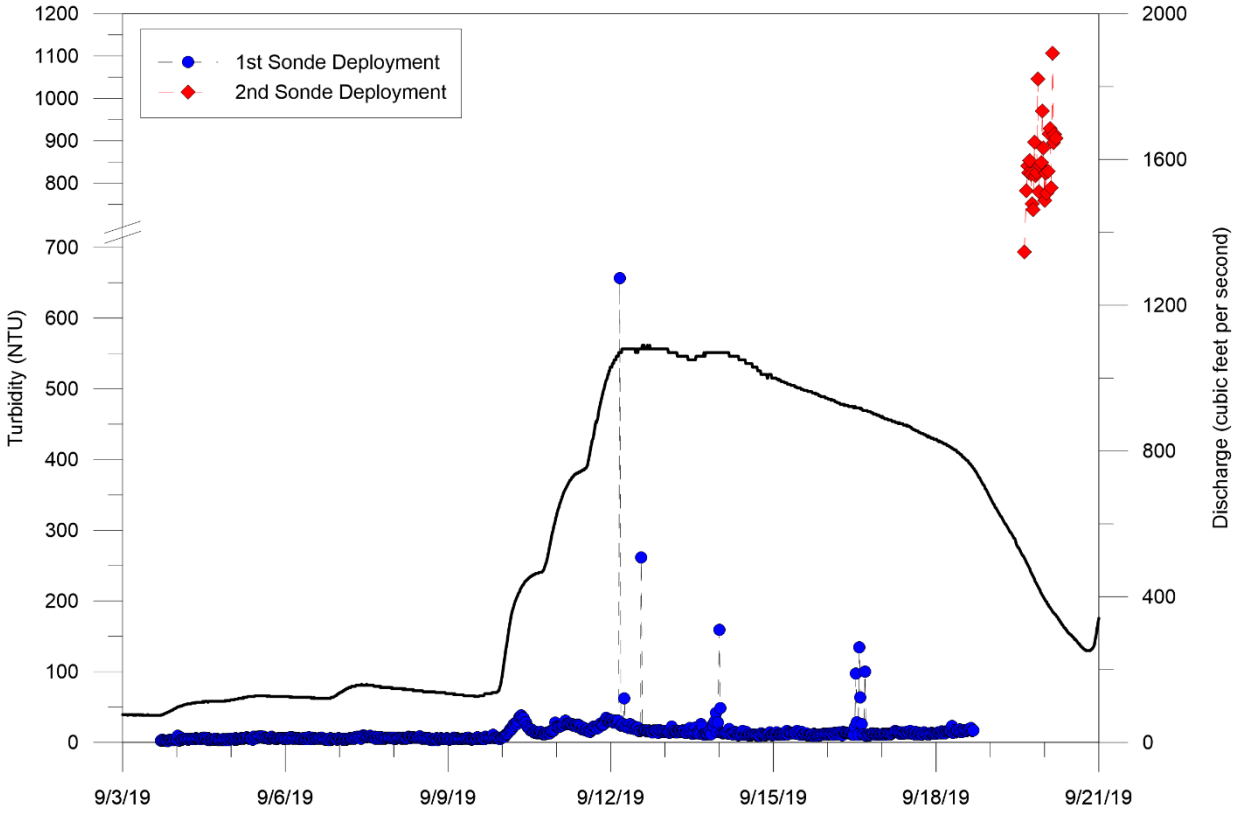

Figure 7 – Discharge and Hydrolab-measured turbidity during the data collection period.

Conclusions

Although the Hydrolab ceased functioning before the end of the Agassiz NWR autumn 2019 drawdown, the resulting dataset indicated geochemical effects resulting from the release. Daily cycles were disrupted for pH and dissolved oxygen, while specific conductivity decreased overall. Turbidity increased in value with the gate openings and several pulses of high turbidity water were noted during the early release event. Unfortunately, the dataset ended prematurely, preventing characterization of the release during and after the flood-producing rainfall events that occurred on September 21st and 22nd. If the Hydrolab had continued to function after the 20th of September it is possible that more of these turbid pulses would have been detected as watershed flooding became more severe, and turbidity—and some of the other parameters—could have shown further trends as erosion and scouring continued upstream.

Overall these data would seem to support the need for high-frequency monitoring during future release events. New plans to study releases in 2020 are being developed and hopefully will include multi-parameter sondes for high-frequency data gathering at several key points along the Thief and Red Lake Rivers.

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Red Lake Watershed District

Permit # **19-213**

Status Report: **Approved**

Applicant Information

Name	Organization	Address	Email	Phone Number(s)
Roger Hagen		**13929 State Hwy 220 SW** **East Grand Forks, MN 56721**		tel:**218-779-2248** mobile: fax:

General Information

(1) The proposed project is a:

Tiling

(2) Legal Description

(3) County: **Polk** Township: **Sullivan** Range: **49** Section: **19** 1/4: **SW1/4**

(4) Describe in detail the work to be performed. **Install pattern tile with lift station pump.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Increased agricultural production.**

Status

Status	Notes	Date
Received		**Dec. 9, 2019**

Conditions

The Red Lake Watershed District (RLWD) approves the pattern tile project with a 'Lift Pump' outlet. If any work is within a public road and/or public ditch Right-of-Way, applicant shall contact the appropriate road/ditch authority for their approval and must meet their specs/conditions. Directly downstream of the tile and/or pump station(s) outlets, applicant shall ensure that adequate grade and drainage is provided. ■ Note: Please be aware of and review the 'bullet points' on the bottom half of the application. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166) N.J.O.

REVISION - The Red Lake Watershed District (RLWD) approves the pattern tile project and lift station, as per revised plan received on 1-27-2020, to have the lift station location on the southeast side of parcel, and not on the northwest. If any work is within a public road and/or public ditch Right-of-Way, applicant shall contact the appropriate road/ditch authority for their approval and must meet their specs/conditions. Directly downstream of the tile and/or pump station(s) outlets, applicant shall ensure that adequate grade and drainage is provided. ■ Note: Please be aware of, and review the 'bullet points' on the bottom half of the application. Applicant is responsible for utility locates by calling Gopher 1. (1-800-252-1166) N.J.O.

NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.

Roger Hagen

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Red Lake Watershed District

Permit # **18-025**

Status Report: **Approved**

Applicant Information

Name	Organization	Address	Email	Phone Number(s)
	Enbridge Energy Limited Partnership	**26 East Superior Street, Suite 309 Duluth, MN 55802**		tel:**715-919-6789** mobile: fax:

General Information

(1) The proposed project is a:

Culvert Installation / Removal / Modification

(2) Legal Description

(3) County: Township: Range: **None** Section: **None** 1/4:

(4) Describe in detail the work to be performed. **Install and remove temporary driveway installations and heavy equipment crossings for access to pipeline right of way for construction of Line 3 replacement pipeline project.**

(5) Why is this work necessary? Explain water related issue/problem being solved. **Construction needs temporary driveway installations and heavy equipment crossings for access to work sites.**

Status

Status	Notes	Date
Received		**May 10, 2018**

Conditions

RLWD approves the extension request, extension is one additional year from previous extension. P.A. #18025 now expires June 14, 2021. The initial comments still apply and shall be followed.

RLWD approves the extension request, extension is one additional year. P.A. #18025 now expires June 14, 2020. The initial comments still apply and shall be followed.

P.A. #18025 – Enbridge Pipeline – Temp. access entrances The Red Lake Watershed District (RLWD) Board of Managers discussed your permit application at their June 14, 2018 board meeting. The permit application was approved with the following conditions: ■ The affected railroad, road and/or ditch authority must also grant approval – as proposed work will be within designated Right-of-Way ■ Based on drainage area and flows, at some locations it may be necessary to install more than one line of pipe culverts ■ As stated on the permit application; "Each crossing will have a culvert able to maintain hydraulic capacity of each road ditch" – this shall also pertain to all other temporary crossings (for example only; legal drainage systems, rivers, streams, natural drains, etc.) ■ Proposed installations shall not cause any adverse impacts under normal conditions, – if emergency conditions arise, applicant shall have equipment available to remove the entrance in a timely manner ■ After work is completed, all temporary entrances shall be removed and all disturbed areas restored to preconstruction conditions.

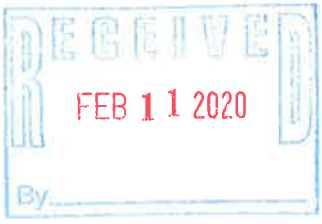
NOTE: This permit does not relieve the applicant of any requirements for other permits which may be necessary from Township, County, State, or Federal Government Agencies.

Tammy Audette

From: Greg Olson <Greg.Olson2@Enbridge.com>
Sent: Tuesday, February 11, 2020 3:13 PM
To: Tammy Audette
Subject: Permit expiration date extension request - Enbridge

Tammy,
Thank you for taking the time yesterday to hear my request for the crossing permit extension. Currently the permit expires on June 14, 2020 and we would like to extend for 2 additional years. If 2 years extension not possible a 1 year extension would be adequate. I believe all the crossings will be under the current permit number #18025.
Please let me know when the extension has been passed and I can stop by and pickup the extension paperwork. Or you can email to me if you would prefer. Any questions please give me a call.

Thanks,
Greg Olson
Enbridge Energy
Right of Way - Major Projects
701 739 6252



Enbridge Energy, Limited Partnership
26 E Superior Street Suite 309
Duluth, MN 55802

Date: 6-18-2018

Red Lake Watershed District
1000 Pennington Avenue South
Thief River Falls, MN 56701

Re: Permit expiration date extension request

Dear Leon Sanderson, Engineering Assistant

The Line 3 Replacement Project Construction will most likely proceed past the 1-year permit duration of our Red Lake Watershed Permit, June 14, 2019.
I would like to request an additional one year for a total permit duration of two years for this permit.
A two-year permit duration would allow us time for construction of the new Line 3 Pipeline. It may not be enough time for the Line 3 Decommission work of the old pipeline to follow so I will ask for additional year at that time if needed.

If you agree with this extension, please sign below.

Sign: Myron Jean

Date: 7-16-18

Thank you for your time in advance.

Patrick Dechant

Patrick Dechant
CWR Permit Agent
Shared Land Services
(US Projects)
303-570-6636
patrick.dechant@enbridge.com

18025

RED LAKE WATERSHED DISTRICT PERMIT NUMBER **18025**

In the matter of the application of: **Enbridge Energy Limited Partnership, 26 East Superior Street, Suite 309, Duluth, MN 55802**

Pursuant to Minnesota Statutes Chapter 103D, the Permit and Drainage Rules of the Red Lake Watershed District, and on the basis of the statement and information contained in the permit application submitted by applicant, including all letters, maps, and other supporting data furnished by applicant, all of which are made a part hereof by reference, permission is hereby granted to **Enbridge Energy Limited Partnership** address for the purposes of notice and other communications pertaining to this permit is **26 East Superior Street, Suite 309, Duluth, MN 55802** the purpose of doing the work applied for with the following exceptions, changes, and/or special conditions:

The Red Lake Watershed District (RLWD) Board of Managers discussed your permit application at their June 14, 2018 board meeting. The permit application was approved with the following conditions:

- **The affected railroad, road and/or ditch authority must also grant approval – as proposed work will be within designated Right-of-Way**
- **Based on drainage area and flows, at some locations it may be necessary to install more than one line of pipe culverts**
- **As stated on the permit application; "Each crossing will have a culvert able to maintain hydraulic capacity of each road ditch" – this shall also pertain to all other temporary crossings (for example only; legal drainage systems, rivers, streams, natural drains, etc.)**
- **Proposed installations shall not cause any adverse impacts under normal conditions, – if emergency conditions arise, applicant shall have equipment available to remove the entrance in a timely manner**
- **After work is completed, all temporary entrances shall be removed and all disturbed areas restored to preconstruction conditions.**

This permit is granted subject to the following provisions:

1) This permit is permissive only and shall not release the permittee from any liability or obligation imposed by Minnesota Statutes, Federal Law or Local Ordinances and shall be subject to all conditions and limitations now or hereafter imposed by law. The Red Lake Watershed District makes no representations to the applicant in granting the permit that the proposed work complies or does not comply with the existing law. No liability shall be imposed upon or incurred by the District or any of its officers, agents or employees, officially or personally, on account of the granting of this permit, or on account of any damage to any person or property resulting from any act or omission of the permittee or any of its agents, employees or contractors relating to any matter hereunder. This permit shall not be construed as estopping or limiting any legal claim or right of action of the District against the permittee, its agents, employees, or contractors for violation of or failure to comply with the provisions of the permit or applicable provisions of law.

2) Work authorized under this permit shall be completed by **June 27, 2019**, unless extended by the District.

3) The permittee shall grant access to the site at all reasonable times during and after construction to authorized representatives of the District for inspection of the work authorized by this permit.

4) This permit may be terminated by the District without notice at any time deemed necessary for the management of the water resources of the District, or in the interest of the public health and welfare, or for violation of any of the provisions of this permit.

Dated this **27** day of **June**, **2018.**

Red Lake Watershed District

Myron Jesme, Administrator

P.A. No. **18025**

APPLICATION FOR PERMIT
RED LAKE WATERSHED DISTRICT
1000 Pennington Avenue South
Thief River Falls, MN 56701
218-681-5800

TO THE BOARD OF MANAGERS:

Applicant's Name:	Telephone Number:
Enbridge Energy Limited Partnership	715-919-6789

Address (Street, RFD, Box No., City, State, Zip):
26 East Superior Street, Suite 309, Duluth, MN 55802, USA

Project Location: See list of Counties and Townships on map of of crossings attached.
Government Lot _____ Quarter Section(s) _____ Section(s) _____
Norden, Sanders, Rocksbury, River Falls, Pennington CO, River, Emardville, Garnes, Red Lake CO, Chester, Gully, Eden,, Polk CO
Pine Lake, Leon, Holst, Copley, Moose Creek, Bear Creek, Itasca, Clearwater CO
Township (Name & #) _____ Range # _____ County _____

Type of Work Proposed:

[ ] Excavate	[X] Install	[ ] Channel	[ ] Dike
[ ] Fill	[X] Remove	[ ] Culvert (Size See Note Below)	[ ] Erosion Control
[ ] Drain	[ ] Other	[ ] Bridge (Size ____)	[ ] Other
[X] Construct	[ ]	[ ] Dam	[ ]

Each crossing will have a culvert able to maintain ~~hydrolic~~ hydraulic capacity of each road ditch.
Be sure to attach all necessary reports, maps, drawings, photos, other data, etc., to support permit application.

Description of work to be done: Install & Remove Temporary Driveway installations, and heavy Equipment Crossings for access to pipeline ROW for construction of Line 3 Replacement Pipeline Project.

See attached Exhibits and Details regarding the work.

Estimated drainage area: acres _____ or sq. mile(s)

Work is necessary because: Construction needs Temporary Driveway installations and Heavy Equipment Crossings for access to work sites.

I hereby make application for a permit to proceed with the proposal described above and have attached all supporting maps, plans, and other information submitted with this application. The information submitted and statements made concerning this application are true and correct to the best of my knowledge. Obtaining a permit from the Managers does not relieve the applicant from the responsibility of obtaining any other additional authorization or permits required by law.

Signature of owner or authorized agent, John McKay Date May 3, 2018
John McKay

RECEIVED
MAY 10 2018
By MJ

For Office Use Only
P.A. No. 18025

PENNINGTON SOIL & WATER CONSERVATION DISTRICT

201 Sherwood Avenue South • Suite 3
Thief River Falls, MN 56701-3407
Phone: (218) 683-7075
www.penningtonswcd.org

January 27, 2020

Dear Envirothon Sponsor:

The Area I Envirothon, a popular outdoor environmental learning event for Minnesota high school students, is scheduled to be held on Wednesday, April 29th, at the Agassiz National Wildlife Refuge. Last year we had 20 teams from 8 local schools participate.

We want to thank you for your past financial support, and would like you to consider it again this year. **We are asking for donations of $25 - $300.** This money will help finance trophies, prizes, noon lunch for the students, and advancement to the state competition in May. If you would like to donate to help support this fun learning event for our students, please send a check **(made payable to the Area I Envirothon)** to our office by April 15th.

If you have any questions, please call me at 218-683-7075.

Sincerely,

Donna Christianson

Donna Christianson
Outreach Coordinator

Legislative Briefing & Day at the Capitol

SCHEDULE OF EVENTS

The MAWD Legislative Briefing and Day at the Capitol provide MAWD members with a great opportunity to build relationships with legislators and to advance issues important for maximizing the effectiveness of our local watershed management priorities.

MAWD will formally invite all legislators to join us for the Thursday breakfast, but follow-up invitations from constituents are very helpful.

Wednesday, March 18

9:30 A.M. – 1:00 P.M. MN Association of Watershed Administrators Meeting
Location: Capitol Region Watershed District, 595 Aldine St, Saint Paul MN 55104

2:00 P.M. – 5:00 P.M. MAWD Board of Directors Meeting
Location: The DoubleTree Hotel, 411 Minnesota Street, Saint Paul, MN 55101

6:00 P.M - 8:30 P.M. **MAWD LEGISLATIVE BRIEFING** (MAWD Members)
Location: The DoubleTree Hotel, 411 Minnesota Street, Saint Paul, MN 55101

- Overview of the 2020 MAWD legislative platform including talking points
- Presentations by lead agency staff and key legislators
- Training on effective methods of communication with elected officials

Thursday, March 19

(Shuttles between the Double Tree Hotel and the Capitol will be available.)

8:00 – 10:00 A.M. **LEGISLATIVE BREAKFAST** (MAWD Members and Legislators)
Location: L'Etoile du Nord Vault Room, State Capitol Basement

10:00 A.M. – 4 P.M. **DAY AT THE CAPITOL** (On Your Own)

Activities to schedule while you are in St. Paul could include the following:

- Meet with your legislators. YOUR elected officials WANT to hear and connect with you while you are in town. Please call in advance to schedule appointments - the sooner the better! Contact information can be found at www.leg.state.mn.us/leg/legdir. The Senate offices are in the MN Senate Building and offices for the House of Representatives are in the State Office Building.
- Attend legislative committee hearings (schedule to be posted soon)
- Meet with partners and have lunch in the Capitol Café or MnDOT Cafeteria
- Take a free guided tour of the Capitol (www.mnhs.org/capitol/activities/tour)

REGISTRATION: To register, visit: www.mnwatershed.org/legislative-breakfast-day-at-the-capitol

22ND ANNUAL JOINT RED RIVER WATERSHED MANAGEMENT BOARD & FLOOD DAMAGE REDUCTION WORK GROUP CONFERENCE AGENDA

1:00-1:15 pm

Welcome - Day 1

Dan Money, Co-chair-Flood Damage Reduction Work Group

Robert Sip, Executive Director-Red River Watershed Management Board

1:15-1:45 pm

Red River Basin Mediation Agreement Overview

Henry Van Offelen, Clean Water Specialist-Board of Water and Soil Resources

1:45-2:45 pm

Project Case Studies: Updates on Local Watershed Projects

Tracy Halstensgard, Administrator-Roseau River Watershed District

Dan Money, Administrator-Two Rivers Watershed District

Bruce Albright, Administrator-Buffalo-Red River Watershed District

2:45-3:00 pm

BREAK

3:00-4:00 pm

Panel Discussion - Organizations Active in Red River Basin Flood Damage Reduction

Robert Sip, Executive Director-Red River Watershed Management Board

Theresa Ebbenga, Co-chair-Flood Damage Reduction Work Group

Keith Weston, Executive Director-Red River Retention Authority

Ted Preister, Executive Director-Red River Basin Commission

4:00-4:15 pm

Closing - Day 1

Robert Sip, Executive Director-Red River Watershed Management Board

Theresa Ebbenga, Co-chair-Flood Damage Reduction Work Group

Evening meal is on your own, check registration table for options.

WIDSETH SMITH NOLTING

RED RIVER RETENTION AUTHORITY

moore engineering, inc.

Thank You Sponsors!!

Houston Engineering Inc.

HDR

MARCH 10~11, 2020

22ND ANNUAL JOINT CONFERENCE AGENDA
DAY 2

7:30-8:30 am

BREAKFAST

8:30-8:40 am

Welcome - Day 2

Dan Money, Co-chair-Flood Damage Reduction Work Group

Robert Sip, Executive Director-Red River Watershed Management Board

8:40-9:35 am

Soil Is Not a Dirty Word

Jodi DeJong-Hughes, Extension Educator-University of MN

9:35-10:05 am

State and Federal Funding Overview

Pete Waller, Board Conservationist-MN Board of Water & Soil Resources

Pat Lynch, Flood Hazard Mitigation Grant Program Manager-MN Department of Natural Resources

Erik Jones, Engineer-Houston Engineering Incorporated

Ed Musielewicz, District Conservationist-Natural Resources Conservation Service

10:05-10:25 am

BREAK

10:25-10:45 am

The Regional Conservation Partnership Program - Navigating Environmental and Economic Considerations in Watershed Planning

Dave Jones, State Engineer-Natural Resources Conservation Service

HDR

RED RIVER RETENTION AUTHORITY

Houston Engineering Inc.

Thank You Sponsors!!

moore engineering, inc.

WIDSETH SMITH NOLTING

MARCH 10~11, 2020

22ND ANNUAL JOINT CONFERENCE AGENDA
DAY 2

10:45-11:15 am

Integrating Agricultural and Natural Resource Objectives in the Yakima River Basin of Washington State - Lessons Learned

Andrew Graham, Red River Basin Coordinator-MN Department of Natural Resources

11:15-11:35 am

Proposed Nutrient Objectives at the US/Canada Border for the Red River

Jim Ziegler, Regional Manager-MN Pollution Control Agency

11:35-11:55 am

Red River Watershed Management Board Updates

Robert Sip, Executive Director-Red River Watershed Management Board

11:55-12:35 pm

LUNCH

12:35-12:50 pm

Flood Damage Reduction Work Group Updates

Dan Money, Co-chair-Flood Damage Reduction Work Group

Theresa Ebbenga, Co-chair-Flood Damage Reduction Work Group

12:50-1:20 pm

Managing Minnesota's Transportation Assets for Flood Resiliency Under Changing Climatic Conditions

Jeff Meek, Sustainability Coordinator-MN Department Of Transportation

J.T. Anderson, District 2 Engineer-MN Department Of Transportation

moore engineering, inc.

HDR

WIDSETH SMITH NOLTING

Thank You Sponsors!!

RED RIVER RETENTION AUTHORITY

Houston Engineering Inc.

MARCH 10~11, 2020

22ND ANNUAL JOINT CONFERENCE AGENDA
DAY 2

1:20-1:40 pm

Partnering for Water Quality - Perspectives from Local Cities in the Red River Basin of MN

Brian Holmer, Mayor-Thief River Falls

1:40-2:10 pm

Wildlife Benefits From the Burnham Creek Impoundment, a Multi-purpose Flood Control Project in Northwest MN - Lessons Learned

Dan Svedarsky, Emeritus Research Biologist-NW Research and Outreach Center
University of MN, Crookston

2:10-2:25 pm

BREAK

2:25-2:55 pm

Brandt Impoundment Spring 2019 Runoff Event - Sediment & Nutrient Load Monitoring

Danni Halvorson, Director of Education and Monitoring-International Water Institute

2:55-3:15 pm

Spring Flood - What's the Status Now?

Greg Gust, Warning Coordination Meteorologist-National Oceanic and Atmospheric Administration/National Weather Service

3:15-3:30 pm

Closing

Robert Sip, Executive Director-Red River Watershed Management Board

Theresa Ebbenga, Co-chair-Flood Damage Reduction Work Group

Houston Engineering Inc.

WIDSETH SMITH NOLTING

moore engineering, inc.

Thank You Sponsors!!

RED RIVER RETENTION AUTHORITY

HDR

MARCH 10~11, 2020

Managed IT Services

Marco

$1441.00 per month - expires March 30, 2020

Unlimited Help Desk Support 8 a.m.-5:00 p.m.
Emergency after hours phone support 24/7
On-site support pay by the hour

Corporate Technologies

$810.00 per month*

Unlimited Help Desk Support 8 a.m.-5:00 p.m.
Emergency after hours phone support 24/7
On-site support - 5.5 hours of service per month

$935.00 per month*

Unlimited Help Desk Support 8 a.m.-5:00 p.m.
Emergency after hours phone support 24/7
On-site support - 8 hours of service per month

*Not included on site tech time for transition process – equivalent to monthly fee
*Based on numbers of users

Formal Proposal

For

Red Lake Watershed District

CORPORATE
TECHNOLOGIES

December, 13st, 2019

Enclosed please find your Corporate Technologies **Proposal for IT Support/Solutions.**

This response includes our company qualifications and experience, an overview of our work processes and plan for a network transition process, this program is customizable to *your* specific needs.

Corporate Technologies uses only our employees for all services listed. Please feel free to contact Bryan Hildreth with any further questions regarding our proposal. Bryan can be reached at (701) 893-4029, bryan.hildreth@gocorptech.com, or by cell 701-306-5548. All contacts regarding this proposal are working out of our Fargo office at (701-893-4000) 2000 44th St S, Fargo, ND 58103.

Sincerely,

Justin Stansbury, General Manager
Landon Vetter, Sales Manager
Charles Buckhouse, Service Manager, Sr. Network Engineer
Brian Nelson, Account Manager
Christopher Sirek, Dispatch Coordinator

Enclosure

About Corporate Technologies

Corporate Technologies is the leading provider of IT solutions in the state of North Dakota. We are a 30+ year old company with numerous certifications from leading technology manufacturers. We have over 300 employees (200 engineers) nationwide. We offer a wide range of IT solutions to a variety of customers including managed IT services, voice and data networking, storage and virtualization, training, penetration testing, firewall monitoring, periodic vulnerability testing, warranty services, server hosting, cloud solutions, system integration and consulting. We can and will be the only technology partner you and your business will need.

Awards & Recognition

Corporate Technologies has been recognized by industry groups as well as local and national media organizations. Our accolades include:

- MSPmentor Top 100 Managed Service Provider in the Nation
- Solution Provider 500 (formerly the VAR500) list of North American Top Technology Integrators
- Computer Reseller News (CRN) Tech Elite 250
- Computer Reseller News (CRN) Fast Growth 100
- Talkin' Cloud 100 Nationwide
- Level Platforms 2010 Partner of the Year
- Inc. 5000 Fastest Growing Privately Held Companies

Partner Network & Authorizations

We are authorized to sell and service hundreds of products. Some of our certifications include:

- Cisco Premier Partner-Cisco Advanced Unified Communications-Cisco Advanced Route Switch
- Microsoft Partner-Gold Server Platform-Silver Learning-Silver Desktop-Silver Hosting
- HP Preferred Partner
- IBM Premier Business Partner-IBM Blade and Storage Solution Center
- Symantec Registered Partner
- Trend Micro Vantage Partner
- VMWare Partner – Enterprise Level
- EMC Velocity Solution Provider

Technical Resources

While Corporate Technologies would assign a specific technician to your account, we can also pull from other resources so that we can guarantee immediate availability during emergencies. For service tickets that are non-emergencies, response time will generally be within 2 hours. Keep in mind that we also have 32 engineers staffed at our helpdesk in Eden Prairie, MN. A helpdesk technician would be available to assist you remotely any day, any time. We have technicians who work in around your area for onsite visits.

Technology Advantage/Work Processes

Corporate Technologies Technology Advantage is a comprehensive monitoring and maintenance program designed to offer you 24/7 IT services just as if you are employing a full-time IT department. The following is a brief breakdown of the Technology Advantage program:

- **24/7 Monitoring and Maintenance-** Network devices which can include servers, PCs, routers, firewalls, and switches are monitored by a team of 6 technicians continuously. Technology Advantage provides you with proactive remote IT support and maintenance services that maintain your desktops, servers, network infrastructure and connectivity. This allows us to fix most problems before they can affect your system and interrupt your workday.

- **24/7 Helpdesk** - Unlimited Helpdesk usage between the hours of **8am-5pm**. Technology Advantage customers have unlimited phone and email support to our helpdesk team of engineers. The helpdesk can access your servers and desktops to perform remote support whenever needed.

- **Onsite Tech Time** – The time needed to come onsite for resolving issues or working on IT projects that is built into your plan. Time allotted varies based on how many devices and what type of devices are on the plan. See Cost breakdown for more information on tech time allotted per month.

- **Assigned Account Manager** - Your Account Manager is at your disposal to help formulate your IT plan, help you with new hardware and software purchases. The account manager is looking out for the best interest of Red Lake Watershed District. This person will proactively engage with you each month to ensure your satisfaction of our services. There is no additional charge for your Account Manager as a Technology Advantage customer.

- **Emergency Situation**- When an urgent matter arises that requires an onsite technician, we will pull from our resources to send you a qualified engineer immediately. Your onsite tech time can also be used in these situations.

- **Call Ticket**- Corporate Technologies offers customers three ways to open a call ticket. You can call our Fargo office 8 AM-5 PM Monday – Friday. You can call our helpdesk anytime. You can also use the Customer Portal to submit a request online. The portal allows you to check the status of open or closed tickets within a defined time frame or by caller.

Network Transition Process

Corporate Technologies is dedicated to a smooth transition from your current service provider. We will work with your current provider to get all information they have on your network, this includes but not limited to passwords, network diagrams, WIFI mapping of signal strength, current backup solution, etc. If the incumbent IT provider isn't forthcoming, we would like some help from you in getting that information. If no progress is made during this "hand off" period, we have the tools and processes to take over anyway but there are additional steps involved.

- **Phase 1: Onsite Manager Installation** o We will send a technician to your site to install our monitoring and maintenance server.
- **Phase 2: Enable Covered Devices** o The technician will configure each workstation, server and network device covered on the Technology Advantage plan, in order to be monitored and maintained.
- **Phase 3: Technology Assessment** o In addition to configuring the devices on the agreement, the technician will complete a comprehensive physical network assessment. This is the technology discovery phase of our change management process.
- **Phase 4: End User Orientation** o The assigned Account Manager will provide an on-site orientation/training and support directive to all end users. This will provide all end users with the necessary information to understand how to get the most out of our services. At that time, the Account Manager will also work with your technical contact to schedule upcoming projects and recurring site visits, as well as discuss ongoing expectations.

- **Phase 4: Technology Recommendations** o We will create a documented list of technology recommendations for you to enhance and optimize your technology experience.

Your onsite tech time is not deducted for the transition process

Cost for Proposal

Managed Network Services:

Managed Desktop Support- $625*

Support	Standard	Premium
Unlimited Help Desk Support (8am-5pm)	*	*
Onsite Engineer Support	5.5 hrs/month	*
Emergency After Hours Phone Support-24/7		*
Maintenance	**Standard**	**Premium**
Desktop Reports & Maintenance	*	*
File and Folder Permission Changes	*	*
Password Administration	*	*
Software Installation and Removal	*	*
Desktop Optimization & Management	*	*
Client Antivirus Software Management	*	*
Spyware & Adware Removal (in addition to antivirus)	*	*
Microsoft Critical Patch Updates	*	*
Client Email Configurations and Support	*	*
Printer Configuration	*	*
Additional Services	**Standard**	**Premium**
Assigned Account Manager	*	*
IT Advising & Planning	*	*
Purchasing Support	*	*
Network Trend Analysis Reporting	*	*
Network Vulnerability Testing	*	*

**Standard service is quoted above*

Managed Server Support- $125

Support	Standard	Premium
Unlimited Help Desk Support (8am-5pm)	*	*
Onsite Engineer Support	.5hr/month	*
Emergency After Hours Phone Support-24/7	*	*
24/7 Server Performance & Log Monitoring	*	*
Emergency After Hours Alert Response	*	*
Maintenance	**Standard**	**Premium**
Critical Windows Updates	*	*
Event Log Monitoring & Maintenance	*	*
Password Administration	*	*
Log File Maintenance	*	*
Drive Space Monitoring	*	*
Cache Removal	*	*
Server Physical Location Maintenance	*	*
Security	**Standard**	**Premium**
User Account Administration	*	*
File Sharing Permission Administration	*	*
Security and Policy Enforcement	*	*
Virus Definition & Prevention	*	*
Active Directory Cleanup	*	*
Additional Services	**Standard**	**Premium**
Assigned Account Manager	*	*
IT Advising & Planning	*	*
Purchasing Support	*	*
Network Trend Analysis Reporting	*	*
Network Vulnerability Testing	*	*

Managed Network Support- $60

Support	Standard
Unlimited Help Desk Support (8am-5pm)	*
Network Management	**Standard**
Router Configuration & Changes	*
ISP liaison	*
Firewall Management	*
Firewall Configuration & Changes	*
VPN Support	*
Access Point Support	*
Security	**Standard**
Firmware upgrades	*
Firewall Deep Packet Inspection Reporting	*
Security and Policy Enforcement	*
Additional Services	**Standard**
Assigned Account Manager	*
IT Advising & Planning	*
Purchasing Support	*
Network Trend Analysis Reporting	*
Network Vulnerability Testing	*

Cost Overview

Managed Network Services	Price
Managed Desktops	$625
Managed Servers	$125
Managed Network	$60

Monthly Service Cost	Price
Total Cost	$810

Cost for Proposal

Managed Network Services:

Managed Desktop Support- $750*

Support	Standard	Premium
Unlimited Help Desk Support (8am-5pm)	*	*
Onsite Engineer Support	8 hrs/month	*
Emergency After Hours Phone Support-24/7		*
Maintenance	**Standard**	**Premium**
Desktop Reports & Maintenance	*	*
File and Folder Permission Changes	*	*
Password Administration	*	*
Software Installation and Removal	*	*
Desktop Optimization & Management	*	*
Client Antivirus Software Management	*	*
Spyware & Adware Removal (in addition to antivirus)	*	*
Microsoft Critical Patch Updates	*	*
Client Email Configurations and Support	*	*
Printer Configuration	*	*
Additional Services	**Standard**	**Premium**
Assigned Account Manager	*	*
IT Advising & Planning	*	*
Purchasing Support	*	*
Network Trend Analysis Reporting	*	*
Network Vulnerability Testing	*	*

**Standard service is quoted above*

Cost Overview

Managed Network Services	Price
Managed Desktops	$750
Managed Servers	$125
Managed Network	$60

Monthly Service Cost	Price
Total Cost	$935

CORPORATE TECHNOLOGIES

2000 44th Street SW, Suite 100, Fargo, ND 58103
Tel. (701) 893-4000

Nicks computer

QUOTATION 445292

Rev. 2

BILL TO:		SHIP TO:			
COMPANY	**Red Lake Watershed**	COMPANY	**Red Lake Watershed**	DATE	**January 31, 20**
ADDRESS	**1000 Pennington Ave S**	ADDRESS	**1000 Pennington Ave S**	EXPIRY DATE	**March 01, 20**
				SALES REP	**SALES DEPT**
	Thief River Falls, MN 56701		**Thief River Falls, MN 56701**	PO	
CONTACT	**Tammy Audette**	CONTACT	**Tammy Audette**		
PHONE		PHONE		CUST NO.	**TE1001**

PART NUMBER	ALT PART NUMBER	DESCRIPTION	QUANTITY	UNIT PRICE	TOTAL PRICE
148243	LENO-A148243	Lenovo Thinkpad P73	1	$1,630.00	$1,630.00

Limited Warranty: 3 Year

Standard Memory(RAM): 16 GB
Total Solid State Drive Capacity: 512 GB
Processor Model: i7-9750H
Processor Core: Hexa-core (6 Core)

Screen Size: 17.3"

Graphics Controller Manufacturer: NVIDIA
Graphics Controller Model: Quadro P620 4GB dedicated

Operating System: Windows 10 Pro

+ Set-up

COMMENTS

SUBTOTAL:	$1,630.00
TAX:	$97.80
TOTAL:	$1,727.80

TERMS AND CONDITIONS

Terms are Net 15 days upon approved credit. Credit cards accepted. Tax, shipping and handling may not be accurately reflected on this quote. An accurate amount, if requested, will be provided at the time of order
Return Policy:
1 - 15 Days: Unopened boxes* will be returned for full credit. 15 - 30 Days: Unopened boxes* will be returned for full credit minus 25% of purchase price restocking fee.
Beyond 30 Days: No returns accepted.
Incomplete Returns: No returns accepted. Software and Licenses: No opened software returns accepted. Licenses will vary depending on manufacturer policy.
Special Order and Registered Items: No returns accepted.
Defective Items: Complete packages will be exchanged or credited if returned within 15 days of invoice date and upon verification the item is defective.
* The product(s) and package(s) MUST be received in excellent condition with no rips, tears, broken seals, markings, writing, stickers, compression damage or any other defacing marks, or the return will be rejected.

QUOTE ACCEPTANCE

Thank you for your inquiry.

To order, please sign and return this quotation via fax to your sales representative at: 701-277-0012

Name: _____ Date: _____ P.O. #: _____

Red Lake Watershed - Nicks Laptop

Prepared by:

Marco - Thief River Falls

John Bohnenkamp
218-683-2385
john.bohnenkamp@marconet.com

Prepared for:

RED LAKE WATERSHED

1000 PENNINGTON AVE S
THIEF RIVER FALLS, MN 56701
MYRON JESME
218.681.5800
myron.jesme@redlakewatershed.org

Quote Information:

Quote #: 068784

Version: 1
Date Issued: 01/29/2020
Expiration Date: 02/28/2020

Lenovo ThinkPad P73 17.3

Description	One-Time	Qty	Ext. One-Time
Lenovo ThinkPad P73 17.3" Mobile Workstation - 1920 x 1080 - Core i7 i7-9750H - 16 GB RAM - 512 GB SSD - Glossy Black - Windows 10 Pro 64-bit - NVIDIA Quadro P620 with 4 GB - In-plane Switching (IPS) Technology - English (US) Keyboard - Infrare	$1,977.28	1	$1,977.28

Subtotal: **$1,977.28**

+ set-up.

Professional Services Labor

Description	One-Time	Qty	Ext. One-Time
Marco Professional Services - T&M - Estimate	$560.00	1	$560.00

Subtotal: **$560.00**

Red Lake Watershed District - Administrators Report

February 13, 2020

Red River Watershed Management Board – Dale and I will be attending the RRWMB meeting which will be held at 10:00 am February 18th at the RRWMB office in Ada, MN.

Bartlett Lake Management Plan – The next meeting for the Bartlett Lake Management Plan will be held at the Northhome City Hall from 10:00 am to 12:00 noon on February 20th, 2020.

Clearwater River 1W1P – There appears to be some momentum on starting the Clearwater River 1W1P process. Chester Powell, Clearwater SWCD, has agreed to take the lead on discussion with LGU partners on the timing and wiliness to move forward in 2020. Application for the 1w1p grant is due June 12, 2020 so there is some time but as we know from past 1w1p's, time flies.

NOAA/NWS 2020 Spring Flood Outlook-Included in the packet is information on the Red River and Devils Lake Basin – 2020 Spring Flood Outlook.

Thief Lake and Agassiz Interagency meeting – Nick, Christina and I will attend the interagency meeting at 9:30 am February 19th at the RLWD Board Room. This meeting is intended to update each entity as to what projects are being considered as well as operation of impoundments for spring of 2020.

RRWMB Drainage Conference – Gene, LeRoy, Nick and I attended the RRWMB Drainage Conference Monday, January 27th at the Courtyard by Marriott in Moorhead. Overall, I think there were some very good sessions. As part of the closing afternoon session, I gave a half hour presentation concerning the partnership and collaboration for the development and design of the Thief River Falls Westside FDR Project. This led to a discussion with Collin Peterson staff member, LeRoy Stumpf questioning me about USACOE permitting process and pitfalls.

6th Annual Nitrogen Conference - This conference will be held at the Arrowwood Conference Center February 18, 2020. The conference will focus on nitrogen management for crop producers and ag professionals. Nitrogen is essential for crop production, but many factors influence the efficient use of this nutrient in agricultural systems. Managing this nutrient effectively in Minnesota is important both for financial and environmental benefits.

I have included in your packet a brochure showing the day's events.

City of McIntosh-Included in the packet is correspondence on the City of McIntosh Wellhead Protection Plan.

Annual Audit Brady Martz – Staff from Brady Martz were on site for our annual audit on Wednesday and Thursday, February 4 and 5th. Their report to the Board will be forthcoming upon completion.

Office Closed – Office will be closed Monday February 17th for Presidents Day.

Water Quality Reports-Included in the packet are July-December Water Quality Reports.

Red River and Devils Lake Basin - 2020 Spring Flood Outlook

Discussion Points 1/23/2020

prepared by

NWS - Weather Forecast Office, Grand Forks ND
NWS - North Central River Forecast Center, Chanhassen MN

This outlook is for the U.S. portion of the basin and is based on conditions through Tuesday, 1/21/2020. All graphics, probabilities, and related discussions are available at **weather.gov/fgf**. The next update will be issued by 2/13/2020.

Bottom Line up Front!

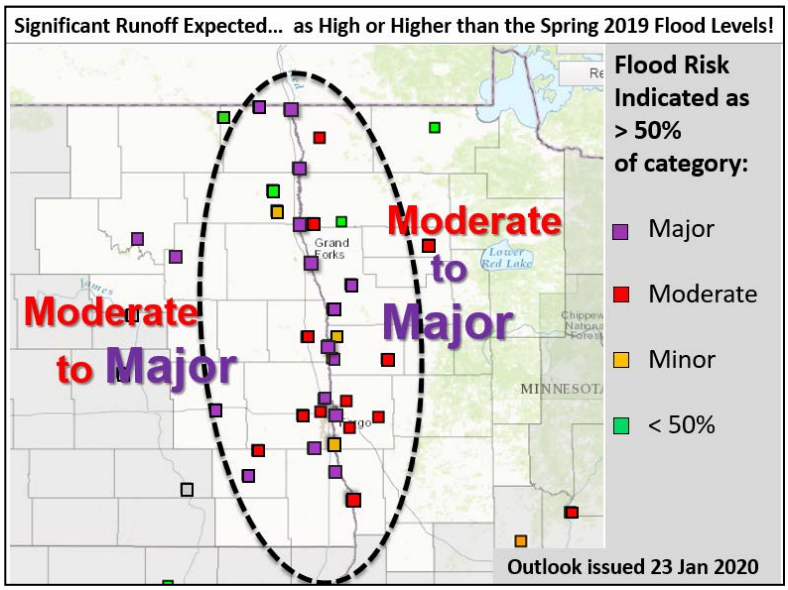
- It's early, but… this outlook starts with a threat for *significant* snowmelt flooding that could meet or exceed the level of flooding seen in 2019.

- Follows record wettest Fall Period, and record fall floods. Excess water remains in soggy soils, high streamflows, and parked water on the landscape.

- Snowfall/SWE at mid-January was near/above long term winter season normal amounts.

- Somewhat less excessively wet and less overall snowpack north of a Devils Lake-Grafton-Roseau line… so somewhat less threat in northern tributaries.

- Frost is less deep than normal, especially in the far southern RRV, so some infiltration may be possible… *if* the thaw cycle allows.



- Climate outlooks currently indicate an increased risk for cooler and wetter late winter early spring period, which increases our risk for rapid and/or rainfall enhanced runoff.

Long Story Short: The risk for significant snowmelt flooding is quite substantial, running above long-term historical averages across the Red River and Devils Lake Basins (U.S. portions).

Key Snowmelt Flood Components:

1. Base Streamflow: At or near record high levels for this time of year. USGS analyses indicate that the Red River and most of its ND and MN tributaries (south of Grafton-Argyle) are moderate-thin ice covered and/or flowing at 95th percentiles or greater [link: https://waterdata.usgs.gov/nwis/rt]. Tributaries north of Grafton-Argyle at 76% to 95%.

2. Soil Moisture at Freeze-up: Much above normal throughout. Standing water frozen into some ditches. [Link: https://www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/US/Soilmst/Soilmst.shtml]

3. Frost Depth: Shallower than normal. Heavy snowcover most of the season has kept frost depth somewhat shallow across the far southern RRV, at 6-12 inches. Frost at most locations north of Fargo is 14 to 30 inches deep. Lake/River ice thicknesses less-than normal and are quite variable. [Link: https://www.weather.gov/ncrfc/LMI_FrostDepthMap]

4. Winter Snowpack/SWE: above normal. Since Dec 1st, snowfall runs from 150-300 percent of normal, SWE ranges from 2.5 to 5.0 inches - least across far northeast ND and far northwest MN. [Link: https://www.nohrsc.noaa.gov/nsa/]

5. **Precipitation, Sep 1st to Jan 21st sets Record High.** Total precipitation (rain and snow-water) measured across the Basin from Sep 1st thru Jan 21st ranged from 4-8 inches above the long-term normal for most of Red River Basin. [Links: https://www.ncdc.noaa.gov/sotc/national/201913; https://water.weather.gov/precip/index.php?location_type=wfo&location_name=FGF]

New! Along with our flood partners, we've developed a display graphic which relates the current flood outlook to our historical flood levels, now available for all our forecast locations! ***Check it out at:*** https://www.weather.gov/fgf/PFOS

DEVILS LAKE & STUMP LAKE... Long-Range Probabilistic Outlook

Valid January 20, 2020 - September 30, 2020

LOCATION	95%	90%	75%	50%	25%	10%	05%
CREEL BAY	1450.7	1450.8	1451.1	1451.6	1452.2	1452.8	1453.2
EAST STUMP LAKE	1450.7	1450.8	1451.1	1451.6	1452.2	1452.8	1453.2

The current heights of Devils Lake and Stump Lake are ~1449.03 ft. MSL.

Color code: **Below** **Minor** **Moderate** **Major** ***Flood of Record***

RED RIVER AND TRIBUTARIES... Long-Range Probabilistic Outlook

Valid January 27, 2020 – May 19, 2020

LOCATION	95%	90%	75%	50%	25%	10%	05%
WAHPETON	11.9	12.3	13.1	14.2	15.7	17.4	17.5
HICKSON	26.6	27.6	30.4	32.8	34.7	36.4	36.9
FARGO	27.6	31.9	34.1	35.9	37.6	39.6	40.6
HALSTAD	31.5	36.1	38.0	39.0	39.7	40.2	40.8
GRAND FORKS	43.4	44.6	46.6	48.8	51.2	53.1	55.4
OSLO	36.7	37.0	37.4	37.8	37.9	38.0	38.1
DRAYTON	40.7	41.3	42.4	43.2	44.4	45.1	45.6
PEMBINA	50.0	50.5	52.1	53.0	54.0	54.6	54.9
Minnesota Tributaries:							
South Fork Buffalo River.....							
SABIN	15.0	15.6	16.1	16.8	17.8	18.5	19.7
Buffalo River.....							
HAWLEY	8.5	9.1	9.7	10.2	10.8	11.2	11.9
DILWORTH	20.8	22.0	22.9	23.6	24.7	25.2	26.7
Wild Rice River.....							
TWIN VALLEY	8.8	9.4	10.5	12.0	13.1	14.6	15.2
HENDRUM	28.0	29.8	31.2	32.3	32.8	33.6	34.5
Marsh River.....							
SHELLY	13.2	14.8	17.4	19.2	21.3	22.5	24.0
Sand Hill River.....							
CLIMAX	21.2	24.4	28.2	30.5	33.2	35.5	37.0
Red Lake River.....							
HIGH LANDING	9.7	10.4	11.4	12.8	13.1	13.3	13.5
CROOKSTON	19.3	19.7	21.5	24.0	25.5	28.2	28.5
Snake River.....							
ABOVE WARREN	65.1	65.3	65.5	66.3	67.5	69.8	71.4
ALVARADO	105.9	106.6	107.8	109.2	109.6	110.0	110.9
Two Rivers River.....							
HALLOCK	804.5	805.3	807.0	807.8	808.6	809.7	810.3
Roseau River.....							
ROSEAU	12.7	13.7	14.9	15.6	18.1	18.4	18.8
North Dakota Tributaries:							
Wild Rice River.....							
ABERCROMBIE	16.8	19.3	22.0	24.2	25.7	27.6	28.5
Sheyenne River.....							
VALLEY CITY	13.8	15.3	16.8	19.6	21.8	24.4	27.4
LISBON	14.9	15.6	17.3	19.4	22.8	27.4	30.5
KINDRED	19.6	20.2	20.8	21.2	21.2	21.2	21.2
WEST FARGO DVRSN	19.3	20.9	21.3	21.3	21.3	21.3	21.3
HARWOOD	90.3	91.2	91.6	92.0	92.1	92.2	92.3
Maple River.....							
ENDERLIN	11.0	11.8	12.6	13.1	13.7	14.5	15.0
MAPLETON	21.5	22.1	22.4	22.8	23.3	23.9	24.1
Goose River.....							
HILLSBORO	9.9	11.8	13.2	14.0	14.9	16.0	17.1
Forest River.....							
MINTO	4.6	5.2	5.7	6.7	7.5	9.0	9.2
Park River.....							
GRAFTON*	10.0	10.2	10.8	11.4	13.5	15.3	15.8
Pembina River.....							
WALHALLA	8.9	9.5	10.9	12.1	14.1	15.5	15.8
NECHE	16.4	17.3	19.7	20.9	21.4	21.5	21.6

Notes

1. Devils Lake Basin Runoff Risk is quite high. An additional rise of 2 to 3 feet is expected (75% to 25% risk range). A ½ to 1 ft. rise on Devils Lake is considered about normal.

Note: Devils Lake is currently about a foot higher than this time last year.

2. Red River Basin Runoff Risk is overall quite high. All Red River main-stem points will see significantly high flows.

- heavily influenced by excess flow and soil moisture now.

- coupled with higher winter snowpack and SWE.

- exacerbated by a potentially delayed thaw cycle.

3. Above normal snowpack and runoff potential is evident in most all MN tributaries.

The northern-most tribs have the wettest soils but a somewhat lesser snowpack.

4. ND Wild Rice, Sheyenne, and Maple Rivers are at a much Higher Runoff Risk.

Mid and Upper Sheyenne is carrying substantial soil moisture and snowpack with potential for both early and later crest issues.

Lower Sheyenne through east-central ND tribs are also at an exceptionally elevated risk.

Northeast ND is mixed, with lesser runoff at the upper basins of the Pembina, Forest, and Park Rivers.

Note: Reduced risk expected for areas now protected by new Grafton Bypass!

REGISTRATION 8:30 a.m.

Registration: $20

Register at Door or Online:

www.eventbrite.com/e/nitrogen-minnesotas-grand-challenge-and-compelling-opportunity-conference-tickets-76802475271

CEUs in Nutrient Management and Soil and Water will be available for Certified Crop Advisors

MORE INFORMATION

Dr. Fabian Fernandez
fabiangf@umn.edu
612-625-7460

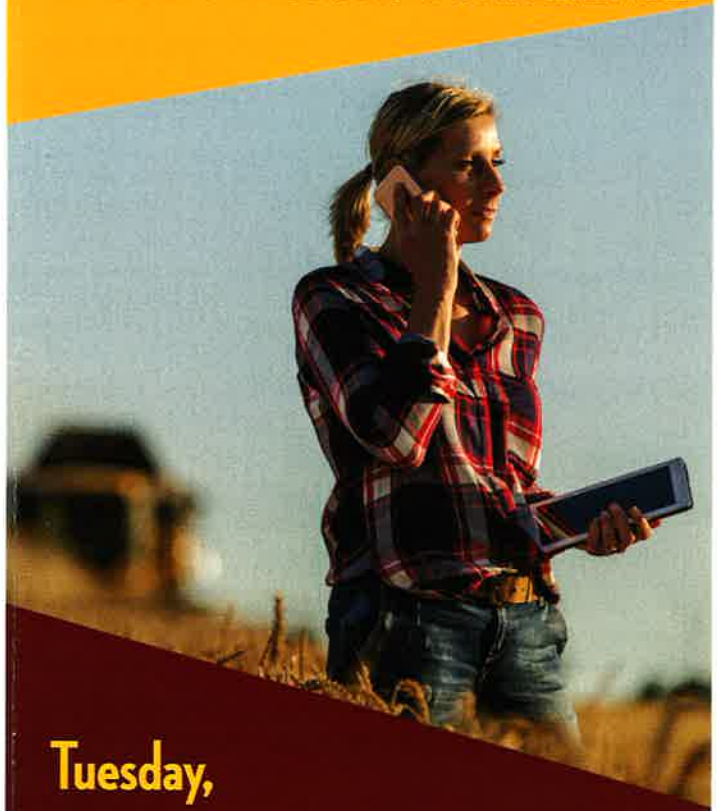
Warren Formo
warren@mawrc.org
952-237-9822

For information visit:
www.mawrc.org/events

UNIVERSITY OF MINNESOTA | EXTENSION

With support from Minnesota Agricultural Water Resources Center
3080 Eagandale Place
Eagan, MN 55121

6th Annual NITROGEN: MINNESOTA'S GRAND CHALLENGE & COMPELLING OPPORTUNITY CONFERENCE



Tuesday, February 18, 2020

Arrowwood Conference Center
Alexandria, MN

UNIVERSITY OF MINNESOTA | EXTENSION

6TH ANNUAL
NITROGEN: MINNESOTA'S GRAND CHALLENGE & COMPELLING OPPORTUNITY CONFERENCE

Sessions 9:00 a.m.-3:25 p.m.

GENERAL SESSION

8:30 a.m.	***Registration***	
9:00 a.m.	***Welcome***	
	Tom Rothman	University of Minnesota
9:05 a.m.	***Lessons Learned in 2019, Opportunities for 2020***	
	Angie Peltier	University of Minnesota
	Chryseis Modderman	University of Minnesota
	Brad Carlson	University of Minnesota
9:55 a.m.	***Importance of Urban and Non-urban Nutrient Reductions***	
	Dana Vanderbosch	Minnesota Pollution Control Agency
10:30 a.m.	***Break***	
10:45 a.m.	***Modeling the Cost-effectiveness of Practices to Reduce Watershed Nutrient Loads***	
	Bill Lazarus	University of Minnesota
11:45	***Lunch***	

BREAKOUT SESSION #1

12:45 p.m.	***Evaluating N Stabilizers***	
	R. Jay Goos	North Dakota State University
1:25 p.m.	***Recent findings in N Management Research***	
	Brad Carlson	University of Minnesota
2:05 p.m.	***Irrigation and Nitrogen Management for Profitable Corn Production and Groundwater Quality Protection***	
	Vasu Sharma	University of Minnesota
2:45 p.m.	***Where Do U of M Recs Come From? N Calculator Updates***	
	Dan Kaiser	University of Minnesota

BREAKOUT SESSION #2

12:45 p.m.	***Minnesota's Nutrient Reduction Strategy- Progress Toward Milestone Goals***	
	Glenn Skuta	*Minnesota Pollution Control Agency*
1:25p.m.	***Minnesota's Groundwater Protection Rule Update***	
	Larry Gunderson	Minnesota Department of Agriculture
2:05p.m.	***Cover Crops, N Additions, and Soil Health***	
	Anna Cates	University of Minnesota
2:45 p.m.	***Urea and Urea Additives***	
	Karina Fabrizzi	University of Minnesota
3:25 p.m.	***Adjourn***	

NITROGEN

Thank you to all of our Supporters!

DEPARTMENT OF AGRICULTURE

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Minnesota's Agricultural Fertilizer Research & Education Council

CLEAN WATER LAND & LEGACY AMENDMENT

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MAWRC MINNESOTA AGRICULTURAL WATER RESOURCE CENTER

MinnesotaCorn GROWERS ASSOCIATION

KOCH

KOCH AGRONOMIC SERVICES, LLC

syngenta

University of Minnesota EXTENSION

NOTICE TO LGUs REGARDING WHP PLAN APPROVAL AND IMPLEMENTATION INTENT

Date: January 22, 2020

To: Joan Lee, Chairperson, Polk County Board
Ken Kasprzak, Chairperson, King Township Board
Toby Strom, Mayor, City of McIntosh
Rachel Klein, District Manager, East Polk Soil and Water Conservation District
Corey Hanson, Water Quality Coordinator, Red Lake Watershed District
Dr. Joe Bouvette, Chairperson, Northwest Regional Development Commission
Dan Disrud, Planner, Minnesota Department of Health

From: Melissa Finseth, City of McIntosh

Re: Wellhead Protection Plan for the City of McIntosh

The City of McIntosh has completed the wellhead protection planning process and received notice from the Minnesota Department of Health that the submitted plan has been approved on December 3, 2019. With this approval, we must begin implementation of our plan within 60 days after approval (part 4720.5560, subpart 1).

The City of McIntosh appreciated your assistance with the development of our wellhead protection plan, and we look forward to your continued cooperation with this effort.

If you have any questions or concerns, please contact me at 218-563-3043.

cc: Mike Strodtman, Minnesota Rural Water Association
Trudi Witkowski, Minnesota Department of Health

Thank you,

Melissa Finseth

Melissa Finseth
City of McIntosh

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

July 2019

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

Red Lake Watershed District Long-Term Monitoring Program

High concentrations of total suspended solids were found in:

- Nassett Creek
- Red Lake River at Fisher
- Red Lake River in Crookston
- Red Lake River at CSAH 11, near Gentilly

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

- Beau Gerlot Creek at County Road 114
- Branch A of Judicial Ditch 21
- Browns Creek at County Road 101
- Burnham Creek at 320th Ave. SW
- Chief's Coulee at Dewey Ave in Thief River Falls
- Clearwater River at CSAH 2
- Clearwater River at CR 127
- Cyr Creek at 220t St. SW
- Gentilly Creek at CSAH 11 in Gentilly
- Grand Marais Creek at 110th St. NW
- Grand Marais Creek at 130th St. NW
- Hill River at 335th Ave. SE
- Hill River at CR 119 near Brooks
- Judicial Ditch 73 at 343rd St. SE

- Judicial Ditch 73 at CSAH 10 (Maple Lake inlet)
- Little Black River at County Road 102
- Lost River at 486th St. near the Pine Lake outlet
- Lost River at 109th Ave. near the Pine Lake inlet
- Lost River at 141st Ave (north crossing), downstream of Lost Lake
- Lost River at 141st Ave (south crossing), upstream of Lost Lake
- Lost River at CSAH 8
- Lost River at CSAH 28
- Lost River at Oklee
- Lower Badger Creek at 150th Ave. SE (channelized portion)
- Lower Badger Creek at County Road 114
- Moose River at CSAH 54
- Mud River at Highway 89
- Nassett Creek
- Polk County Ditch 1
- Polk County Ditch 2 at County Road 62
- Poplar River at CSAH 30 near Fosston
- Poplar River at 310th St. SE
- Red Lake River in Crookston
- Red Lake River at CSAH 11, near Gentilly
- Ruffy Brook at CSAH 11
- Silver Creek at 159th Ave
- Terrebonne Creek at Hwy. 92
- Thief River at 380th St. NE, at the northern boundary of Agassiz National Wildlife Refuge
- Thief River at 140th Ave NE (Hillyer Bridge) near Thief River Falls
- Tributary to the Lost River at 410th St., upstream of Lost Lake (in 2 sampling visits)

High concentrations of total phosphorus, in excess of applicable river eutrophication standards, were found in:

- Black River at CSAH 18
- Browns Creek at County Road 101
- Burnham Creek at CSAH 48
- Burnham Creek at 320th Ave. SW
- Chief's Coulee at Dewey Ave in Thief River Falls
- Clearwater River at CSAH 2
- Clearwater River at Plummer
- Clearwater River at the Terrebonne Bridge (CSAH 12)
- Clearwater River at Red Lake Falls
- Grand Marais Creek at 130th St. NW
- Heartsville Coulee at 13th Street
- Hill River at 335th Ave. SE
- Judicial Ditch 30 at 140th Ave NE
- Lost River at 109th Ave. near the Pine Lake inlet
- Lost River at 141st Ave (north crossing), downstream of Lost Lake

- Lost River at 141st Ave (south crossing), upstream of Lost Lake
- Moose River at CSAH 54
- Mud River at Highway 89
- Polk County Ditch 1
- Polk County Ditch 2 at County Road 62
- Poplar River at CSAH 30 near Fosston
- Poplar River at 310th St. SE (mostly from orthophosphorus)
- Poplar River at County Road 118
- Red Lake River at CSAH 11, near Gentilly
- Red Lake River in Crookston
- Red Lake River at Fisher
- Silver Creek at County Road 111
- Thief River at 380th St. NE, at the northern boundary of Agassiz National Wildlife Refuge
- Thief River at CSAH 7
- Tributary to the Lost River at 410th St., upstream of Lost Lake

Relatively high nitrates were found in the Thief River Watershed at

- Moose River at CSAH 54
- Mud River at Highway 89
- Thief River at 380th St. NE, at the northern boundary of Agassiz National Wildlife Refuge

High concentrations of biochemical oxygen demand (BOD) was found in:

- Chief's Coulee at Dewey Avenue in Thief River Falls

Though nitrate concentrations were relatively high in rivers that flowed into Agassiz Pool, nitrate concentrations were low in the Thief River downstream of the pool. Wetlands can be very effective for nitrate removal.

Longitudinal *E. coli* samples were collected along Grand Marais Creek, Polk County Ditch 2 and RLWD Ditch 15. Much of the Polk County Ditch 2 and RLWD Ditch 15 drainage system upstream of the Count Road 62 crossing of Polk County Ditch 2 had *E.* coli concentrations that were lower than the 126 MPN/100ml standard. *E. coli* concentrations were high in RLWD Ditch 15 at the Brandt impoundment outlet (but lower downstream), Grand Marais Creek at 110th St. NW and 130th St. NW, and Polk County Ditch 2 at County Road 62.

Microbial source tracking samples were collected from Chief's Coulee at Dewey Avenue in northern Thief River Falls and Polk County Ditch 2 at County Road 62. Bird fecal DNA markers were found in Polk County Ditch 2 (human, ruminant, and goose fecal markers were not found). Bird and dog (indicator of stormwater runoff pollution) fecal DNA markers were found in Chief's Coulee. Human fecal DNA markers were not found in Chief's Coulee, which indicates that efforts by the Pennington SWCD and the city to find and fix failing septic systems (or connect them to the city sewer) may have been successful.

Good water quality (no exceedances of standards despite large rainfall events and many exceedances in other streams) was recorded in the Red Lake River between Thief River Falls and Red Lake Falls.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

July 2019

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 July 2019 samples.

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. Darrigan's Creek at CSAH 23
    a. Dissolved oxygen levels dropped below 5 mg/L on multiple days and there was a lot of daily fluctuation.
2. Grand Marais Creek at 130th St. NW
    a. There was a high level of daily fluctuation, some signs of supersaturation (high level of plant and algae growth), and some days in which dissolved oxygen levels fell below 5 mg/L.
3. Grand Marais Creek at 110th St. NW
    a. Most of the dissolved oxygen measurements during the late July deployment were below the 5 mg/L standard. A drop in water levels left the sonde dry near the end of the deployment.
4. Hill River at 340th St. SE, between Cross Lake and Hill River Lake
    a. Despite clear water, cool temperatures, and decent flow during the early part of the deployment, dissolved oxygen levels at this site were consistently low.
5. Lost River at 486th St., downstream of Pine Lake

   a. Dissolved oxygen levels met the 5 mg/L standard throughout the month of July.
6. Lost River at 141st Ave (north crossing) downstream of Lost Lake
   a. Due to stagnant water behind a beaver dam, dissolved oxygen levels were consistently lower than the 7 mg/L dissolved oxygen standard for trout streams. Daily minimum dissolved oxygen levels were consistently lower than the 5 mg/L dissolved oxygen standard for warm water streams.
7. Lost River at 141st Ave (south crossing) upstream of Lost Lake
   a. This station featured a high level of daily fluctuation in dissolved oxygen levels. During the day, dissolved oxygen levels would be higher than the 7 mg/L standard for trout streams. During the night, however, daily minimums consistently fell below the 7 mg/L standard.
8. Tributary to the Lost River at 410th St., upstream of Lost Lake
   a. All dissolved oxygen measurements were greater than 7 mg/L.
9. RLWD Ditch 15 at Highway 75 (downstream of the Brandt Impoundment)
   a. All the dissolved oxygen levels in late July were low, and then the channel went dry. There was a beaver dam upstream, in the railroad culverts.

Blue-Green Algae Monitoring

District staff regularly sampled for algal toxins in Maple Lake (once every two weeks at the public beach) and deployed a temperature logger (at Trinity Point). None of the samples had detectable levels of algal toxins. Results of the algal toxin tests were shared with the Maple Lake Improvement District and a Maple Lake, Mentor MN Facebook Group.

After receiving a report of a cow that died from a suspected blue-green algal toxin poisoning while grazing along the Hill River downstream of Hill River Lake, a sample was collected from the lake and tested for algal toxins. Algal toxins were not present in the sample.
July 2, 2019 – 0 ppb at the Maple Lake Beach

Red Lake River Watershed Total Maximum Daily Load and Watershed Restoration and Protection Strategy

The Red Lake River Watershed Total Maximum Daily Load and Watershed Restoration and Protection Strategy documents were released for public notice in July 2019. The public notice and links to the draft reports were forwarded to contact lists that were compiled during the Red Lake River WRAPS civic engagement efforts.

News Release from the MPCA:
https://content.govdelivery.com/accounts/MNPCA/bulletins/251e3e0

Red Lake River Watershed Total Maximum Daily Load and Watershed Restoration and Protection Strategy documents, along with other reports, can be found on the MPCA's webpage for the Red Lake River watershed: https://www.pca.state.mn.us/water/watersheds/red-lake-river.

Intensive Monitoring in Lost Lake and Pine Lake Area

Sample collection in the Lost Lake and Pine Lake area continued throughout July 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.

Lost River at 141st Ave, downstream of Lost Lake

Grazing along the Lost River downstream of the south crossing of 141st Ave (upstream of Lost Lake).

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HOBO dissolved oxygen loggers were deployed near the outlet of Pine Lake, downstream of Lost lake, upstream of Lost lake, and in an unnamed tributary of the Lost River upstream of Lost Lake. Somewhat perched culvert at the north crossing of 141st Ave (downstream of Lost Lake) on July 9, 2019. Later in the summer, this location became impounded by a downstream beaver dam.

Lost Lake on July 11, 2019

Stream Gauging

District staff continued to check stage and flow levels at the three Thief River Watershed ditches that were being monitored to provide information for biological assessments and stressor identification. The 310th Street SE crossing of the Poplar River was added to the District's stream gauging effort due to its strategic location near the downstream end of an impaired reach of the Poplar River (09020305-518).

Thief River One Watershed One Plan (1W1P)

The Draft Thief River 1W1P was reviewed by the Advisory Committee, Planning Work Group, and Policy Committee. A Planning Work Group conference call was held on July 1, 2019 to discuss comments on the Draft Thief River 1W1P document. District staff updated the Thief River 1W1P website.

Other Notes

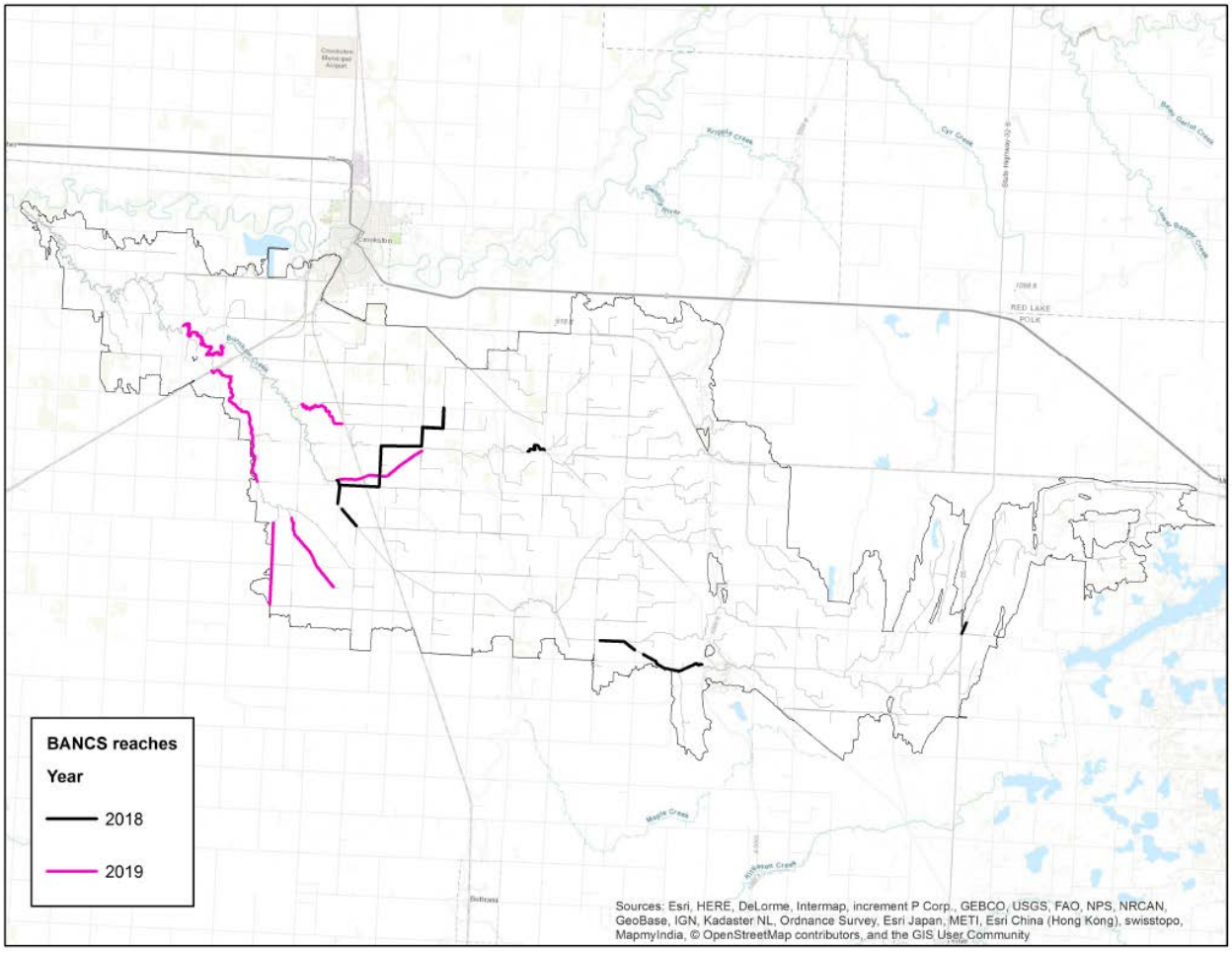
- Water quality related notes and minutes from the July 11, 2019 Red Lake Watershed District Board of Managers meeting.
    - Staff member Corey Hanson appeared before the Board to request Microbial Source Tracking Monitoring and Sampling that the District does not typical sample. Hanson stated that this sampling has indicating markers of what type of fecal coliform is found. Hanson would like to complete samples on Chief's Coulee within the City of Thief River

Falls and County Ditch 2/Grand Marais Creek area at an approximate cost of $2,100. Motion by Tiedemann, seconded by Dwight, to approve the Microbial Source Tracking Monitoring and Sampling as requested. Motion carried.

- Manager Dwight commended the effort being made by Staff member Corey Hanson for work on the Bartlett Lake Management Plan.
- Acting Interim Director, Jim Graham, Agassiz National Wildlife Refuge (NWR), appeared before the Board to request a Interagency Cooperative Agreement between the District and the U.S. Fish and Wildlife Service for a grant Agassiz NWR received to assist in cleaning of approximately 1.25 miles of Judicial Ditch 11, located within the Agassiz NWR. Motion by Tiedemann, seconded by Ose, to approve an Interagency Cooperative Agreement with the U.S. Fish and Wildlife Service for cleaning of Judicial Ditch 11. Motion carried.
- Administrator Jesme stated that the beaver dam upstream of the outlet on Judicial Ditch 5, (West Four-Legged Lake outlet) was removed. A beaver trapper was hired and was able to remove a beaver. Jesme stated that the trapper would rather not have to drive to the District office to submit the beaver tail for payment but agreed to submit a photo of the beaver he trapped for payment.

- Water quality related notes and minutes from the July 25, 2019 Red Lake Watershed District Board of Managers meeting.
  - Rob Sip, RRWMB, appeared before the Board to discuss the RRWMB 2020 levy and budget, funding commitments, state bonding and 2018 Annual Report. Sip stated that the RRWMB staff recently moved into their new office. Sip attended the Red Lake County and Pennington County Commissioners meetings this past week. Discussion was held on the funding of water quality projects and the formation of a Water Quality Committee. Administrator Jesme stated that he asked Staff member Corey Hanson to represent the District on the Water Quality Committee. Sip completed a Scope of Services for the Red River Basin Commission to better understand the funding the RRWMB gives to the Red River Basin Commission. Discussion was held on the Red River Retention Authority Joint funding with the North Dakota Red River Joint Water Resource District.
  - Discussion was held on terminating the NRCS RCPP contract extension on the Pine Lake Project, RLWD Project No. 26, with the intention that if the project were to move forward the District could apply for a NRCS 319 Grant. Manager Torgerson stated that he would like to see a delegation to meet with the appropriate members to change the designation of the trout stream in the Lost River. Engineer Nate Dalager, HDR Engineering, Inc., stated that this Board could take a site assessment. District staff are currently monitoring the water quality in the area. Dalager suggested holding a Project Team meeting in September to discuss habitat value and water quality monitoring. The MPCA has completed some monitoring of the stream and found it is not good habitat for trout. Motion by Torgerson, seconded by Page, to terminate the RCPP contract with the NRCS, and that the Board move forward with looking for alternatives for the project, continue with the monitoring of the stream, with the goal of a Project Team meeting in the future. Motion carried.
  - The Board reviewed the notice of availability and request for comments on the draft Red Lake River Watershed Restoration and Protection Strategies (WRAPS).

- District staff revised wasteload allocations in TMDL tables for the Red Lake River Watershed TMDL to due to revised numbers from the MPCA for the Thief River Falls wastewater treatment ponds.
- A water quality report was completed for the month of March 2019: http://www.redlakewatershed.org/waterquality/MonthlyWQReport/2019%2003%20March%20Water%20Quality%20Report.pdf
- The East Polk Soil and Water Conservation District created an issue of their Lake Leader Newsletter that focused on Maple Lake and distributed the newsletter to lake residents. https://img1.wsimg.com/blobby/go/27bec2b4-2554-483d-b390-7d41ceebd65b/downloads/maplelakeid_2019.pdf?ver=1570138727353
- The MN DNR's Thief River Watershed Zonation report was edited to create a version that did not reference the Thief River 1W1P and could be shareable online. The edited version of the report, along with the GIS data, presentation, and jpeg maps, was shared online: https://www.rlwdwatersheds.org/tr-docs
- District staff assisted MN DNR staff with a geomorphologic assessment of additional channel segments throughout the Burnham Creek subwatershed
    - Bank Erosion Hazard Index ratings along Burnham Creek between the 290th Avenue crossing to the 300th Avenue crossing (stopped at a tributary, other DNR staff assessed an upstream portion of that tributary.



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- The District office experienced a startling lightning strike on July 25, 2019! An outlet pedestal in the parking lot, several computers, networking equipment, and some other electronics were damaged or affected by the strike.
- Microbial Source Tracking samples were collected from Polk County Ditch 2 (S004-131) and Chief's Coulee (S008-496) to identify the source of *E. coli* in those waters.
    - Both sites exceeded the 126 MPN/100mL *E. coli* standard at the time of sampling. The overall *E. coli* concentrations at the sites were 214.2 MPN/100mL in County Ditch 2 and >2,419.6 in Chief's Coulee.
    - Bird fecal biomarkers were found at both locations. The concentration was very low in County Ditch 2. Bird fecal biomarkers were present in a high concentration (1,190 copies/100mL) in Chief's Coulee.
    - Dog fecal biomarkers (representing pet waste in stormwater runoff) were detected in the Chief's Coulee sample.
    - No goose biomarkers were detected in the County Ditch 2 sample.
    - Human biomarkers were not detected in either sample. This was good news. Human biomarkers had been detected before in Chiefs Coulee, but efforts have been made to connect failing systems to the city's wastewater system or upgrade failing septic systems. This sampling result indicates that those efforts have been successful at minimizing or eliminating that specific source.
    - Ruminant fecal biomarkers were not found in County Ditch 2.
    - The microbial source tracking samples did not seem to account for all sources that were contributing to the high concentrations that were found in the *E. coli* samples were collected at the same time as the microbial source tracking samples. Trace amounts of bird fecal DNA markers were the only source of fecal bacteria that was identified in County Ditch 2.
- The Clearwater River Watershed Restoration and Protection Strategy public Notice contract for editing the TMDL and WRAPS documents in preparation for the public notice process was executed in July 2019.
    - District staff answered a question for the Clearwater River Watershed Restoration and Protection Strategy and the Total Maximum Daily Load Report: Stony Lake does not appear to have an outlet. Natural landforms and Stony Lake Drive form a barrier to outflow. No culverts through Stony Lake Drive could be found.
    - Comments were received from Stephanie Klamm of the DNR from her review of the draft Clearwater River TMDL and WRAPS documents.
- Spilled fertilizer was noted near the Farmer's Co-op Elevator and Chief's Coulee

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Meetings and Events from July 2019

- **July 1, 2019 –** Thief River 1W1P Planning Work Group Conference Call
- **July 8, 2019 –** Pennington County WRAC meeting
    - CD96, 21, 16 Gully Control and Buffer Implementation update (total of 80 side water inlets)
    - Ditch Outlet Analysis (aerial photography and LiDAR using drones)
        - A larger drone, which can withstand more wind (up to 25 MPH), is being used.
        - They are trying to time flights so that there is low flow in the ditches and more ditch bank is visible.
        - All ditch outlets have been flown once and will be flown a total of 3 times to detect changes (erosion).
        - Northland Community and Technical College is trying to purchase their own LiDAR unit to fly.
        - Outlets that flow into a natural coulee are in the worst shape.
    - CD 96 Outlet Stabilization
        - The Red Lake SWCD shared some remaining funding from one of their grants with the Pennington SWCD for this project.
        - HDR has completed geotechnical work.
        - Discussion about fish passage along the CD 96 outlet.
    - Thief River PTMApp
        - Discussion about the removal of impoundment language from the 1W1P – some concern. What if a storage project is petitioned?
    - Streambank Stabilization Projects
        - The city of Thief River Falls provided $100,000 of matching funds for the Clean Water Fund Grant.
    - New Clean Water Fund Applications
        - BWSR has approved $13.5 million for projects and practices and $700,000 for multi-purpose drainage management projects
        - No accelerated implementation grant funding this year. We should just do the Clearwater River PTMApp work on our own. It is possible that we wouldn't have enough expenditures to reach the $30,000 minimum for grant applications, anyway.
        - Restoration of a wetland near Pennington Avenue in Thief River Falls that has been filled with 6-7 feet of sediment from stormwater runoff.
        - Comprehensive projects with multiple strategies may score better.
    - One Watershed One Plan Update
        - Red Lake River: SWCD is surveying potential locations for inlets along JD 25. 319 grants can be used as a match for state grants. Small Watershed Focus 319 Grant - $250,000 over 4 years to start, with up to 4 4-year cycles (16 years)
        - Thief River: We should have hired a professional facilitator for the Thief River 1W1P. Marshall County wants to hire someone to take on the coordinator role.
        - Clearwater River: Brett Arne will be the Clearwater River 1W1P BWSR representative. Start talking about a Clearwater MOA in December or January.
    - Ecofootprint Grant – Gully Control: Installed 34 side water inlets
    - Buffers: the SWCD has met with the County Engineer and County Attorney. The County Engineer does the enforcement for the county. The enforcement process started with

spot checks. The BuffCAT compliance tracking tool is being used to track buffer compliance. SWCD staff have been helping with the compliance checks. There is a lot of variance in compliance throughout the county. There are some new buffers, some that are dead (sprayed with Roundup), and some that are black (bare soil). If landowners contact the SWCD (Matt Sorvig), they will have 11 months to complete corrective action. Roundup-sprayed strips can be replanted, but atrazine-sprayed buffers along corn fields are worse (longer residence time).

- SWCD Updates:
  - The Pennington County Outdoor Education Day will be scheduled for September 11, 2019.
  - 8,500 trees were ordered and the SWCD planted 2,000 (down from 5,000 the previous year.
  - SWCD staff delineated wetlands in the Black River Impoundment project area.
  - Applicants were interviewed for the district technician job opening. They made an offer to a candidate, but that person found another job. They will be advertising for the job again.
  - The SWCD had a booth at the Home, Sports, and Family Show and at the Pennington County Fair. They had 3 billboards for public education about Aquatic Invasive Species.
  - Minnesota Department of Agriculture well sampling data may be available online.
  - SWCD staff worked on shoreland permitting, water monitoring, observation wells, soil borings for SSTS, and tree planting.
- City of Thief River Falls update: The pipes for the underground portion of Chief's Coulee are being replaced and re-routed. The old pipes have been "caving in something fierce." The FAA is concerned about wildlife being attracted to the outlet of the Thief River Falls Westside Flood Damage Reduction project. The city will be working on a forced main re-routing project. The city's planned Westside FDR project, roundabouts, and bridge projects area all interconnected.
- Farm Bill Biologist Update: CRP sign-up started June 3rd. The CRP cap was decreased last year.
- Next meeting scheduled for October 14,2019. The Farmer's Co-op polluted sump discharge issue was discussed. The city cannot accept water from the sump

- **July 10, 2019 –** Professional Judgement Group (water quality assessment) meeting for the Thief River Watershed
  - District staff, Chad Anderson (MPCA), Denise Oakes (MPCA), Scott Niemala (MPCA), Josh Johnston (Marshall County), Abby Bendickson (Pennington SWCD), Peter Nelson (Pennington SWCD), Matt Fischer (BWSR), Darren Carlson (Marshall SWCD), and Ben Lundeen (MPCA) were in attendance.
  - Water quality assessments for aquatic life were deferred during the 2013 assessment of the Thief River watershed because tiered aquatic life use (TALU) standards had yet to be formally adopted. The state is reviewing and completing the aquatic life assessments for channelized streams in the Thief River watershed and other watersheds that were last assessed prior to TALU so that the biological sampling data from the first round of intensive watershed monitoring does not go to waste in those watersheds. The Thief River was sampled for the intensive watershed monitoring program in 2011 and 2012.

This current assessment effort is evaluating data collected in the years 2009 through 2018.

- Chad Anderson (MPCA) gave a presentation on the assessment process that had a nice set of slides that animated the process of monitoring and assessing watersheds throughout the state.
- There will be a stressor identification process for aquatic biology impairments that were identified in the Thief River Watershed.
- There was a question about whether Thief Lake has plans for killing fish or if there are any other conflicts between waterfowl goals and aquatic life goals.
- There was discussion about situations in which ditch law may conflict with the application of the Clean Water Act. While it is good that desirable fish species were found in small ditches like Judicial Ditch 23, they were only designed for drainage (not habitat) and may require periodic maintenance that may disturb the incidental habitat that is being used by fish and macroinvertebrates.
- Dissolved oxygen levels in Branch 200 of JD 11 were compared to flow records. Low DO readings were not limited to periods of low flow. Filtering out DO data collected during stagnant conditions did not reduce the frequency of low DO concentrations.
- Changes in use class designations (from "general" to "modified") were discussed for the following reaches. This change in use classification will lower the expectations for aquatic biology (fish and macroinvertebrate index of biological integrity) scores along altered and artificial watercourses that did not score well enough to meet the standards applied to streams in the "general" use classification.
    - **Ditch 200 (09020304-511)** from the Lost River Pool outlet to 180th Ave NE. Aquatic life impairments were proposed for this reach due to poor fish and macroinvertebrate index of biological integrity scores. This reach should also be listed as impaired by low dissolved oxygen levels.
    - **County Ditch 20 (09020304-548)** from Clifford Lane NW to an unnamed ditch upstream of Sharon Road may have an aquatic life impairment due to a poor fish index of biological integrity score. Downstream and upstream sites met standards. Benthic macroinvertebrates indicated that long-term water quality conditions should be adequate to support aquatic life. The GIS layer for the upstream reach, 09020304-549, follows the wrong path. The Sharon Road crossing has maintained flow throughout the summer of 2019, so far.
    - **Moose River (09020304-566)** from the east boundary of T157 R38W Section 2 to Thief Lake. This reach retained the existing low dissolved oxygen impairment from the 09020304-505 assessment unit that was split into 09020304-565 and 09020304-566 assessment units.
    - **Judicial Ditch 11 (09020304-536)** from Branch 194 JD 11 (Eckvoll WMA) to the Thief River
    - **Tributary of Judicial Ditch 13 east of Goodridge (09020304-537)** –along 195th St. NE and upstream (east) of 330th Ave NE
    - **Lat JD 23 (09020304-550)** from its headwaters to the Thief River. This ditch had ceased flowing prior to this meeting.
    - **Main JD 23 (09020304-551)** from an unnamed ditch at 250th St NE to the Thief River (enters the Thief River near the Hillyer Bridge). Flow was monitored in this ditch during the summer of 2019. This ditch had ceased flowing at the 220th St.

NE crossing prior to this meeting. There still was a trickle of flow where the ditch enters the Thief River, but it may have been from groundwater seepage – the seepage that has been causing bank instability problems along 140th Ave NE near the Thief River.

- **County Ditch 27 (09020304-552)** from an unnamed ditch to Branch 3 County Ditch 20
- **County Ditch 32 (09020304-554)** from an unnamed ditch to County Ditch 20
- **Branch A Judicial Ditch 21 (09020304-557)** from an unnamed ditch to the Moose River
- **Marshall County Ditch 35 (09020304-558)** from the outlet of Northwest Pool to State Ditch 83 (Thief River). This is an artificial watercourse (road ditch) that should not have been prioritized for fish/macroinvertebrate sampling, but barely met aquatic life standards.
- **Unnamed ditch (09020305-559)** from its headwaters to Mud Lake

o Other Aquatic biology impairments were discussed

- **Thief River (09020304-504)** from Thief Lake to Agassiz Pool may have an aquatic life impairment due to a poor fish index of biological integrity score. Only 9 species of fish were found. More than 50 northern pike were captured during the biological sampling. Predation from northern pike may influence the populations of other species of fish. There were good minnow species present, but other key species were missing. Fish passage could be a limiting factor for this reach. The reach was sampled within the channelized, State Ditch 83 portion of the river. It would have met the modified use standard but failed to meet the general use standard. It would have been interesting to have seen sampling results from the northern or natural channel portions. That would have been much more useful than collecting samples from some of the small artificial watercourses that were sampled. This portion of the river is significantly affected by channelization, erosion, and sedimentation. Turbidity is typically higher in the lower portion of this reach (downstream of 400th St. NE) compared to the upstream portion near Thief Lake.
- **Moose River (09020304-565)** from the outlet of Moose River Impoundment to Morel Road NW may have an aquatic life impairment due to a low fish index of biological integrity score. The MPCA applied the “general” use standard to this reach. There is a portion of the watercourse that appears natural, where it meanders downstream of the impoundment, but the sampling was conducted within a channelized (modified) portion of the assessment unit. The fish score within this reach was within a few points of a downstream reach (09020304-566) that received a “modified” classification and met that fish index of biological integrity standard for modified streams. The “general” use classification for the …565 section of the Moose River means that it has higher expectations for aquatic biology than downstream sections that were classified as “modified.” The macroinvertebrate index of biological integrity score was good, which indicates that long-term water quality conditions should be good enough to support a higher quality fish population. The fish samples were dominated by fatheads. No later-spawning species or lithophilic spawners were found.

        - The **Mud River** (formerly assessment unit 09020304-507, that started) was split into two assessment units, unnecessarily, due to an incorrect assumption that was made by MPCA staff. The "…507" assessment unit was split into assessment units "**-567**" and "**-568**" near the St. Petri Lutheran Church. They thought that only a portion of the Mud River (Judicial Ditch 11) had only been dredged downstream of the point where they made the split and didn't realize (they didn't consult local staff) that the river has also been dredged upstream. The *E. coli* impairment was retained in both of the new assessment units. Both stream segments may be listed as impaired due to low fish index of biological integrity scores. The lower assessment unit, "-568," will be listed as impaired for aquatic life by low dissolved oxygen and a low fish index of biological integrity score. The fish index of biological integrity score on assessment unit -568 was "borderline" between being impaired and meeting the standard. The macroinvertebrate samples were dominated by snails and midges. MPCA biological sampling staff encountered areas with deep sedimentation within the lower, -568, reach. Spottail shiners were absent at the downstream stations in -568 but were found upstream near Grygla in the -567 assessment unit.
    - It was also noted that **Judicial Ditch 13/18/30** channel was classified as a Class 7, "limited resource value" water despite being the primary watercourse of a HUC 10 subwatershed. The designation was reportedly applied at the request of the city of Goodridge because it receives discharge from the city's wastewater treatment facility. The channel was sampled for aquatic biology, but not assessed due to a lack of aquatic life expectations for limited resource value waters. Because of the good water quality, nearly perennial flow, and significance to the HUC 10 subwatershed, it should be classified as a Class 2Bm, 3C (modified use) watercourse. District staff will provide flow data to MPCA staff.
- **July 13, 2019** – Maple Lake Improvement District Annual Meeting
    - District staff created a handout for the meeting. District staff also spoke about continued water quality sampling, water quality improvement, and blue green algae concerns.
    - East Polk SWCD is working with landowners and Prairie Restorations on shoreline restoration projects. The SWCD has meet with landowners, provided seed, and helped with project design, and provided cost share for shoreline restoration, rain gardens, and buffer strips.
    - The Polk County Sheriff's talk and questions from the attendees are always interesting. This year, the Sheriff has heard complaints about ultralight aircraft buzzing people's homes. There were complaints about excess touch-and-go landings on the lake by float planes. While on patrol, the Sheriff's office addressed problems with after-hours personal watercraft operation, riding on gunwales of boats, and kids operating golf carts during 40 "contacts" in the Maple Lake and Union Lake area. They have implemented some education efforts in the area. Fortunately, no accidents were reported over the busy 4th of July holiday.
    - The Polk County assessor also spoke at the meeting. Large increases in property values during the 2019 assessment, especially around the lakes, were discussed. There have been appeals from property owners on Maple Lake.

  - During the Polk County Planning and Zoning segment, there was a lot of discussion about septic systems and an inventory of campers that are parked on lake lots for long periods of time. There was more discussion about septic system compliance later in the meeting. A rebate program for compliance tests was discussed and the group voted to approve having the MLID Board put together a proposal for septic system inspections. Dye kits were used to test septic systems in the past. During one round of testing, so many systems were tested that the lake turned red. Phosphorus from septic systems still gets to the lake, even when septic systems are up to date. Target plantings and shoreline restoration projects for areas between septic systems and the lake.
  - MLID President recapped 2018-19 activities including water quality sampling, mosquito spraying, meetings to discuss runoff reduction projects near the lake, and the MLID website. The MLID didn't pay for a fireworks show this year. It was hard to justify spending $5,000 on 7 minutes of entertainment.
  - There was discussion about a project at the access to improve the boat landing, improve parking, and complete some landscaping.
- **July 26, 2019 -** Thief River 1W1P Planning Work Group phone conference to review comments submitted by the Advisory and Policy Committee members, concerning the draft plan that was sent out on July 8, 2019.
- **July 31, 2019 –** District staff met within BWSR and Red Lake Soil and Water Conservation District staff to review a Red Lake County SWCD Clean Water Fund Grant application.

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.

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By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 2/2/2019.

2019 Staff Photo: Front (L to R) – Marisa Newton, Christina Slowinski, Ashley Hitt, Tammy Audette, Arlene Novak; Back (L to R) – Nick Olson, Myron Jesme, Corey Hanson, Loren Sanderson

Red Lake Watershed District Long-Term Monitoring Program

High concentrations of total suspended solids were found in:

- Chief's Coulee at Dewey Ave in Thief River Falls
- Darrigan's Creek at CSAH 23 (>15 mg/L)
- Tributary to the Lost River at 410th St., upstream of Lost Lake (>10 mg/L)

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

- Beau Gerlot Creek at CR 114
- Burnham Creek at CSAH 48
- Chief's Coulee at Dewey Ave in Thief River Falls
- Clearwater River at CSAH 2
- Darrigan's Creek at CSAH 23 (>2,419.6 MPN/100 ml)
- Hill River at CSAH 35, downstream of Hill River Lake
- Hill River at CR 119
- Judicial Ditch 73 at 343rd St. SE

- Judicial Ditch 73 at CSAH 10 (Maple Lake inlet)
- Kripple Creek at 180th Ave SW
- Little Black River at CR 102
- Lost River at 141st Ave (south crossing), upstream of Lost Lake
- Lost River at CSAH 28
- Lost River at CSAH 8
- North Cormorant River at CSAH 36
- O' Briens Creek at Harvest Road NE
- Polk County Ditch 14 at CSAH 10, near the Maple Lake Outlet
- Poplar River at CSAH 30 near Fosston
- Red Lake River at the Greenwood Street Bridge in Thief River Falls
- Ruffy Brook at CSAH 11
- Silver Creek at 159th Ave (>2,419.6 MPN/100 ml)
- Terrebonne Creek at CSAH 92
- Thief River at CSAH 7
- Tributary to the Lost River at 410th St., upstream of Lost Lake

High concentrations of total phosphorus, in excess of applicable river eutrophication standards, were found in:

- Blackduck River at Deer Trail Road NE
- Burnham Creek at 320th Ave. SW
- Chief's Coulee at Dewey Ave in Thief River Falls
- Coburn Creek at North Blackduck Lake Road NE
- Cyr Creek at 220th St. SW
- Darrigan's Creek at CSAH 23
- Little Black River at CR 102
- Lost River at 109th Ave., near the Pine Lake inlet (2 occasions)
- Lost River at 141st Ave (north crossing), downstream of Lost Lake (2 occasions)
- North Cormorant River at CSAH 36
- O' Briens Creek at Harvest Road NE
- Poplar River at CR 118
- Poplar River at 310th St. SE (mostly from orthophosphorus)
- Poplar River at CSAH 30 near Fosston
- South Cormorant River at CSAH 37, Corlan Road NE

Low concentrations of dissolved oxygen were found in:

- Lost River at 109th Ave., near the Pine Lake inlet
- Walker Brook at CSAH 19

Extremely high concentrations of nearly all pollutants for which samples from Chief's Coulee were analyzed. In addition to the high *E. coli,* total phosphorus, and total suspended solids noted above, Chief's Coulee also had high concentrations of biochemical oxygen demand, ammonia nitrogen, nitrates, and total Kjeldahl (ammonia plus organic) nitrogen.

Total suspended solids concentrations met the water quality standard in the lower reaches of the Red Lake River in Crookston and at the CAH 11 Bridge near Gentilly. A very low total suspended solids concentration (<1 mg/L, or less than the laboratory's minimum reporting limit) was recorded in the Hill River at 335th Ave. SE.

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 August 2019 samples.

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. Grand Marais Creek at 130th St. NW
    a. There were high levels of daily dissolved oxygen fluctuation and some low dissolved oxygen levels at this site in early August. Dissolved oxygen levels worsened as water levels and flows decreased.
2. Grand Marais Creek at 110th St. NW
    a. Dissolved oxygen levels were consistently low at this site. Water levels dropped during the deployment and the logger went dry for part of the early August deployment.
3. RLWD Ditch 15 near the Brandt Impoundment outlet
    a. Dissolved oxygen levels were regularly low at the Highway 75 crossing and the channel stopped flowing during the deployment at that site. There was a beaver dam upstream at the railroad bridge.
4. Hill River at 340th St. SE, between Cross Lake and Hill River Lake
    a. Dissolved oxygen levels were consistently low and the stream eventually went dry. The daily fluctuation of dissolved oxygen levels was relatively low.
5. Darrigan's Creek at CSAH 23
    a. Dissolved oxygen levels dropped below 5 mg/L on multiple days and there was a lot of daily fluctuation.
6. Lost River at 109th Ave, upstream of Pine Lake
    a. All dissolved oxygen measurements were below the 5 mg/L standard. Some daily minimums fell below 1 mg/L.
7. Hill River at 335th Ave SE
    a. All dissolved oxygen measurements were greater than the 5 mg/L standard.
8. Lost River at 530th St., downstream of Anderson Lake
    a. Despite clean water and good flow, daily minimums routinely dropped below 2 mg/L.
9. Clearwater River at 400th Ave SE (CSAH 27)
    a. Dissolved oxygen level met the 5 mg/L standard throughout the late August and early September deployment.
10. Mud River in Grygla
    a. There was a high level of daily fluctuation in the Mud River near Grygla, but nearly all of the measurements were greater than the 5 mg/L standard.

11. Lost River at 486th St., downstream of Pine Lake
    a. All dissolved oxygen readings were higher than the 5 mg/L warm water standard throughout early August.
12. Lost River at 141st Ave (north crossing) downstream of Lost Lake
    a. Dissolved oxygen levels were very low and rarely reached 5 mg/L due to ponding from a beaver dam. Dissolved oxygen levels sometimes dropped to 0 mg/L.
13. Lost River at 141st Ave (south crossing) upstream of Lost Lake
    a. Dissolved oxygen levels dropped below 5 mg/L daily and there was a high level of dissolved oxygen fluctuation (DO Flux) throughout each day.
14. Tributary to the Lost River at 410th St., upstream of Lost Lake
    a. Dissolved oxygen levels occasionally dropped below 7 mg/L (cold water trout stream standard), but all dissolved oxygen levels were higher than 5 mg/L (warm water standard). There was relatively low amount of daily dissolved oxygen fluctuation.

Blue-Green Algae Monitoring

District staff regularly sampled for algal toxins in Maple Lake (once every two weeks at the public beach) and a temperature logger was deployed in the lake (at Trinity Point). None of the samples had detectable levels of algal toxins. Results of the algal toxin tests were shared with the Maple Lake Improvement District and a Maple Lake, Mentor MN Facebook Group.

Red Lake River Watershed Restoration and Protection Strategy (WRAPS)

District staff reviewed the public notice version of the Public Notice Draft Red Lake River WRAPS report. Between the last revision of the WRAPS by District staff and the public notice period, MPCA staff (from Southern Minnesota) had made significant changes to the WRAPS that removed important information, added irrelevant information (like a bunch of information about tile drainage as a source of TSS), and made other changes that harmed the quality and usability of the document. District staff also reviewed the Public Notice Draft Red Lake River Watershed Total Maximum Daily Load report, which hadn't been significantly altered since the last revision.

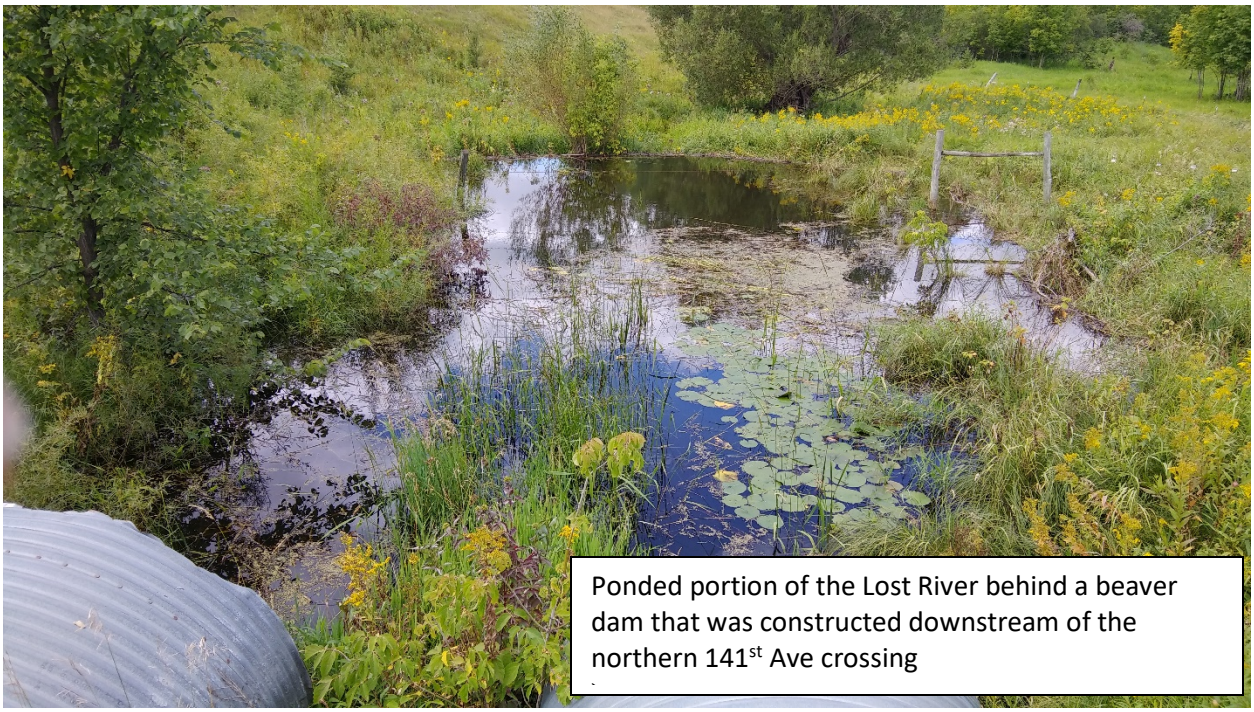
Intensive Monitoring in Lost Lake and Pine Lake Area

Sample collection in the Lost Lake and Pine Lake area continued throughout August 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.

HOBO dissolved oxygen loggers were deployed near the outlet of Pine Lake, downstream of Lost lake, upstream of Lost lake, and in an unnamed tributary of the Lost River upstream of Lost Lake.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

August 2019



Ponded portion of the Lost River behind a beaver dam that was constructed downstream of the northern 141st Ave crossing

Stream Gauging

District staff continued to check stage and flow levels at the three Thief River Watershed ditches that were being monitored to provide information for biological assessments and stressor identification.

Thief River One Watershed One Plan (1W1P)

District staff helped HEI staff with determining numerical *E. coli* reduction goals for the Thief River 1W1P and edited the map on the Thief River 1W1P website.

The 60-day public comment period for the Thief River One Watershed One Plan began on August 14, 2019. Comments were due October 16, 2019.

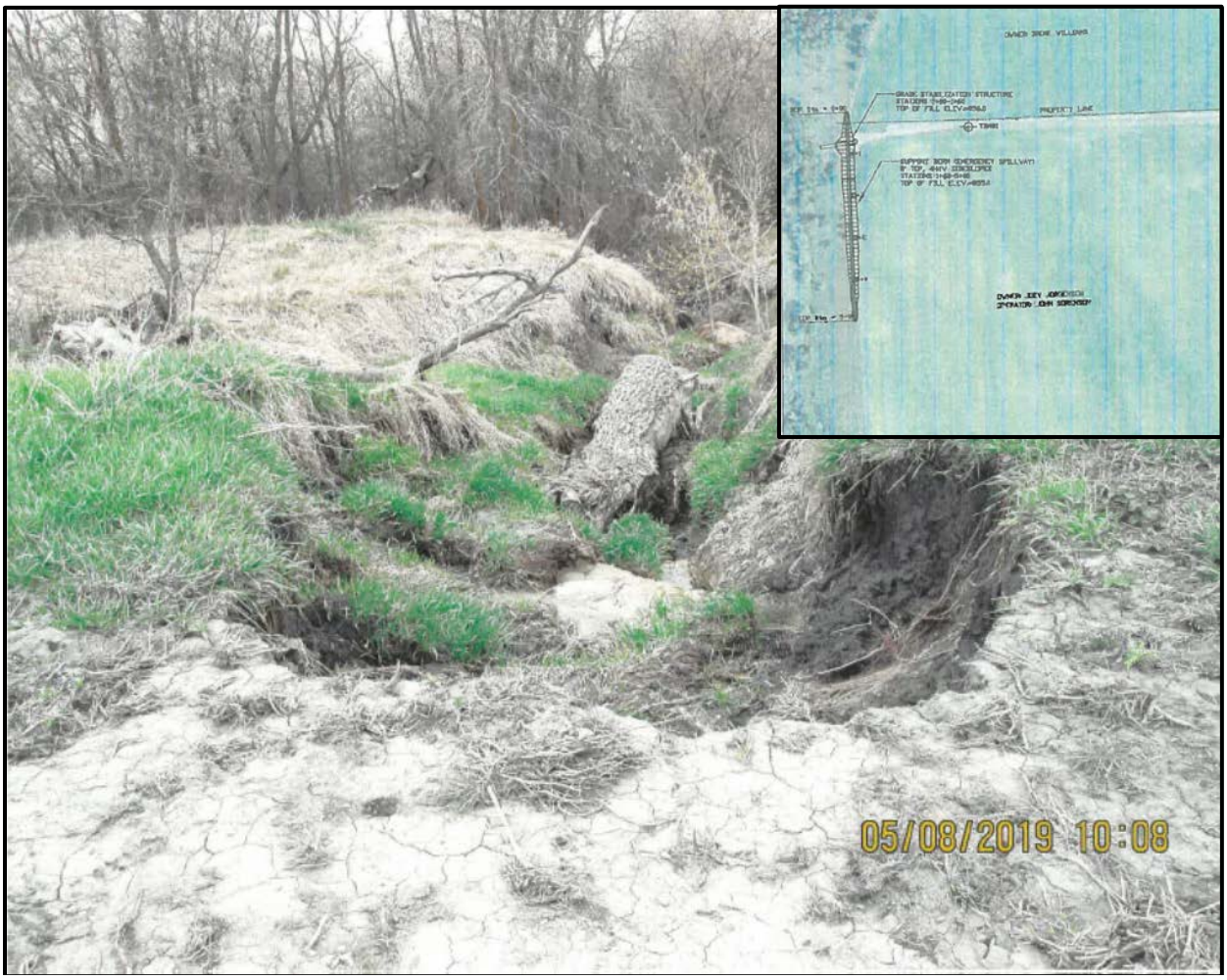
The Thief River 1W1P Policy and Advisory Committee's met on August 31, 2019 to review the draft plan. The Policy Committee approved all changes and voted to move the plan forward for the 60-day review period.

Red Lake River Watershed One Watershed One Plan

The website address for the Red Lake River 1W1P was updated to a new domain: http://westpolkswcd.org/1w1p.html

Quotes were opened for the West Polk SWCD Burnham Creek Project using "Highway Heavy" Prevailing Wages that were omitted from the previous specification. The low quote was submitted by Wright Construction of TRF and was about 10% higher than their previous quote.

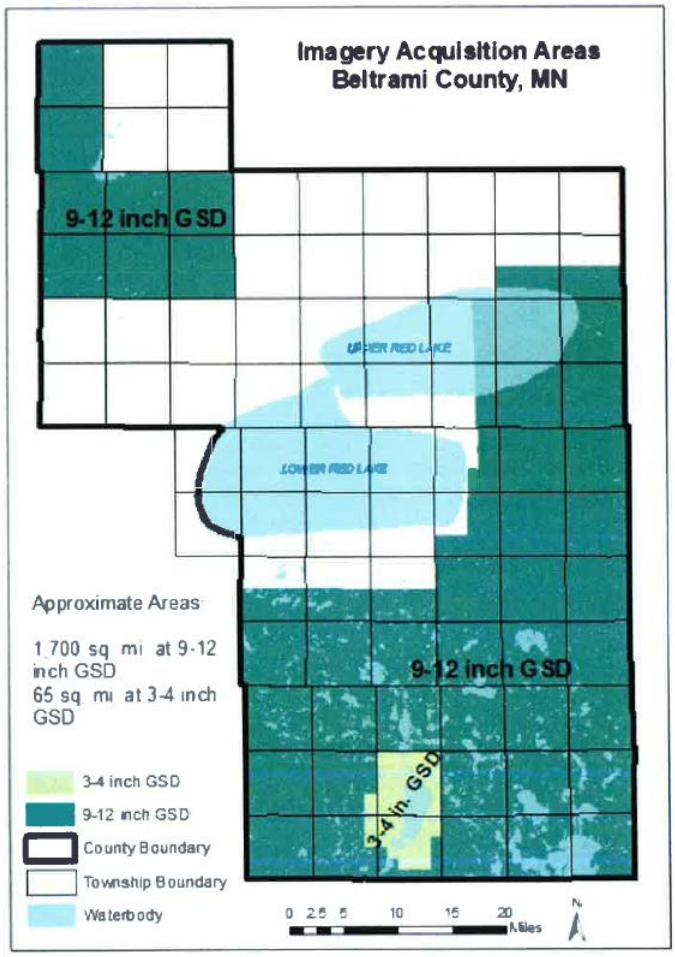
The West Polk SWCD submitted a project request to fix an erosion problem near Burnham Creek by installing a grade stabilization structure.



Other Notes

- Water quality related notes and minutes from the August 8, 2019 Red Lake Watershed District Board of Managers meeting.
    - Summer staff, Marisa Newton, updated the Board on the Clearwater River Watershed Culvert Inventory Project that she has been working on. Newton stated that she identified culverts within the Clearwater River through GIS, and when necessary would go out to ground truth the location of the culverts. This process allows the District to know establish where the water is going, timing of water coming off the lands and measure the benefits of a project that could work within that subwatershed. Newton is also assisting in water quality sampling this summer. Manager Dwight asked staff if they were measuring culvert sizes at the same time while field truthing? Ashley Hitt indicated that when they started the project, they were trying to get sizes but soon realized time would not allow this to be completed within the budget and timeframe.

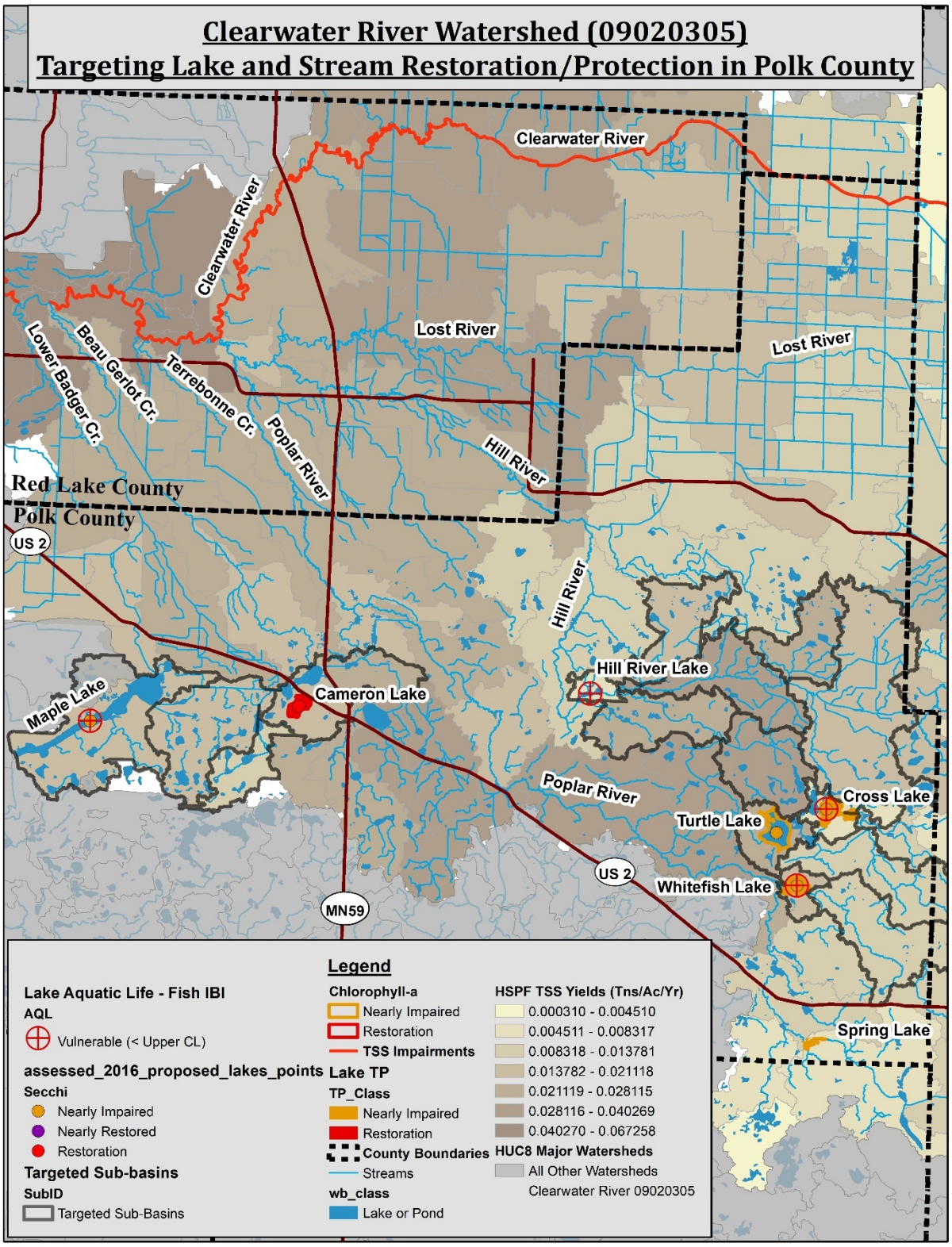
- Water quality related notes and minutes from the August 22, 2019 Red Lake Watershed District Board of Managers meeting.
  - The Board reviewed correspondence from Beltrami County regarding conducting a new aerial imagery project next spring in Beltrami County. Beltrami County completed aerial imagery in 2014, where the District contributed $20,000. Administrator Jesme indicated that they will not complete imagery of heavily forested area north of Waskish and the Red Lake Indian Reservation, as the Tribe has already flown their area. Beltrami County is requesting a cost share in the amount of $10,000 from the District. Beltrami County has indicated that they will share the information with the District for use in GIS software, and the information will be publicly available on the Beltrami County online maps. Motion by Dwight, seconded by Page, to approve a cost share in the amount of $10,000 to Beltrami County for aerial imagery of Beltrami County. Motion carried.



  - Zach Gutknecht, Beltrami Soil and Water Conservation District (SWCD), presented a proposal for cost share for installation of six side water inlet (SWI) culverts in the Moose River, Northwood Township, Beltrami County. Gutknecht stated that the estimated project cost is $10,303.20, with a request for $3,000 cost share funding from the RLWD's 2019 Erosion Control Funds. Gutknecht stated that the landowner will be responsible for 25% of the project costs, with the remaining funds coming from the SWCD. Following discussion, a motion was made by Dwight, seconded by Ose, and passed unanimously, to approve a cost share of $3,000 from the RLWD Erosion Control Funds, RLWD Project No. 164 for the installation of six SWI culverts for the Beltrami SWCD.

- Administrator Jesme stated that Polk County has recently completed aerial imagery. Polk County will have 50 seats available for utilization of the Eagleview information and will prepare a proposal for the purchase of each seat.
- Jesme with assistance from HDR and MnDNR staff, are drafting a grant application from the Conservation Legacy Funding to assist in funding the repair to the outlet structure of the BR-6 Wildlife Habitat Pool on the east side of the Burnham Creek Impoundment.
- The Clearwater SWCD will host the 2019 Area VIII Fall Meeting and Tour on September 12th and 13th.

- The 2018 Red Lake Watershed District Annual Report was completed: http://redlakewatershed.org/Annual%20Reports/2018%20Annual%20Report.pdf
- A monthly water quality report was completed for the month of April 2019: http://www.redlakewatershed.org/waterquality/MonthlyWQReport/2019%2004%20April%20Water%20Quality%20Report.pdf
- A Monthly water quality report was completed for the month of May, 2019: http://redlakewatershed.org/waterquality/MonthlyWQReport/2019%2005%20May%20Water%20Quality%20Report.pdf
- The Clearwater Lake Area Association distributed a fall issue of their Dockside newsletter: http://minnesotawaters.org/clearwaterlakearea/wp-content/uploads/sites/25/2019/09/CLAA-Fall-Dockside_2019_for-release.pdf
- District staff were contacted by Minnesota Department of Health staff about conducting intensive monitoring of the Thief River and Red Lake River during a scheduled drawdown of Agassiz Pool. District staff provided MDH staff with continuous monitoring data and other information about water quality in the Thief River. MDH staff traveled to the District office to drop off equipment and calibration solutions for water quality logger deployments in the Thief River.
- Minnesota Aquatic Invasive Species Research Center is sampling Red Lake to learn how Aquatic Invasive Species (zebra mussels) affect fish growth (particularly walleye). https://www.maisrc.umn.edu/walleye-ais
- District staff reviewed a Clean Water Fund grant application that the East Polk Soil and Water Conservation District will be submitting for the installation of water and sediment control basins to reduce sediment and nutrient runoff to impaired and nearly impaired lakes in the Clearwater River Watershed. The East Polk Soil and Water Conservation District (SWCD) and the Red Lake Watershed District (RLWD) will work together to expand the recent success of the SWCD's Sand Hill River Watershed Accelerated Erosion Area BMPs Clean Water Project to address water quality issues in lakes and rivers of the Clearwater River Watershed. This project will install 30 water and sediment control basins (WASCOBs) within prioritized areas within the Clearwater River Watershed HUC 09020305 to help improve water quality through the reduction of sediment and nutrient runoff to lakes and streams. The WASCOB projects will be constructed within subwatersheds that flow to an impaired or nearly impaired lake. Within those subwatershed, projects will be further targeted specific HSPF-modeled sub-basins that have relatively high sediment/nutrient yields. All the projects will be installed in areas that are upstream of portions of the Clearwater River that are impaired by excess total suspended solids.

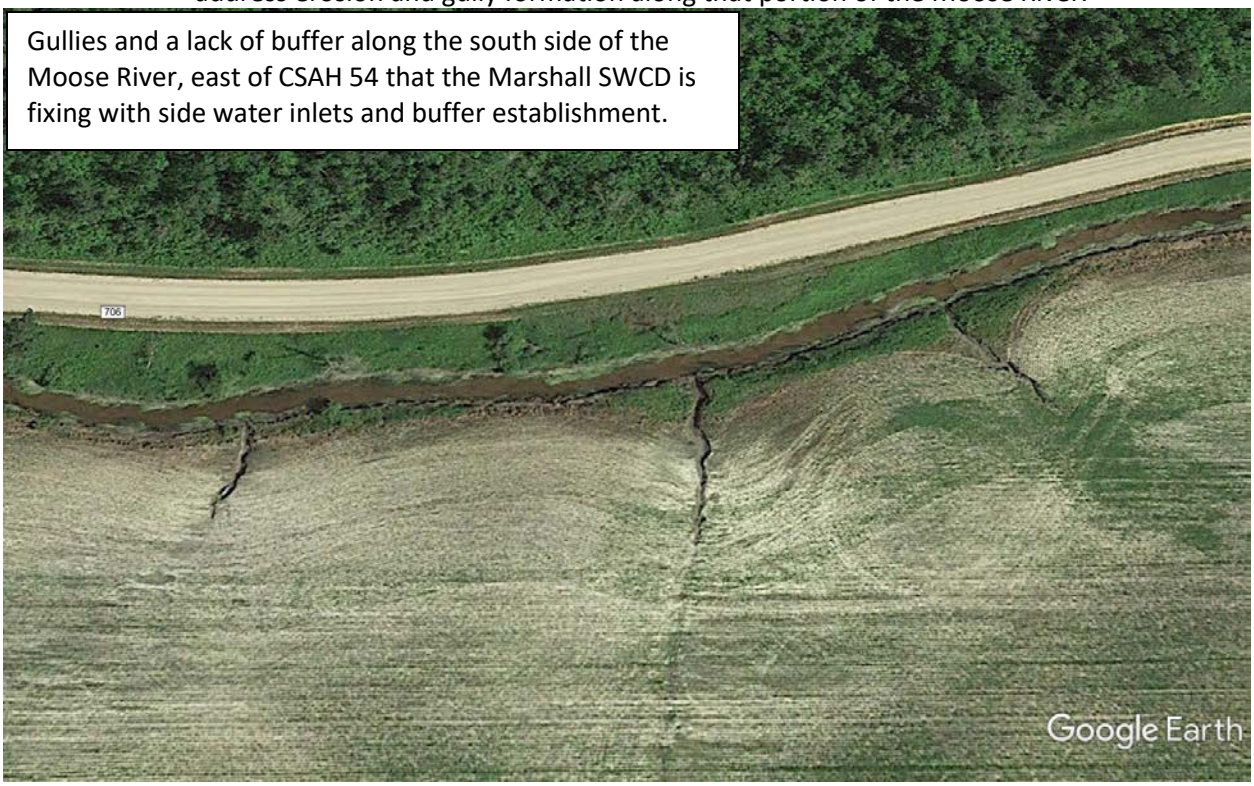

Clearwater River Watershed (09020305)
Targeting Lake and Stream Restoration/Protection in Polk County
Clearwater River
Clearwater River
Lost River
Lost River
Lower Badger Cr.
Beau Gerlot Cr.
Terrebonne Cr.
Poplar River
Hill River
Red Lake County
Polk County
US 2
Hill River
Hill River Lake
Maple Lake
Cameron Lake
Poplar River
Cross Lake
Turtle Lake
US 2
Whitefish Lake
MN59
Spring Lake
Legend
Lake Aquatic Life - Fish IBI
AQL
Vulnerable (< Upper CL)
assessed_2016_proposed_lakes_points
Secchi
Nearly Impaired
Nearly Restored
Restoration
Targeted Sub-basins
SubID
Targeted Sub-Basins
Chlorophyll-a
Nearly Impaired
Restoration
TSS Impairments
Lake TP
TP_Class
Nearly Impaired
Restoration
County Boundaries
Streams
wb_class
Lake or Pond
HSPF TSS Yields (Tns/Ac/Yr)
0.000310 - 0.004510
0.004511 - 0.008317
0.008318 - 0.013781
0.013782 - 0.021118
0.021119 - 0.028115
0.028116 - 0.040269
0.040270 - 0.067258
HUC8 Major Watersheds
All Other Watersheds
Clearwater River 09020305

- District staff met with Red Lake SWCD and BWSR staff to review a Clean Water Fund application for erosion control projects along lower reaches of the Clearwater River. Red Lake County SWCD has targeted ten sites based on data analysis obtained from using the DRAFT Clearwater River WRAPs and TMDL Reports, Water Quality Decision Support System (WQDSS) tool, DNR Stressor ID database, and the Soil and Water Assessment Tool (SWAT) models. The Lower Clearwater River subwatershed (0902030507) encompasses the Clearwater River between the channelized reach and the river's confluence with the Red Lake River. The data identified which HUC-10 subwatershed (0902030507) was contributing to these impairments, highlighted which fields in the subwatershed were contributing the most sediment, and even showed specific locations in the field which were most vulnerable to erosion. The project sites will provide protection from for high quality unimpaired waters and reduce loading to an impaired reach downstream on the Clearwater River. Red Lake County SWCD conducted an Erosion Site Inventory in 2019, which verified the information from the tools/models and found landowners in these priority areas that were eager to fix the erosion problems on their fields. Water Quality Improvement Projects, which include but are not limited to, grade stabilization structures, grassed waterways, and water & sediment basins, will be the Best Management Practices (BMPs) implemented to correct the erosion. Through the implementation of these BMPs, the large amount of sediment that is being contributed from the Clearwater River Subwatershed will be reduced and will improve water quality, drinking water, recreation, fish habitat, and aesthetics. Further downstream, the City of East Grand Forks pulls its drinking water from the Red Lake River, making these projects a regional concern as well. The ten installed practices result in the following pollutant reduction numbers: Sediment (TSS) will be 793.28 T/yr., Soil will be 1958.82 T/yr. and Phosphorus will be 569.38 lbs./yr.
- District staff compiled zonation information from the DNR into a single document, removed references to the Thief River 1W1P (Policy and Advisory Committees didn't want zonation included in the 1W1P) and posted links to the information (presentation, GIS layers, Word, report, and jpeg maps) online.
    - Presentation: http://www.redlakewatershed.org/1W1P/Thief%20River%20Zonation%2020180706.pdf
    - Report on methods: http://www.redlakewatershed.org/1W1P/Thief%20River%20Zonation%20Methods%20and%20Results.pdf
    - GIS layers: http://www.redlakewatershed.org/1W1P/Thief_Zonation_GIS.zip
    - Map images: http://www.redlakewatershed.org/1W1P/Thief_Zonation_Maps.zip
- Polk County Environmental Services constructed zebra mussel samplers for the District. The samplers will be installed in the Red Lake River, east (upstream) of Thief River Falls.
- The USFWS is planning a September drawdown from Farmes Pool to repair a gate that won't completely close.
- District staff began planning a meeting in Northome to discuss a lake management plan for Bartlett Lake. MN DNR staff shared their detailed fisheries management plan for the lake.
- A Stroud Water Research Center water quality logger was installed in the Lost River in Oklee by District staff, International Water Institute staff, and a Red Lake County Central River Watch student. The logger recorded dissolved oxygen and temperature levels.

Meetings and Events from August 2019

- **August 1, 2019 –** Marshall County Water Resources Advisory Committee, Newfolden
  - The Marshall County SWCD is installing buffers and side water inlets along the Moose River upstream of CSAH 54. This has been a much-needed project for many years to address erosion and gully formation along that portion of the Moose River.

Gullies and a lack of buffer along the south side of the Moose River, east of CSAH 54 that the Marshall SWCD is fixing with side water inlets and buffer establishment.



  - The upcoming schedule for the Thief River 1W1P was discussed, including the 60-day comment period, approval by local boards, and BWSR submittal.
  - Buffer update: The state needs to continue providing funding for buffer strip compliance because enforcement of the buffer law will still cost money, even if all waterways are in compliance. The county will help people get in compliance by planting buffers for them.
  - A landowner spoke about how she was initially upset about the Buffer Law but came to understand why it was necessary. She said that people were asking for problems by farming through ditches. She talked about how we need to preserve the soil and keep it from washing away to Agassiz Pool or wherever. Leaving a buffer is part of being a good neighbor.
  - The county Environmental Service office has been busy with septic system projects (almost $20,000 spent), applying for more septic system funding, a county fair booth, providing recycling bins at the county fair, FEMA funding applications, and answering insurance-related floodplain questions.
  - Wetland bank discussion
  - Matt Fischer, from BWSR, discussed Clean Water Funding. Twenty percent of the funding available for the fiscal year 2020 competitive grants was for drinking water projects. Applications were due September 9, 2019.

  - Agassiz National Wildlife Refuge staff has been cut down to just three people. They are currently passing water that is being released from the Moose River Impoundment and Thief Lake. Goose and duck production was excellent in 2019. Fall drawdown will start in mid-September. Judicial Ditch 11 cleanout within Agassiz Pool was planned for the first two weeks of October (later postponed to 2020 due to October runoff events).
  - SWCD staff reported that the number of tree orders was down this year. The SWCD offers 75% cost share for windbreaks, but not many are going in due to changes in tillage practices.
- **August 7, 2019 –** River Watch Forum planning meeting at Crookston
- **August 8, 2019 –** Red Lake River One Watershed One Plan Planning Work Group
  - Project updates, discussion of projects for 2020-2021 workplan
- **August 14, 2019** – Polk County Water Resources Advisory Committee
  - SWCD intern Marea Schommer will be hired full-time.
  - The Polk County SWCD offered to make a zebra mussel sampler for the District to deploy in the Red lake River upstream of Thief River Falls.
  - There was some discussion about a stormwater project for the city of Erskine to reduce nutrient runoff to Cameron Lake. It was mentioned that the city of Erskine's priority is probably their water supply, not necessarily the lake. Would it help if the DNR drained-down the lake to consolidate sediment?
  - Jake Snyder, Polk County Environmental Services, gave a demonstration of Polk County's new pictometry data and EagleView. They will be using the recently-flown, high resolution aerial images for planning/zoning and also for buffer strip enforcement. He said that they can have a limited number of users (50), but only have 28 so far (it will crash if ther are more than 50 users). He said that the District could buy in for a user spot or two by helping to pay for the maintenance costs, if we are interested in having access to the imagery for any of our projects, ditch maintenance, buffer compliance checks, etc. The cost of the flights has already been covered.
  - Buffer inspections: The county is working on improving its buffer enforcement process. They are considering the use of a drone for buffer compliance inspections. Rachel Klein has a drone license but hasn't had an opportunity to fly yet. The county will be sending 250-300 compliance letters to landowners.
  - Poplar River Diversion discussion (Emily Hutchins, DNR Wildlife)
    - There is an agreement that the diversion structure would not be operated.
    - The DNR has been approached by new landowners that are interested in altogether getting rid of the culverts and inlets to the Poplar River Diversion.
    - They have to maintain drainage for some properties on the south end of the wildlife management area (WMA).
    - Wetlands within the WMA could be restored.
    - Tamarac Lake receives private drainage.
    - The structure was operated for 2 years in the 1940s.
    - The structure was used once when it was not supposed to be and it caused flooding of private land.
    - Emily found an old topographic map of Maple Lake.
  - Raingardens and Shoreline Restoration
    - The SWCD has been promoting raingardens and shoreline restoration for lakeshore properties.

        - Prairie Restorations, Inc. has been helping with the projects.
        - A few people have been interested in shoreline restoration projects around Maple Lake.
        - The SWCD plans to continue promoting raingarden and shoreland restoration projects in Lake Leader newsletters.
        - The Inn at Maple Crossing would be a good place for a shoreland restoration project.
        - When Polk County Planning/Zoning has done variances, they have started prescribing raingardens.
        - The Lake Sarah shoreline restoration project was killed by flooding when the lake level rose 3 feet.
    - East Polk SWCD activity report:
        - Busy with Wetland Conservation Act tasks
        - The SWCD has been checking lake water levels weekly during the summer.
        - The SWCD held a rain barrel workshop earlier in the year.
        - Red Lake County did a "paint your own rain barrel" workshop.
        - The SWCD is adding Union Lake and Lake Sarah to its lake monitoring effort.
    - Joan Lee reported that 25-30 people attended a kick-off meeting for the Wild Rice 1W1P
- **August 27, 2019** – Red River Watershed Management Board Monitoring Advisory Committee meeting to discuss objectives, criteria, and other issues for distribution of the RRWMB $3 million budget for water quality projects.
    - The Committee was convened by the RRWMB to develop potential criteria, process, procedure, guidance, and cost-share rates for water quality projects as directed by the RRWMB Managers.
    - The Committee discussed several questions and related matters such as: What criteria or criterion should be required for eligibility for water quality funds? Who is eligible – RRWMB member watershed districts only? Could an SWCD be eligible if a member watershed district is a sponsor? What other considerations should be given here?
    - The Committee held additional discussion and developed the following recommendations for further refinement and consideration by the RRWMB Managers at the appropriate time:
        - Funding Eligibility Recommendation:
            - Only RRWMB members should be eligible.
            - Member RRWMB watershed districts must be the applicant and sponsor of a project.
        - Eligible practices recommendation:
            - Use the current RRWMB practices as well as practices listed in Technical Paper 11.
            - The RRWMB should fund WQ only projects but preference should be given for bundling of benefits.
            - There was some disagreement over whether the RRWMB is a "funder of last resort" and about whether the RRWMB would fund projects that don't have a flood damage reduction benefit.
        - Pollution reduction calculator recommendation:
            - Adopt BWSR calculators/tools and process
        - Process and forms recommendations:

- Use the BWSR process and defer to all BWSR forms and tie funding to the BWR process.
- Implement a Step Process for WQ projects.
- Use a RRWMB application packet for programs for non-BWSR funds.
- Use the current quarterly RRWMB funding process with committees.
- Application should clearly indicate the problem(s) to be addressed.

- Technical guidance recommendations:
  - Drainage projects need to be evaluated regardless if BTSAC paper 3 used.
  - No negative downstream impacts or how are impacts mitigated.
- Scoring and ranking questions/comments:
  - Are funds leveraged and are alternative funding sources part of the WQ project proposal?
  - FDR and WQ together would get higher scores.
  - Are there ties to drinking water and sensitive species?
  - Don't undermine FDR objectives for drainage projects. Overcapacity ditches can be addressed too.
  - Clarify the goals of the funding (reduction of nutrient loading to Lake Winnipeg, restoration of impairments, reduce pollutant loads, ???).
  - Benefits:
    - Can benefit(s) be measured and what is the benefit reduction at some point downstream?
    - What is the area of benefit and how many people benefit?
    - What is the Red River mainstem benefit?
  - Should a "Protect, Enhance, and Restore" scoring or priority ranking process be used?
  - Should we use the early, middle, late process for FDR projects to look at downstream effects of WQ projects? Avoid funding projects that could increase flooding.
  - Consistency with Local Plans – Is project consistent with local WD plan?
  - Primary connection to a local plan (1W1P, Etc.)
  - Secondary connection to other state, federal, regional, or international plans.
  - HUC Level - What HUC level is appropriate?
  - Use the funding for shovel-ready projects, especially where timely funding could improve cost effectiveness.
  - Should we stay away from prioritizing projects unless there are too many project applications and not enough funding?
- Reporting recommendations:
  - Defer to the BWSR reporting process and work plan requirements.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

August 2019

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.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

September 2019

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.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

September 2019

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.

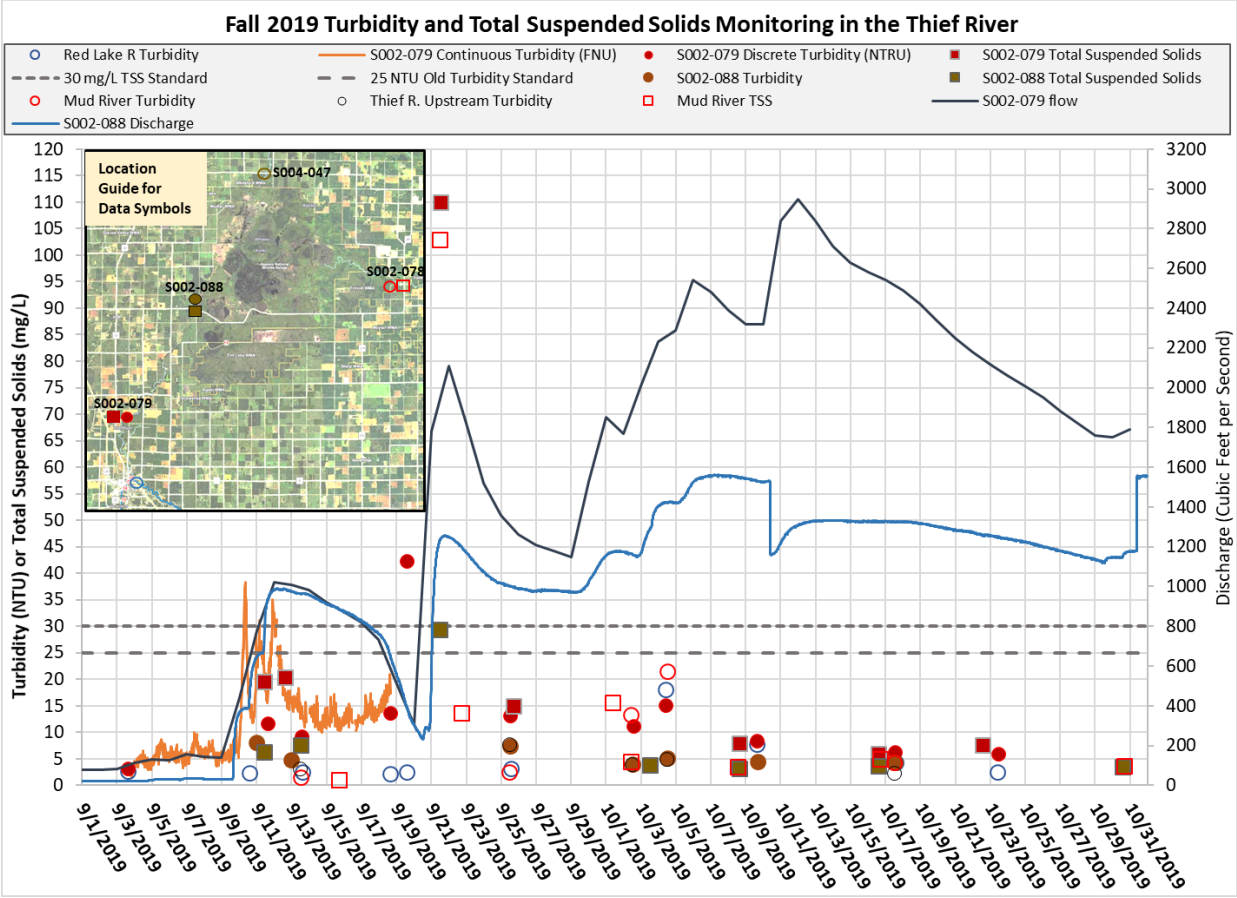
District staff compiled a summary of the 2019 intensive monitoring in the Pine Lake area.

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 ¾ 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.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

September 2019

Beach at Bartlett Lake

Boat Landing at Bartlett Lake

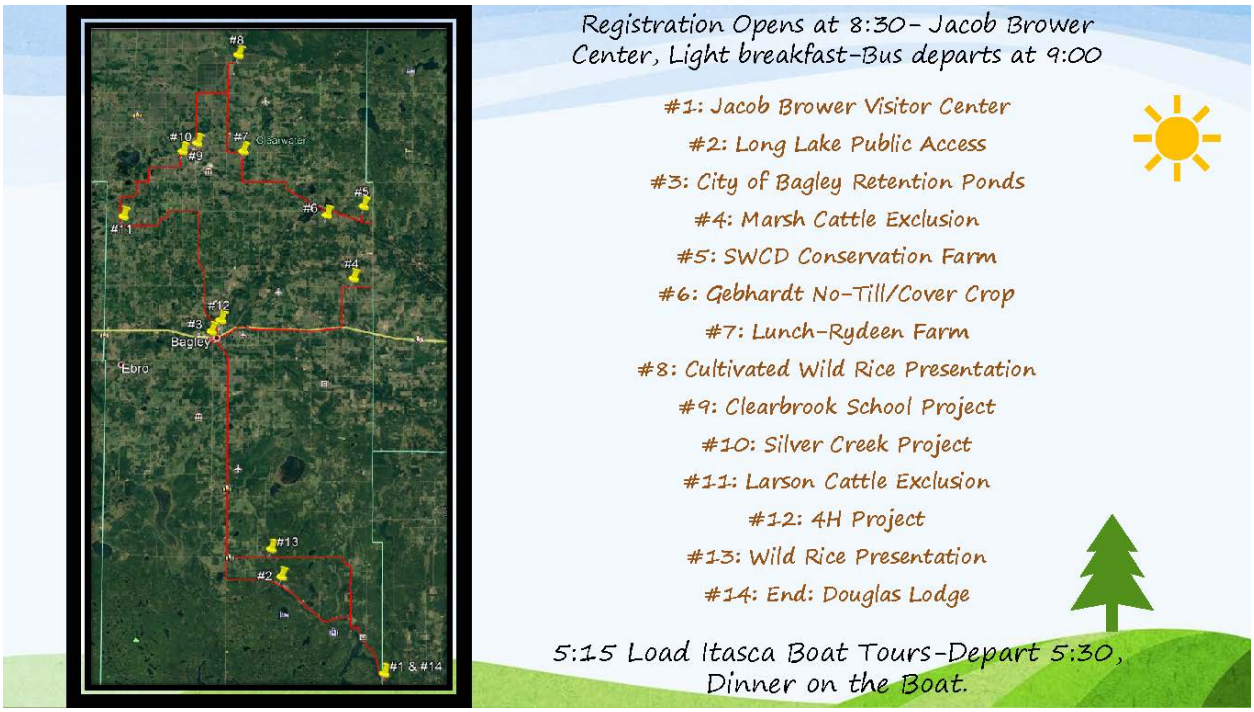
RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

September 2019

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.



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 collected 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.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

September 2019

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.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

September 2019

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-T9oE0UN0Q.

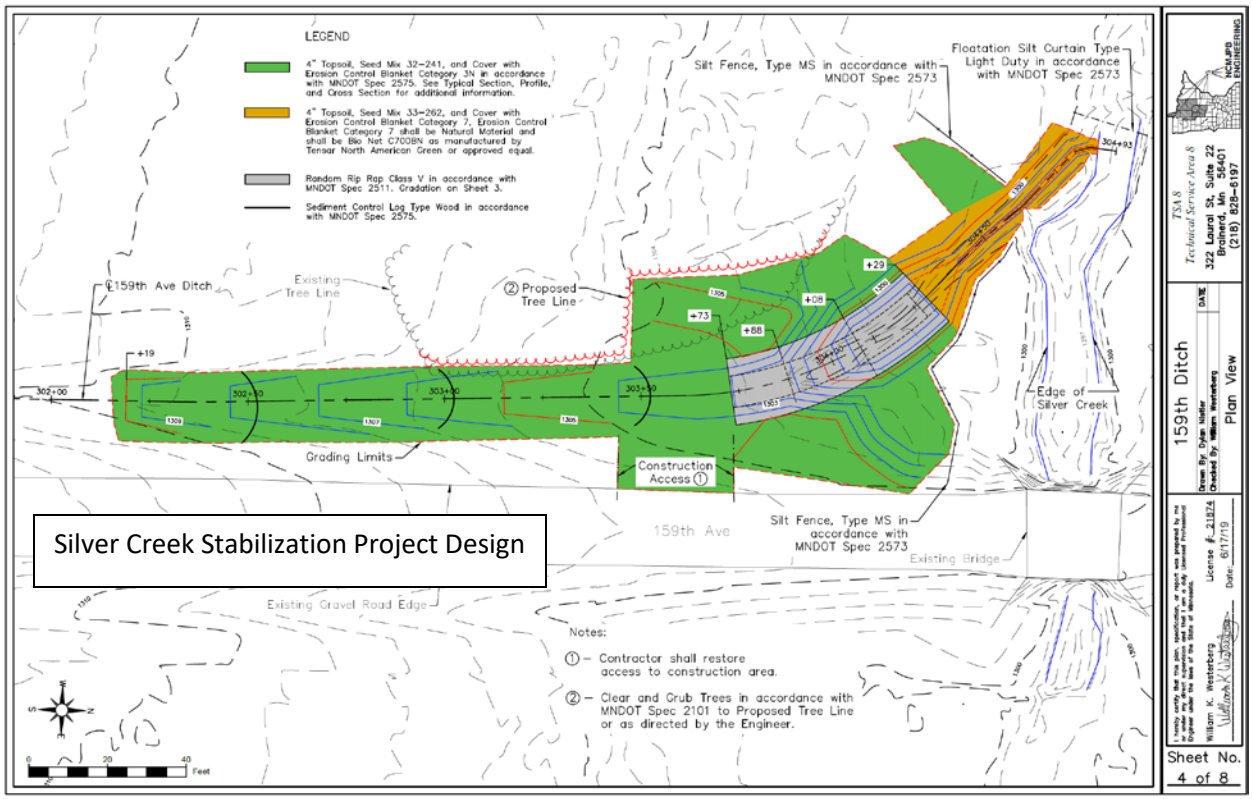
District staff and the Red Lake County Central River Watch team collected macroinvertebrate samples from the Hill River on September 19, 2019. They found 12 different species of macroinvertebrates. The group used sampling results to perform calculations and determine that the stream should receive good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

- 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.

Bartlett Lake Management Plan Meeting Minutes

- 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/RNLRCSB/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 Plan Meeting Minutes

- 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 come 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, is 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.

Bartlett Lake Management Plan Meeting Minutes

- 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)

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

October 2019

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator, 2/4/2020. Topics include:

- Water quality sampling
- River Watch
- Clearwater River Watershed TMDL
- Thief River Intensive Monitoring
- Pine Lake and Lost Lake Area Monitoring

Red Lake Watershed District Long-Term Monitoring Program

Large rainfall and runoff events occurred on September 20th (>5 inches at the RLWD office). Several significant rain events during the first half of October further contributed to high flows and some flooding. Impoundments captured runoff to their maximum capacity to reduce the downstream impact of the runoff events.

Euclid East Impoundment – October 8, 2019

Water flowing over the Parnell Impoundment's concrete spillway

Total suspended solids concentrations met standards at most of the District's sampling sites, despite the runoff and high flows. The Red Lake River exceeded the 65 mg/L standard at the furthest downstream monitoring site at the Murray Bridge in East Grand Forks. Upstream, however, the total suspended solids concentrations in the Red Lake River met (were lower than) that standard.

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

1. Beau Gerlot Creek at CR 114
2. Burnham Creek at CSAH 48
3. Burnham Creek at 320th Ave. SW
4. Chief's Coulee at Dewey Ave in Thief River Falls
5. Coburn Creek at North Blackduck Lake Road NE
6. Cyr Creek at 220th St. SW
7. Darrigan's Creek at CSAH 23
8. Heartsville Coulee at 13th St SE
9. Judicial Ditch 30 at 140th Ave NE
10. Lower Badger Creek at 150th Ave SE
11. Lower Badger Creek at CR 114
12. Marshall County Ditch 20 at 180th Ave NE
13. Mud River at Highway 89
14. North Cormorant River at CSAH 36
15. O' Briens Creek at Harvest Road NE
16. Red Lake River at CSAH 7 (Smiley Bridge)
17. Red Lake River at the Greenwood Street Bridge in Thief River Falls
18. Red Lake River at Crookston
19. Red Lake River at Fisher
20. Red Lake River at the Murray Bridge in East Grand Forks
21. South Cormorant River at CSAH 37, Corlan Road NE

High concentrations of total phosphorus, in excess of applicable river eutrophication standards, were found in:

1. Beau Gerlot Creek at CR 114
2. Browns Creek at CR 101
3. Burnham Creek at CSAH 48
4. Burnham Creek at 320th Ave. SW
5. Chief's Coulee at Dewey Ave in Thief River Falls
6. Coburn Creek at North Blackduck Lake Road NE
7. Cyr Creek at 220th St. SW
8. Grand Marais Creek at 110th St. NW
9. Grand Marais Creek at 130th St. NW
10. Heartsville Coulee at 13th St SE
11. Hill River at CSAH 35, downstream of Hill River Lake
12. Judicial Ditch 30 at 140th Ave NE
13. Lower Badger Creek at CR 114
14. Marshall County Ditch 20 at 180th Ave NE
15. Moose River at CSAH 54

16. Mud River at Highway 89
17. Nassett Creek
18. North Cormorant River at CSAH 36
19. O' Briens Creek at Harvest Road NE
20. Pennington County Ditch 21 at 135th Ave NE
21. Pennington County Ditch 96 at Highway 32
22. Polk County Ditch 1 at CR 61
23. Polk County Ditch 2 at CSAH 20
24. Polk County Ditch2 at CR 62
25. Red Lake River at CSAH 7 (Smiley Bridge)
26. Red Lake River at the Greenwood Street Bridge in Thief River Falls
27. Red Lake River at Crookston
28. Red Lake River at Fisher
29. Red Lake River at the Murray Bridge in East Grand Forks
30. Thief River at 140th Ave NE (Hillyer Bridge)

High concentrations of biochemical oxygen demand (BOD) were found in:

1. Blackduck River at Deer Trail Road NE
2. Chief's Coulee at Dewey Ave in Thief River Falls
3. Thief River at 140th Ave NE (Hillyer Bridge)

Chief's Coulee water quality problems and the Farmer's Co-op Elevator

- High pollutant concentrations have been found in Chief's Coulee, for several years. In 2018, complaints from neighbors led to the discovery that sump pumps from Farmers Co-op sump pumps were discharging polluted water into a ditch that flows into Chief's Coulee.
- District staff were in communication with both MPCA enforcement staff and staff from the Farmer's Co-op elevator. There seemed to be room for improvement in communication between the MPCA and elevator staff (both directions). Water quality monitoring data and reports from Chief's Coulee monitoring efforts were shared by District staff with elevator staff and MPCA staff. Sump pumps are necessary to keep the basements of co-op buildings dry. Adding tile drainage to reduce seepage of water into the basement is not feasible because it could threaten the structural integrity and stability of the tall elevator buildings. Since the problem was discovered, elevator staff have made an effort to keep the basement of the elevator cleaner and get rid of mice (keeping the building clean has helped).
- The elevator was looking at ways to collect and land apply the water that sump pumps drain from the basement of the elevator. The water has high concentrations of nutrients and biochemical oxygen demand, which are not desired in the river or drinking water supply but could help fertilize a field. District staff did some research into land application requirements and shared that information with elevator staff.

River Watch

Weather caused some scheduling changes, but October still managed to be a busy month for River Watch. District staff helped the Red Lake County Central, Thief River Falls, Win-E-Mac, Clearbrook-Gonvick, and Red Lake Falls River Watch groups with their October round of water quality measurements.

District staff spoke with Challenger 4th graders at Hartz Park in Thief River Falls. Staff spoke about watersheds and water quality. They also demonstrated collection of water samples from the Hartz Park walking bridge.

District staff helped with River Watch Kick-Off events in Thief River Falls and Grand Forks. The events included an overview of the River Watch program, team building exercises, assignments for the River Watch Forum, mini sessions with natural resources staff. The mini sessions included a presentation on aquatic macroinvertebrate (bug) sampling by Ashley Hitt. International Water Institute staff presented information about Stroud continuous water quality monitoring stations and demonstration of how to use monitoring and sampling equipment.

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

District staff began working on a detailed review and revision of the Clearwater River Watershed Total Maximum Daily Load document.

A site-specific assessment of the pour-point monitoring sites on Clearwater River tributaries was added to the TMDL to show “boundary conditions” of unimpaired upstream reaches and tributaries and to determine whether or not the streams are contributing to Clearwater River TSS impairments. Unfortunately, the furthest downstream long-term monitoring site on the Lost River (S002-133, north of Brooks) exceeded the TSS standard. The exceedance rate in the Lost River at Oklee was 0%, but the WWTF ponds are downstream of the Oklee water quality monitoring station. A wasteload allocation for the Oklee WWTF was added to the TSS TMDLs?

Site-Specific Assessment (Years 2006-2015) of Total Suspended Solids for Pour-Point Sampling Stations on Tributaries of the Clearwater River							
Clearwater River Tributary Stream:	**Lower Badger Creek**	**Beau Gerlot Creek**	**Terrebonne Creek**	**Poplar River**	**Hill River**	**Lost River**	**Ruffy Brook**
Furthest Downstream AUID (09020305-XXX):	502	652	574	504	539	505	513
Furthest Downstream AUID with Sufficient 20006-2015 TSS Data (09020305-XXX):	502	651	574	504	539	646	513
Furthest Downstream Station Number(s) with Sufficient TSS Data:	S004-837	S004-816	S004-819	S007-608	S002-134	S002-133	S007-848 S008-057
Number of Daily Mean TSS Values at Furthest Downstream Station	59	27	36	25	54	85	23
Percentage that Exceed 30 mg/L	6.4%	0.0%	2.8%	0.0%	3.7%	11.8%	4.3%

Portions of the Lost River were checked to see if buffers had been established to answer MPCA questions and verify information in the Clearwater River Watershed TMDL.

Sunflowers planted to the edge of the Lost River west of CSAH 2

Lack of a buffer upstream of 550th Street

Spotty buffer downstream of 550th Street

Good buffer upstream of 330th Ave SE

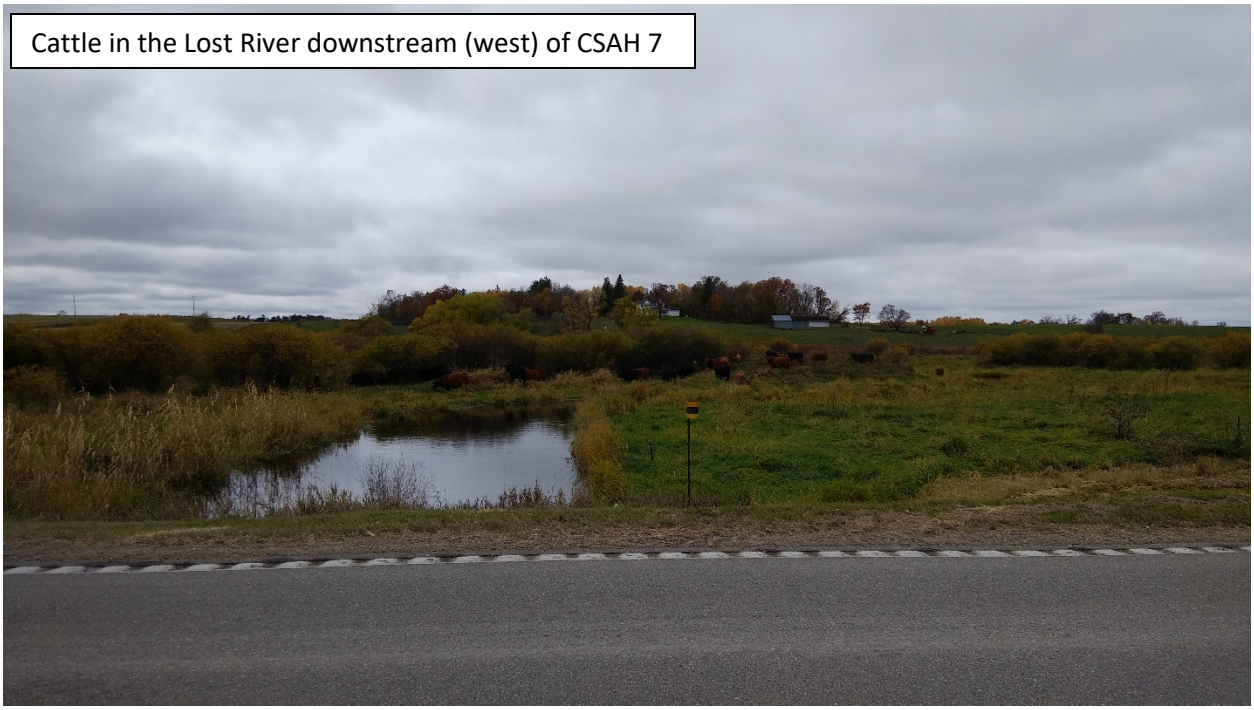
Intensive Monitoring in Lost Lake and Pine Lake Area

Beaver dam on the Lost River downstream of 141st Ave

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

October 2019

Cattle crossing of a tributary of the Lost River, upstream of 410th St



Cattle in the Lost River downstream (west) of CSAH 7

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

October 2019

Horses, overgrazing, streambank damage, and erosion along the Lost River downstream (north) of 486th Street and the Pine Lake Outlet

Stream Gauging

Flow measurements were recorded at the JD23 sites where flow was monitored to aid the MPCA biological assessment and stressor identification processes. Flow measurements were also recorded at Lost River monitoring sites near Lost Lake and the Hill River upstream of Hill River Lake. A rainfall event provided an opportunity to record flow measurements in early October that would be near the high end of a flow rating curve. Some valuable flow measurements were recorded during that high flow period in Lower Badger Creek, Beau Gerlot Creek, Gentilly Creek, Kripple Creek, Cyr Creek, and sites in the Thief River watershed. Some sites were too deep to wade. Water level loggers were retrieved from the sites that were being monitored in the Pine Lake and Lost Lake area. Flow rating curves were compiled for the Lost River sites that were monitored for the intensive Lost Lake and Pine Lake area monitoring effort. A Lost River tributary upstream of Lost Lake, at 410th St, didn't have much variation in the stage levels at which flow was measured. An examination of stage measurements (measure-down readings at the downstream end of the culvert) found that discrete water level measurements only varied by a total range of 0.18 feet throughout the monitoring season.

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

After an intense rainfall event, flows in the Thief River greatly increased. The rise in water levels and flows prevented the retrieval of the Minnesota Department of Health's Hydrolab HS4 sonde. The water coming from Agassiz Pool while it was full and ponded after a large rainfall event, had relatively low turbidity levels throughout October. There was some erosion occurring along the Thief River and its tributaries during the high flows, but turbidity and total suspended solids levels were okay (well below the impairment threshold) throughout the month. There typically was at least a small increase in turbidity between the CSAH 7 (near Agassiz Pool) and 140th Ave NE (near Thief River Falls) crossings of the Thief River due to erosion along the channel.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

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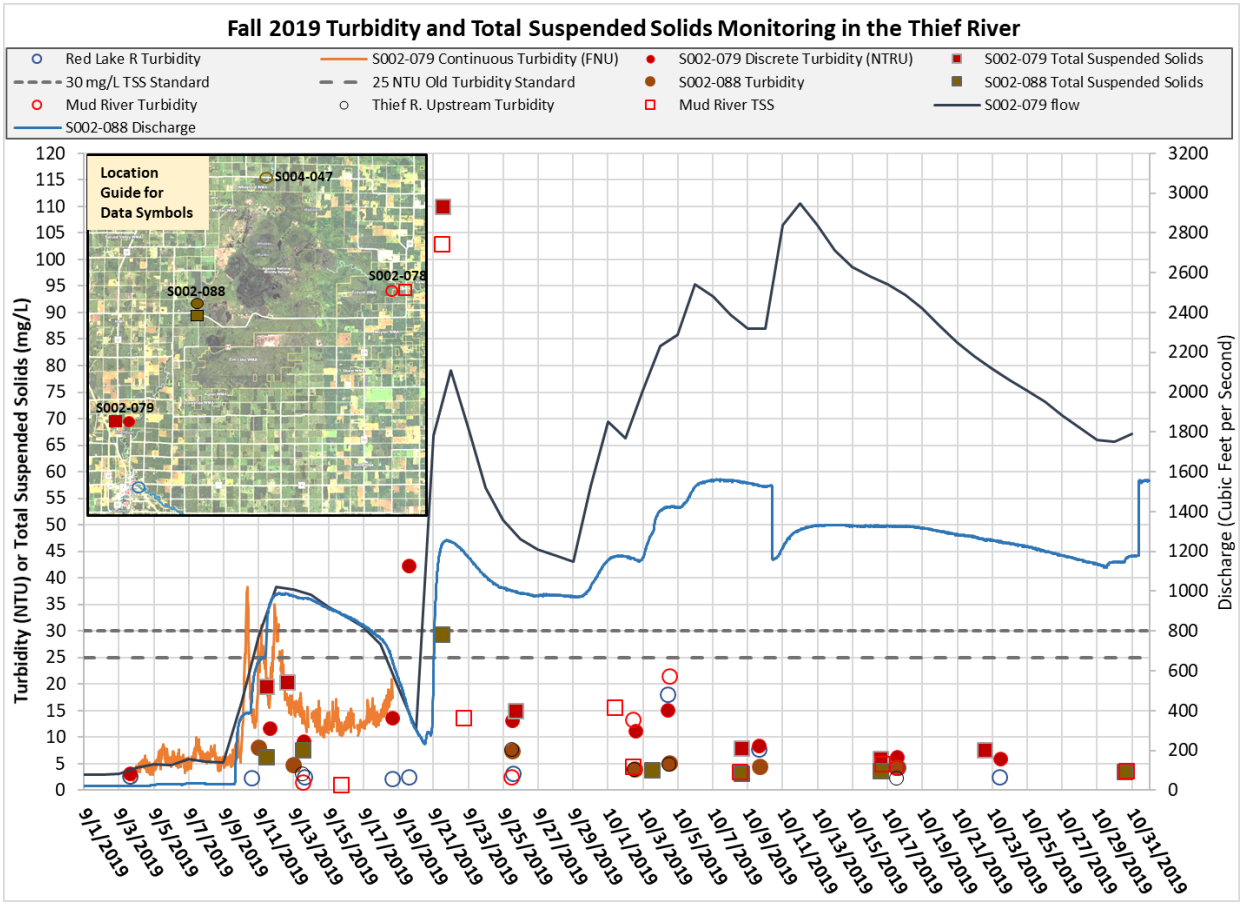


RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

October 2019

Thief River at CSAH 6 on October 4, 2019

Mud River at Highway 89 on October 4, 2019

Thief River at CSAH 6 on October 17, 2019

Red Lake River Watershed One Watershed One Plan

The runoff events and high flows during the fall of 2019 delayed construction work on a project in the Burnham Creek subwatershed in Section 13 of Russia Township. Photos of erosion that occurred along the construction project are shown below.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

October 2019

Bartlett Lake Management Plan

District staff typed notes from the September Bartlett Lake Management Plan meeting and shared them with the rest of the attendees. Koochiching SWCD staff worked on a flyer to advertise the December public meeting. City of Northome staff shared photos of Bartlett Lake.

Other Notes

- Zebra Mussels were found in Lake Lomond in Bagley. That lake drains to the Clearwater River. Water flows from the lake outlet, into one of the city's stormwater retention ponds, then into the Clearwater River. This is a concern for the Clearwater River and Clearwater Lake. https://www.bemidjipioneer.com/sports/outdoors/4742803-Zebra-mussel-larvae-found-in-Lomond-Lake-in-Clearwater-County
- New pipes were installed along Chief's Coulee where water has been routed under the Farmers Co-op property. The old pipes were corroding and collapsing.

- The rain gauge at the Red Lake Watershed District office recorded 21.39 inches of rain in April through September 2019. It recorded 10.32 inches of rain in September.
- The high flow rates in ditches and streams in early October caused some fresh bank failures and other erosion problems. Fresh bank failures were noted along Judicial Ditch 30 and Judicial Ditch 23 in the Thief River watershed.
- A retirement party was held on October 10 for Loren Sanderson to celebrate his accomplishments and career with the Red Lake Watershed District.
- The area experienced a winter storm on October 11, 2019.
- District staff provided Chief's Coulee sampling data to staff at the Farmers Co-op Elevator in Thief River Falls.
- A June Water Quality Report was completed and is available online: http://redlakewatershed.org/waterquality/MonthlyWQReport/2019%2006%20June%20Water%20Quality%20Report.pdf
- No zebra mussels were found on the zebra mussel samplers that were deployed in the Red Lake river east of Thief River Falls.

- Another small stream draining railroad property had the same gray, slimy channel bottom as Chief's Coulee has had and it also had a similarly septic smell.

Water quality related notes and minutes from the October 10, 2019 Red Lake Watershed District Board of Managers meeting.

- Matt Fischer, BWSR appeared before the Board to present the District with a plaque recognizing the Red Lake Watershed District's 50th Anniversary.
- Administrator Jesme stated that the Red Lake River 1W1P, RLWD Project No. 149, Advisory Committee and Planning Work Group met to review and make recommendations to the Workplan to be submitted to the Policy Committee for review and approval. Included in the Workplan, was $185,000 to assist with repairs to the outlet of Ditch 10, RLWD Project No. 161
- Staff members Loren Sanderson and Nick Olson updated the Board on recent District Impoundment activity. Administrator Jesme discussed the importance of draining down the impoundments prior to freeze-up and the assumed timeline it would take. Dalager noted that the current operation of the impoundments is about as good as it can be. Discussion was held on obtaining additional easements downstream of the Brandt Impoundment where there presently was not a channel restoration project completed. Matt Fischer stated that a Watershed Based Implementation Program funds can be used for easements for multipurpose projects.
- Due to weather issues, the project that the District cost shared with funds from the 2019 Erosion Control Funds with the Clearwater SWCD will not be completed until next year.
- Manager Dwight asked if any public comment had been received on the draft Thief River 1W1P. Matt Fischer stated that BWSR had received comments from landowner, Darrold Rodahl, and the U.S. Fish and Wildlife Service.
- The Board recessed for lunch at the District office for a retirement party for Staff member Loren Sanderson.

Water quality related notes and minutes from the October 24, 2019 Red Lake Watershed District Board of Managers meeting.

- Administrator Jesme stated that the District received the students' River Watch jackets, that the Board had approved purchasing at the September 6, 2019 Board meeting. Jesme requested approval to pay the invoice in the amount of $1,972 to Page's Country Creations. Motion by Tiedemann, seconded by Sorenson, to approve payment in the amount of $1,972 to Page's Country Creations for the River Watch jackets. Motion carried.

- The Red Lake River Planning Work Group met with staff from the MPCA on October 21st at the District office to develop a draft work plan for the upcoming MPCA 319 grant that was approved for the middle Red Lake River 1W1P.
- Manager Torgerson discussed a recent meeting with staff from the Minnesota Department of Natural Resources, regarding the Pine Lake Project, RLWD Project No. 26. Torgerson stated that he would like to update the Clearwater County Commissioners on the status of the project.

Meetings and Events from October 2019

- **October 1, 2019** – Red Lake River One Watershed One Plan Planning Work Group conference call
- **October 2, 2019 –** Red Lake River One Watershed One Plan Advisory Committee and Planning Work Group meeting
- **October 8, 2019 –** Polk County Water Resources Advisory Committee meeting
    - The access at the Gentilly Bridge will be improved by the Red Lake River Corridor Enhancement Project.
    - Commissioner Joan Lee shared that a landowner had called her to tell her how well impoundments have worked to reduce flooding.
    - The first wave of Buffer Law corrective notices went out in January 2018 for public waters. Some may get fines if they aren't in compliance. Some of the sites have not been checked yet because they are difficult to access. The county is thinking about getting a drone.
    - The county is trying to find well records to aid the development of a Polk County Geological Atlas.
    - The recent Polk County Aquatic Invasive Species meeting was just a year-end recap.
    - SWCD staff helped during education days for elementary students, had lots of Wetland Conservation Act work, had to complete a time-consuming audit, conducted feedlot inspections (which have gone well), sampled lakes, monitored water quality in streams, and working with the Minnesota Geological Survey.
    - The SWCD will be promoting raingardens and shoreline restore at Sarah Lake and Union Lake. One of the Maple Lake Improvement District board members is doing a project on their property.
    - The Sand Hill Watershed District is adding onto their building. A culvert will be replaced in Kittleson Creek to improve fish passage. Phase II of the Sand Hill River rock riffle project will be starting. Rock riffles are being installed along Carlson Coulee.
    - There have been fewer well interference complaints this year, maybe due to the wet weather.
    - Demand for wetland bank credits in this area has exceeded supply.
    - The next Polk County WRAC meeting was scheduled for February 11, 2020. The AIS meeting will be held at 10 am on that same day.
- **October 14, 2019 –** Pennington County Water Resources Advisory Committee
    - CD96, 21, 16 Gully Control and Buffer Implementation project update
    - LiDAR Ditch Outlet Analysis project update
        - There have only been a limited number of days with decent weather – Only 10 of 53 ditch outlets have been flown since Labor Day.
        - High water levels have been preventing a full view of the ditch bottom.

- Thief River PTMApp project update
- Streambank Stabilization project updates: Three projects will be completed within Thief River Falls, near Hartz Park, the Greenwood Street Bridge, and Oakland Park.
- A new Clean Water Fund application has been submitted to target the Lower Thief River for side water inlet installation and cover crops. The Judicial Ditch 30 subwatershed will also be included in the proposed project.
- Red Lake River One Watershed One Plan update
  - More than $1 million has been allocated to this watershed for the 2020-2021 fiscal years and the Planning Work Group is drafting a work plan. A Policy Committee meeting is planned for December to, hopefully, approve the workplan.
- Thief River One Watershed One Plan update
  - Comments on the draft plan are due soon.
  - Discuss Red Lake River projects and funding (as examples) at the next Thief River 1W1P meeting.
  - Public hearing in December.
- Buffer Law Implementation update
  - Letters are being sent to a list of non-compliant landowners. The SWCD has been getting responses from people who received letters. The wet weather has made planting this fall unlikely. Public waters compliance is estimated at 98-99% within the county. Ditch compliance, however, is more like 60-70%. In some cases, landowners had hired contractors to plant the buffer strips, but weather has prevented planting. One corrective action notice has been sent.
  - Roundup overspray is an issue.
  - Some landowners have been leaving the buffer area unplanted, which is worse than farming it.
  - One of the committee members discussed her experience on her own land. She said that snow seeding with wildflower seed from the USFWS has worked well. Snow-seeding can be done after the first snow that stays (doesn't melt).
- Geologic Atlas development has involved compilation of well data, locating wells, and verifying wells.
- Cooperative Weed Management Area
  - Focus on gravel pits.
  - Cost share is available from BWSR and the Minnesota Department of Ag.
  - Priority areas are being mapped with GIS.
- Culvert Inventory
  - Dave Bennett worked as a seasonal technician to develop a database and collect data.
  - Culvert ownership
  - The inventory will be used to hydrologically correct LiDAR DEMs.
  - Photos are taken of culvert inlets and outlets. The database can be updated whenever a culvert is replaced.
  - <u>Other agencies (like the RLWD) should be able to enter/provide data, as well.</u>
  - Are there any other categories of information that the county should be collecting?

- Activity reports
  - The city of Thief River Falls is planning a project for a wetland downstream and west of Pennington Ave (pictured below, between Parkview St. E and Greenwood St. E). Stormwater runoff flows into the wetland and it has accumulated 17,000 cubic yards of sediment. The city is working on getting approval from the DNR. They would like to treat the runoff before it enters the wetland, remove the sediment, and restore the wetland. When the District sampled at the Pennington Ave stormwater outlet during two June 2017 rainfall events, total suspended solids concentrations were greater than 40 mg/L in both and *E. coli* concentrations were extremely high in both (>2,419.6, and 24,196 MPN/100mL).

  - Wetlands have been delineated within the Black River Impoundment project area by the SWCD, including acres that are impacted by diversion ditches (water diverted from the contributing watershed of some wetlands).
  - The SWCD has financial assistance available for buffer law compliance ($200-$300 per acre).
  - SWCD staff meet with landowners to see if alternative practices would work.
  - SWCD staff have also been working with feedlots and surveying for side water inlet installations.
  - SWCD staff have been working on the Thief River and Red Lake River 1W1Ps, floodplain and shoreland permitting, well monitoring, monthly surface water monitoring, SSTS upgrades, side water inlet installations along CD 96, 21, and 16, well testing clinic, Clean Water Fund grant applications, and education events for grade school kids.

        - MPCA staff are reviewing the Thief River 1W1P and will submit comments regarding the topics of drinking water, Agassiz Pool. Staff from the Minnesota Department of Health and the MPCA Divisional Director are reviewing Denise Oakes' comments on the 1W1P.
        - The Pennington County Highway Department will be starting to work on the Challenger Bridge. There will be an unpaved bypass for highway construction work, initially, but the bypass will be paved in the summer.
        - A new assistant county engineer, Alex Bladow, has been working with the SWCD on side water inlet projects.
        - The Thief River Falls dam is filled with logs right now and is "wide open."
        - The city's forced main wastewater project has been delayed due to the weather.
        - The Thief River Westside Flood Damage Reduction project has also been delayed due to permitted issues (FAA, USACOE).
        - New pipes for the underground portion of the Chief's Coulee pipe has been laid-out and ready to install.
        - 60 CRP contracts (3,600 acres) are expiring. 31 of those have been extended. 3 have been renewed.
    - The next Pennington County WRAC meeting will be January 13, 2020.
- **October 21, 2019 –** Red Lake River 319 Small Watersheds Focus Grant meeting (MPCA staff and the Red Lake River 1W1P Planning Work Group) to work on the work plan
- **October 28, 2019 –** Thief River one Watershed One Plan, Planning Work Group phone conference
- **October 29, 2019 –** Red River Watershed Management Board Water Quality Monitoring Advisory Committee meeting in Ada
    - Rely upon the prioritization that has already occurred in local plans
    - RRWMB water quality goals?
        - Higher value or likelihood of funding for higher mainstem benefits
        - Decrease total suspended solids and total phosphorus loads, in general
        - Reduce the number of impairments of aquatic life and recreation
    - Focus on surface water or include projects that address groundwater issues? Focus on surface water.
    - Carryover of funds from year to year? Hopefully

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.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

November 2019

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 2/5/2020.

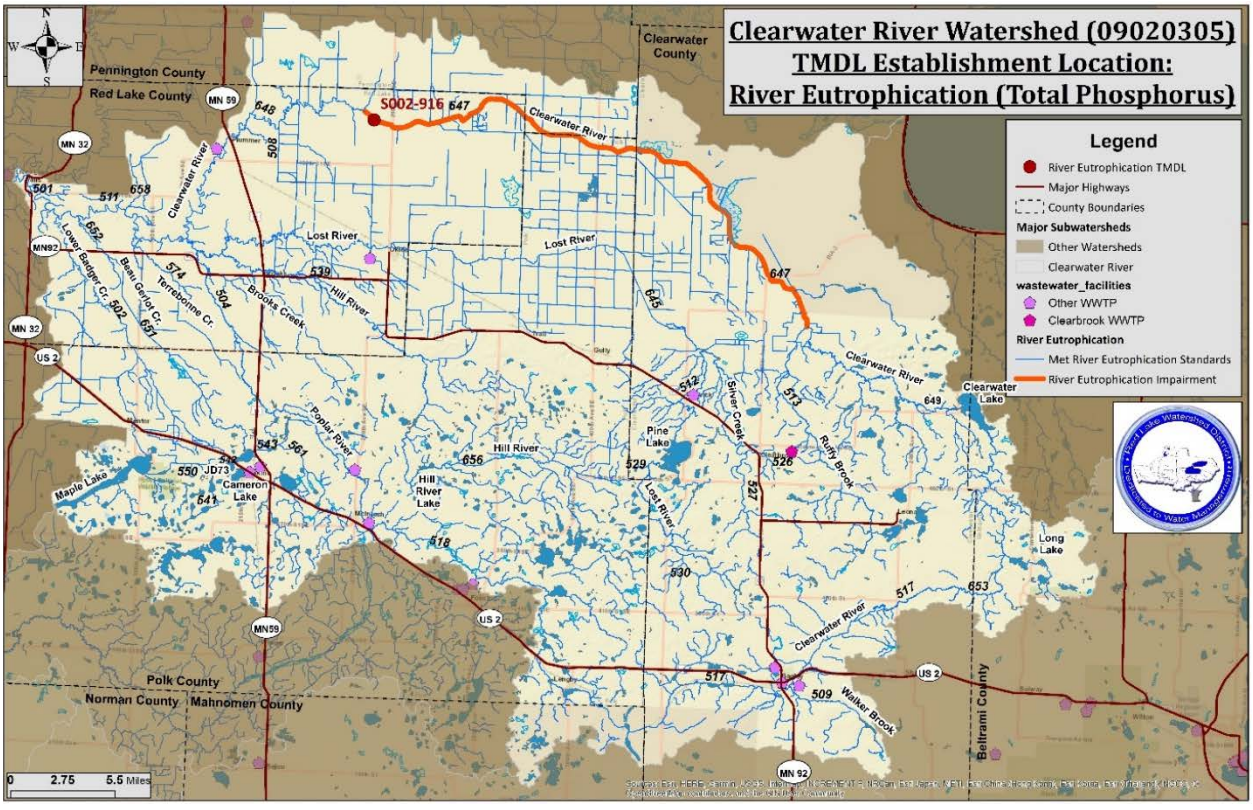
2020 Draft List of Impaired Waters

- Changes to impaired waters listings within the Red Lake Watershed District
    1. Thief River from Agassiz Pool to the Red Lake River, 09020304-501: TMDL plan approved; EPA category changed from 5 to 4A
    2. Mud River assessment unit 09020304-507 (headwaters to JD 11) was split into two new assessment units (09020304-567 and 09020304-568) at a point (-95.694, 48.318) NW of the St. Petri Lutheran Church. The dissolved oxygen and *E. coli* impairments of 09020304-507 were both carried forward to both new assessment units.
- New impairment listings within the Red Lake Watershed District
    1. Marshall County Ditch 20 (09020304-548), Clifford Lane NW to an unnamed ditch upstream of Sharon Road, impaired due to poor fish bioassessment results
    2. Moose River (09020304-565), outlet of Moose River Impoundment to Morel Road NW, impaired by poor fish bioassessment results
    3. Mud River (09020304-567), headwaters to -95.694 48.318, impaired due to poor benthic macroinvertebrate assessment results
    4. Mud River (09020304-568), -95.694 48.318 to JD 11, impaired due to poor benthic macroinvertebrate assessment results
    5. Mud River (09020304-568), -95.694 48.318 to JD 11, impaired due to poor fish bioassessment results
    6. Thief River (09020304-504), Thief Lake to Agassiz Pool, impaired due to poor fish bioassessment results

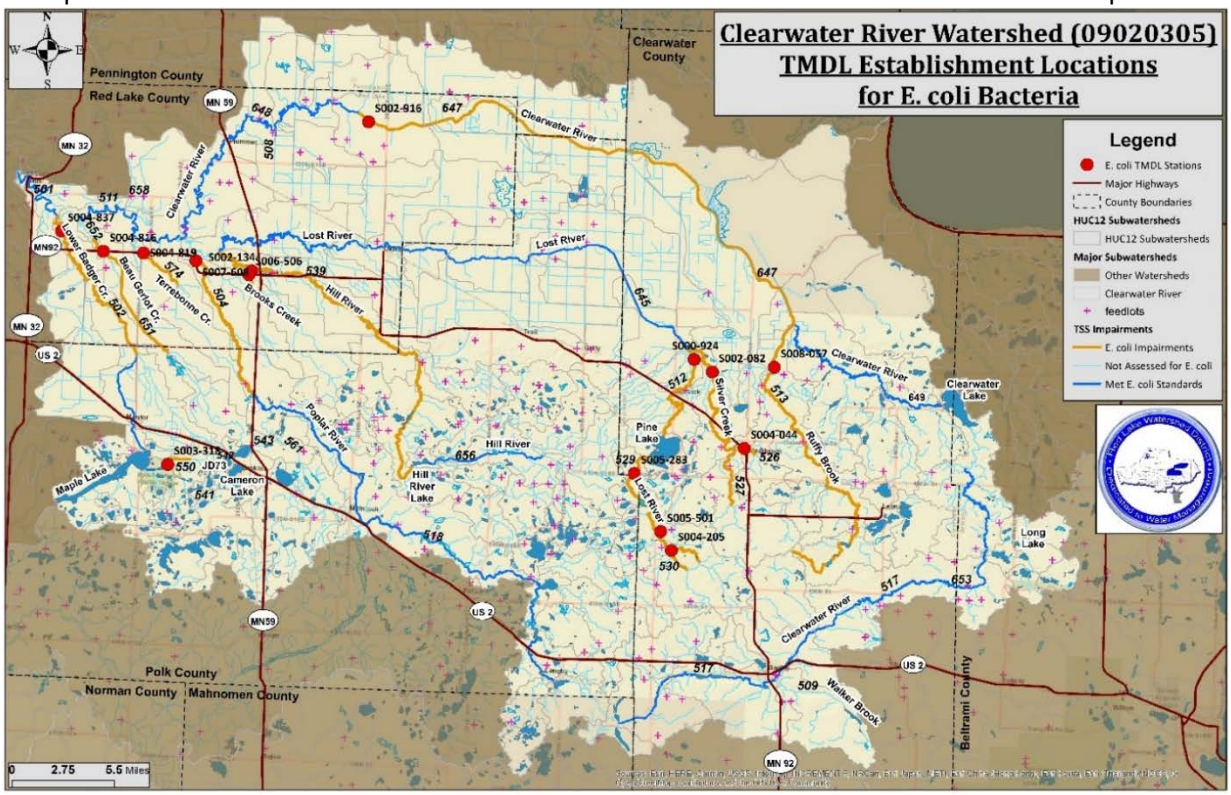
7. Branch 183 of JD 11 (09020304-534), CSAH 219 to 290th Ave NE, impaired by low dissolved oxygen
8. Branch 200 of JD 11 (09020304-511), 270th Street NE crossing near the Lost River Pool outlet to 180th Ave NE, impaired due to poor benthic macroinvertebrate assessment results
9. Branch 200 of JD 11 (09020304-511), 270th Street NE crossing near the Lost River Pool outlet to 180th Ave NE, impaired due to poor fish bioassessment results

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

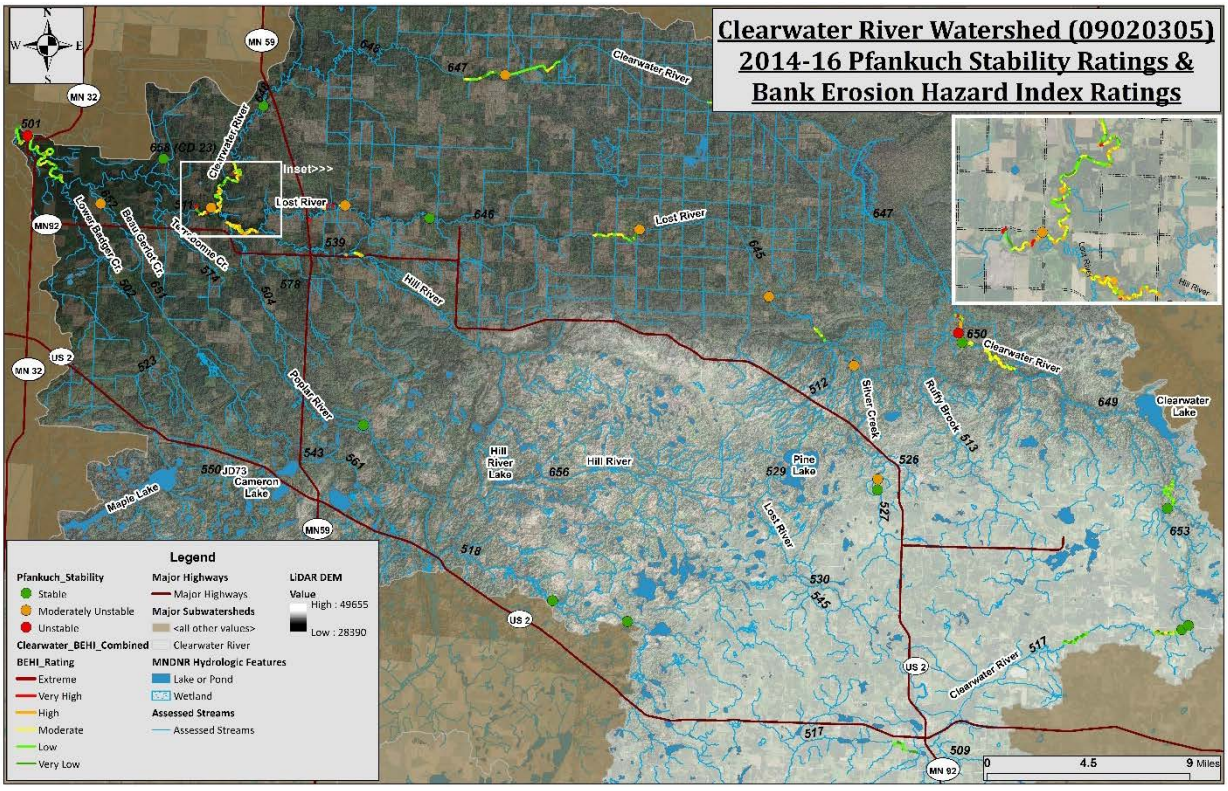
District staff worked on a detailed review and revision of the Clearwater River Watershed Total Maximum Daily Load document. A number of small text edits were found during the review of Sections 1-7 and applied to improve the document. Some edits were made to the wasteload allocations for *E. coli* bacteria. Load reduction calculation methods were compared to make sure that the most representative statistics were being used in this TMDL. MPCA staff provided clarification for some conflicting information about permitted flow rates from wastewater treatment facilities in the Clearwater River watershed. The Clearwater River total phosphorus TMDL for the river eutrophication impairment was revised to us e a different TMDL calculation strategy. The TMDL was established using seasonal average concentrations/loads rather than a load duration curve. Work began on revising lake total phosphorus TMDL summary tables and revised iterations of the lakes' BATHTUB models. The map of total suspended solids TMDL establishment locations was updated to include locations of wastewater treatment facilities.



A map of feedlot locations within the Clearwater River Watershed was added to the TMDL report.



The map of Bank Erosion Hazard Index (BEHI) ratings in the Clearwater River watershed was revised.



Bartlett Lake Management Plan

District staff, city of Northome staff, MPCA staff, DNR staff, and SWCD worked on the planning of a public meeting to kick off the Bartlett Lake management planning process.

VIEW THE REPORTS

GIVE YOUR INPUT

SPEAK WITH RESOURCE PROFESSIONALS

FIND OUT HOW YOU CAN HELP

REFRESHEMENTS PROVIDED

DECEMBER 5
BARTLETT LAKE MANAGEMENT PLANNING KICK-OFF

5:00-7:00

The public is encouraged to attend this open house event to hear updated information and give input on the management of Bartlett Lake.

NORTHOME CITY HALL
12068 Main Street
Northome, MN 56661
218-897-5762
northome@paulbunyan.net

River Watch

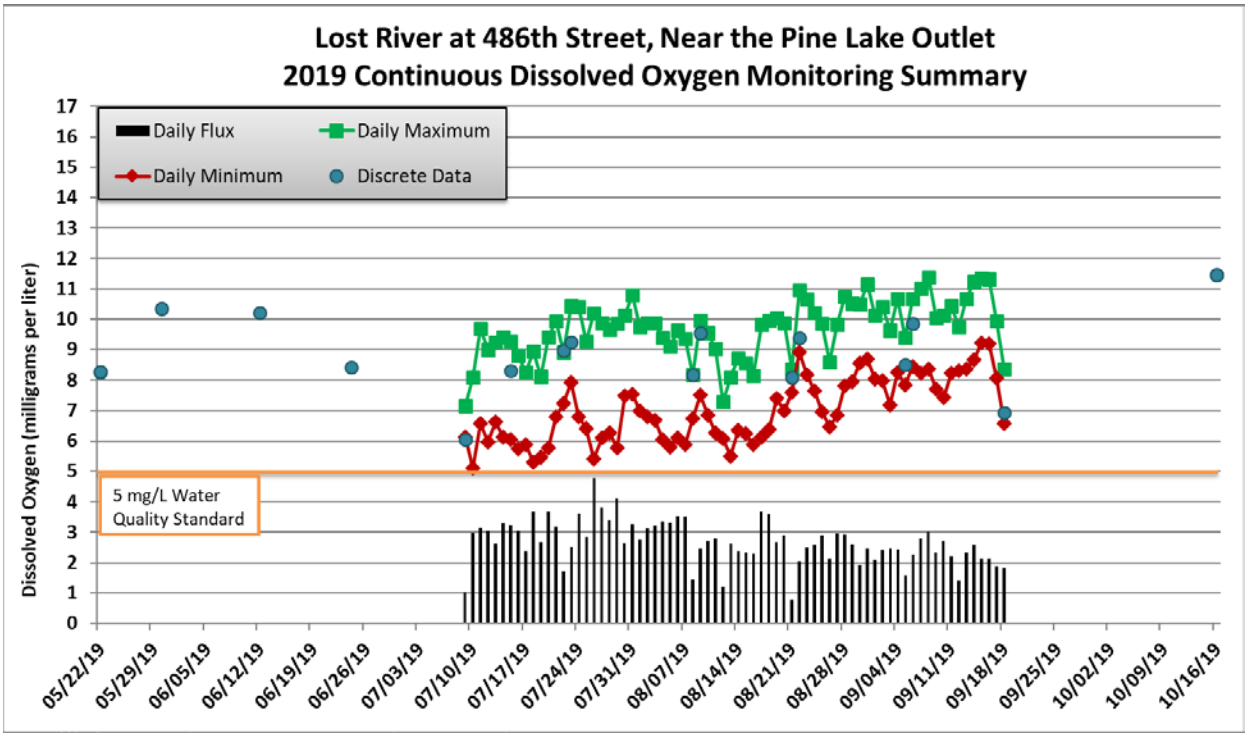
District staff helped the Thief River Falls and Red Lake County Central River Watch groups with a November round of water quality measurements. District staff met with the Win-E-Mac River Watch team to review data. District staff and International Water Institute staff met in Crookston to begin planning the 2020 River Watch Forum.

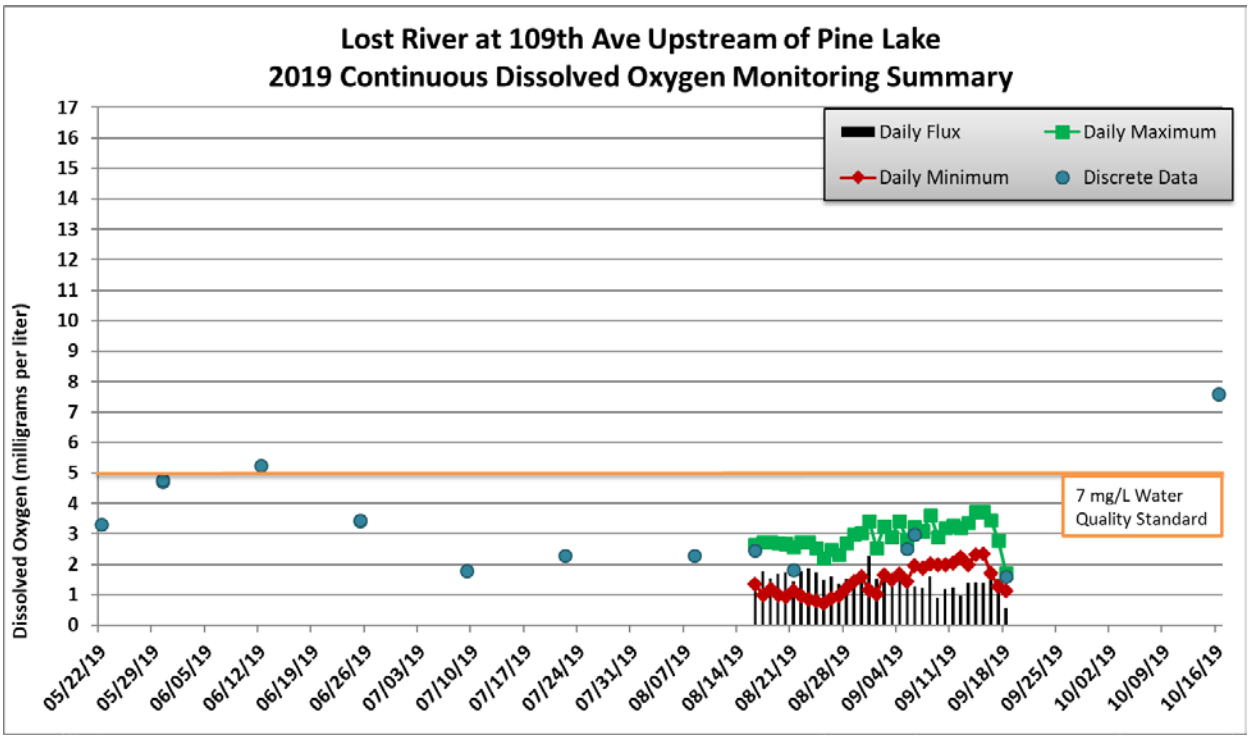
Stream Gauging

Water level loggers were retrieved from stage/flow monitoring sites throughout the District in early November.

Intensive Monitoring in Lost Lake and Pine Lake Area

District staff finished compiling, correcting, and analyzing data from continuous dissolved oxygen loggers that were deployed for this monitoring effort. Continuous dissolved oxygen and temperature data from the Lost River at Lindberg Lake Road (CSAH 18) was also compiled, corrected, analyzed. The results of the monitoring were compiled within a summary report for District staff, Board Managers, consultant staff, and DNR staff. All Lost River continuous dissolved oxygen and temperature data from the Lost Lake and Pine lake area was shared with DNR staff.




Lost River at 109th Ave Upstream of Pine Lake
2019 Continuous Dissolved Oxygen Monitoring Summary
Daily Flux
Daily Maximum
Daily Minimum
Discrete Data
7 mg/L Water Quality Standard
Dissolved Oxygen (milligrams per liter)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
05/22/19
05/29/19
06/05/19
06/12/19
06/19/19
06/26/19
07/03/19
07/10/19
07/17/19
07/24/19
07/31/19
08/07/19
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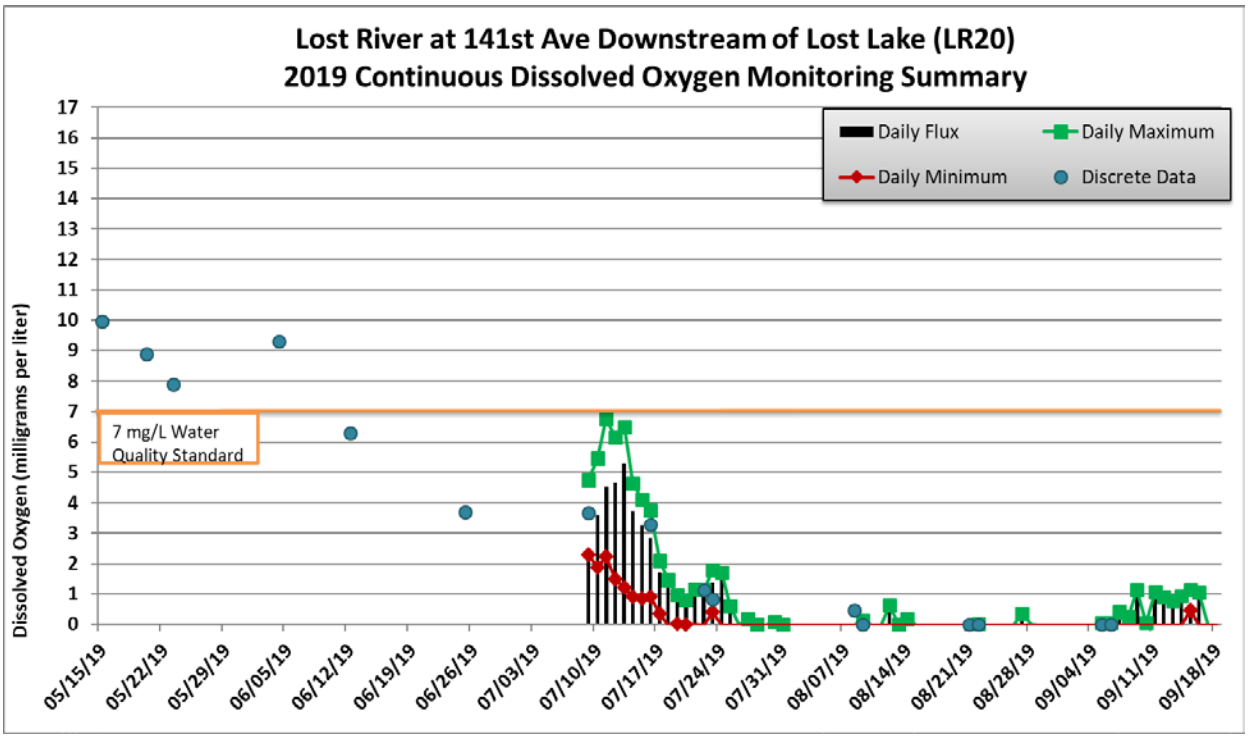
10/09/19
10/16/19


Lost River at 141st Ave Downstream of Lost Lake (LR20)
2019 Continuous Dissolved Oxygen Monitoring Summary
Daily Flux
Daily Maximum
Daily Minimum
Discrete Data
7 mg/L Water Quality Standard
Dissolved Oxygen (milligrams per liter)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
05/15/19
05/22/19
05/29/19
06/05/19
06/12/19
06/19/19
06/26/19
07/03/19
07/10/19
07/17/19
07/24/19
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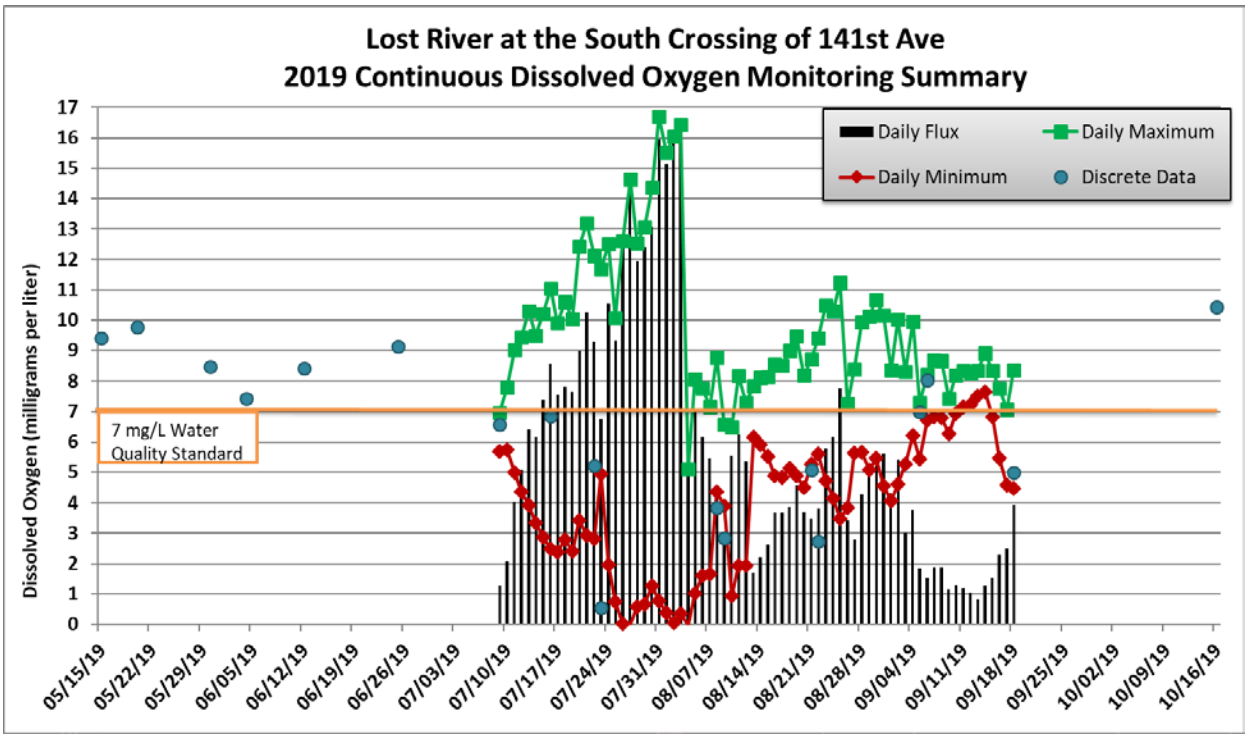
Lost River at the South Crossing of 141st Ave
2019 Continuous Dissolved Oxygen Monitoring Summary
Dissolved Oxygen (milligrams per liter)
Daily Flux
Daily Maximum
Daily Minimum
Discrete Data
7 mg/L Water Quality Standard
05/15/19
05/22/19
05/29/19
06/05/19
06/12/19
06/19/19
06/26/19
07/03/19
07/10/19
07/17/19
07/24/19
07/31/19
08/07/19
08/14/19
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10/02/19
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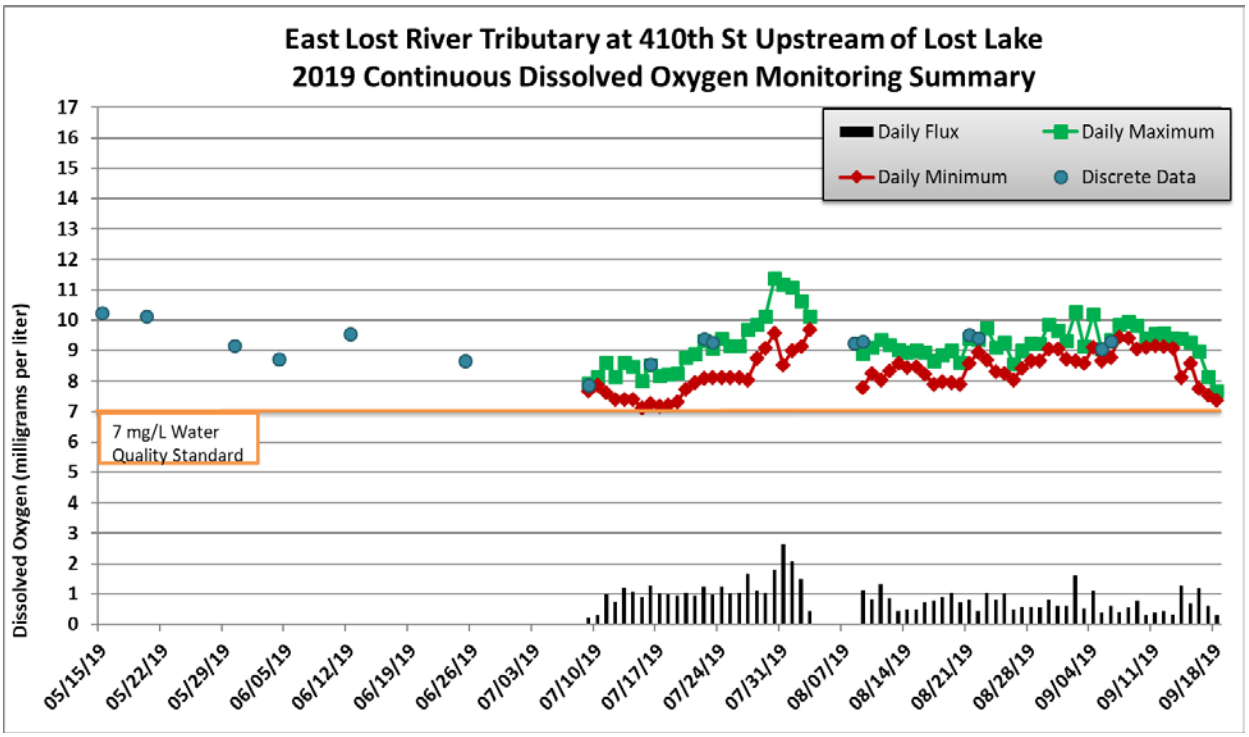
10/16/19


East Lost River Tributary at 410th St Upstream of Lost Lake
2019 Continuous Dissolved Oxygen Monitoring Summary
Dissolved Oxygen (milligrams per liter)
Daily Flux
Daily Maximum
Daily Minimum
Discrete Data
7 mg/L Water Quality Standard
05/15/19
05/22/19
05/29/19
06/05/19
06/12/19
06/19/19
06/26/19
07/03/19
07/10/19
07/17/19
07/24/19
07/31/19
08/07/19
08/14/19
08/21/19
08/28/19
09/04/19
09/11/19
09/18/19

Red Lake River Watershed One Watershed One Plan

While retrieving a water level logger from the Pennington County Ditch 96 monitoring site at Highway 32, District staff took photos of the CD 96 outlet downstream of Highway 32 that was a priority project for the Red Lake River 1W1P and will be stabilized using Clean Water Funds. Though slopes are well vegetated, there is evidence of slumping due to headcutting and erosion of the toe zone.

Pennington County Ditch 96 outlet, looking downstream toward the Red Lake River

Stabilization of the CD 96 outlet will help preserve fish passage by preventing the downstream end of the Highway 32 culvert from becoming perched.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

November 2019

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

The high flows in the Thief River were sustained throughout October and much of November. Water levels finally receded enough to allow the retrieval of the Minnesota Department of Health's Hydrolab HL4 sonde on November 25, 2019. Data was downloaded from the sonde and the sonde was cleaned. Unfortunately, the sonde had a power failure after a short time of deployment. Experimentation in the District's lab found that corrosion/deposits on connections within the battery compartment of the sonde were the cause of the power failure problem. The sonde worked well, without early power failure, after District staff polished the connections.

Thief River One Watershed One Plan (1W1P)

District staff updated the Thief River 1W1P website to post comments and revisions from the public comment period and post a notice for the public hearing.

Other Notes

- The Pennington County Sherriff Ray Kuznia issued a warning about unsafe ice conditions on the Thief River due to high flows from upstream impoundments. http://trfradio.com/2019/11/13/sheriff-kuznia-stay-of-the-thief-river/
- Zebra mussel veligers have been found in Lower Red Lake: https://www.outdoornews.com/2019/11/08/dnr-red-lake-band-specialists-provide-update-on-zebra-mussel-larvae-in-red-lake/
- Thief River Falls residents stained, yellowish tap water in mid-November.
- The District reimbursed the Maple Lake Improvement District for the cost of the laboratory analysis for the lake water quality samples that they collected in 2019.

Water quality related notes and minutes from the November 14, 2019 Red Lake Watershed District Board of Managers meeting.

- The Board reviewed a Grant Amendment with the Minnesota Board of Water Soil Resources to extend the Thief River 1W1P, RLWD Project No. 149A, grant from December 31, 2019 to June 30, 2020.
- The Thief River 1W1P Policy and Advisory Committee met to review the plan comments. The Public Hearing is scheduled for December 2, 2019 at 9:00 a.m. at the District office. After the hearing process, the final plan will be submitted to the LGU's for approval. A final version of the plan will be submitted to BWSR no later than February 14, 2020.
- The Red Lake River Planning Work Group met with staff from MPCA on November 5th and November 7th to finalize the tables which spell out the goals and milestones for the MPCA 319 grant using information based on the PTMApp practices. All these items are a requirement of the EPA for this grant process.
- Jesme, Managers Sorenson and Dwight and staff member Hanson will meet with staff from the MnDNR regarding the Pine Lake Project on November 18, 2019 in Mahnomen.
- Jesme received a call on November 12th, from the Thief River Falls Golf Course regarding flooding on the golf course. Jesme met with the Pennington County Sheriff, City of Thief River

Falls, Agassiz NWR and Staff member Olson to discuss submittal of a public warning to refrain from any recreational activities on the river due to abnormal high flows on the Thief River.

Water quality related notes and minutes from the November 26, 2019 Red Lake Watershed District Board of Managers meeting.

- The Thief River 1W1P, RLWD Project No. 149A, public hearing will be held on December 2, 2019 at 9:00 a.m. at the District. After the hearing is held and upon approval of the Policy Committee to move forward, the plan will be taken to each LGU for action.
- The Board reviewed a request from Midwest Amphibious, LLC., requesting an extension until October 16, 2020, for the Agassiz NWR- Ditch 11 Silt Removal, RLWD Project No. 180B. Motion by Dwight, seconded by Sorenson, and passed by unanimous vote, to approve the request by Midwest Amphibious, LLC, for an extension on the Agassiz NWR-Ditch 11 Silt Removal Project, RLWD Project No. 180B until October 16, 2020.
- Discussion was held on a meeting that was held for the Pine Lake Project, RLWD Project No. 26, with the following individuals in attendance: Managers Dwight and Sorenson, Administrator Jesme, Water Quality Coordinator Corey Hanson, Engineer Nate Dalager and staff from the MnDNR. Jesme stated that at the meeting MnDNR staff indicated that there is no chance of receiving a permit for an impoundment upstream of Pine Lake. Discussion was held on the possible replacement of the outlet structure, downstream channel restrictions, revisions to the operating plan to allow for additional flood damage reduction, and fish passage. Jesme indicated that the District could apply for a CPL grant for fish passage. Dalager stated that different operational value would give a better star value. Discussion was held on drawing down lower water to help with oxygen levels. It was the consensus of the Board to set up a meeting with the MnDNR to look at alternatives to move forward, with a potential Project Work Team meeting in January. Motion by Sorenson, seconded by Dwight to schedule a Pine Lake Project Work Team for January 2020. Motion carried.

Meetings and Events from November 2019

- **November 5, 2019** - Red Lake River 319 Small Watersheds Focus Grant meeting (MPCA staff and the Red Lake River 1W1P Planning Work Group) to work on the work plan
- **November 7, 2019** - Red Lake River 319 Small Watersheds Focus Grant phone conference (MPCA staff and the Red Lake River 1W1P Planning Work Group)
- **November 14, 2019** – Thief River PTMApp conference call
- **November 18, 2019** – Pine Lake area flood damage reduction project meeting in Mahnomen.
    - "Sticking points" from the DNR's point of view
        - Trout stream designation
        - Is this project the least impactful solution relative to other solutions? DNR staff did not think the Lost Lake impoundment was a least impactful solution.
    - The DNR assigned new staff to the project (Nicholas Kludt and Jason Vinje)
    - Combine the right design with specific natural resource enhancement additions.
    - DNR staff expressed concern about non-trout related natural resource values.
    - Removing the trout stream designation would remove one barrier for the project but wouldn't guarantee that it would be permitted due to additional hurdles.
    - What are spring flow pulses like along the Lost River?

- Flow monitoring sites near Lost Lake didn't fluctuate much throughout the year.

- What fish species were documented in biological samples?
- What have index of biological integrity ratings been like downstream of other impoundments?
  - There were mixed results (good, fair, and poor) throughout the District and in neighboring watersheds. Lack of flow is a common stressor for aquatic life impairments, so it would be beneficial to consider a means for baseflow augmentation from impoundments.
- Have impoundments interrupted the movement of fish in other areas? Much of the biological monitoring has occurred downstream of impoundments within the District. However, there are some fish sampling results (missing species) from the Thief River watershed, in which there are multiple dams blocking fish passage, that indicate that fish passage barriers may be a problem.
- Are there springs in the project area?
  - Yes, there are flowing springs along the shore of Lost Lake. There is broad groundwater seepage along the east shore of the lake that made accessing the lake for sampling a little challenging (soft ground). There was one flowing spring, in particular, where water flowed from a hole in the ground, through a little channel, and into the lake.
  - The existence of springs essentially kills the project. The DNR does not allow the construction of an impoundment were there are springs.
- After learning that the Lost Lake impoundment could not proceed due to the presence of springs along the shoreline, the group discussed focusing on flood damage reduction in Pine Lake.
  - Could cabins be raised?
  - Improve enforcement of shoreline rules. Inform permittees of setbacks and building elevations that will protect them from flooding. The DNR has education grants available. Look for educational opportunities in this area.
  - DNR fisheries staff think that fish passage at the Pine Lake outlet would help re-establish fish populations in the lake after a winterkill.
  - Lowering the water level in the lake may enhance the effectiveness of aeration because there will be less influence from shallow wetlands where a high rate of decomposition and oxygen consumption occurs. Lowering the lake 6-12 inches could offset the lack of upstream retention for flood damage reduction.

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.

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

December 2019

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 2/6/2020.

River Watch

District staff met with the Red Lake County Central River Watch group to plan public education projects. District staff met with the Win-E-Mac River Watch team to review data. District staff and International Water Institute staff met in Crookston to plan the 2020 River Watch Forum and discuss River of Dreams program.

Bartlett Lake Management Plan

District staff and the City Clerk for Northome worked on publicizing a December public open house meeting for the Bartlett Lake Management Plan. An open house style meeting was held on December 5, 2019 at the Northome Community Center. MPCA staff brought posters about the studies that have been completed on the lake. DNR staff brough t information about the fishery and waterfowl. Red Lake DNR staff attended and provided information about the upcoming Upper/Lower Red Lakes WRAPS meeting. District staff put together a water quality summary handout for the meeting. The city of Northome and the District provided a variety of snacks and beverages for attendees.

Red Lake River Watershed Restoration and Protection Strategy (WRAPS)

The MPCA received approval documents from the EPA for the Red Lake River TMDL, notifying the MPCA that the EPA has approved the TMDLs.

Thief River One Watershed One Plan (1W1P)

District staff updated the Thief River 1W1P website, including a link to the new revised plan: http://www.redlakewatershed.org/1W1P/Thief-River-1W1P.pdf.

A public hearing for the Thief River 1W1P was held on December 2, 2019. A video of the hearing is posted online: https://youtu.be/QGqyteE4EcA

The remaining steps in the 1W1P approval process include:

1. Each LGU Board approves this document for filing to BWSR.
2. If all LGU Boards approve, send to BWSR for approval or not.
3. If approved, we are good to submit finalized workplan to Policy Committee.
4. Approved workplan will then be submitted to BWSR for approval at which time we should be able to receive 50% of the appropriated funds to start implementing the plan.

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

District staff worked on a detailed review and revision of the Clearwater River Watershed Total Maximum Daily Load document. There was a relatively small amount of information about Beau Gerlot Creek *E. coli* sources, so aerial photos were re-examined to find additional sources. No obvious sources of *E. coli* were found, but the aerial photos showed that a portion of the natural channel (public waters, not part of a ditch system) had been dredged and trees had been removed along the channel.
A number of small text edits were found during the review of Sections 8 and 9 and applied to improve the document.

Multiple revisions to the BATHTUB models for impaired lakes:

- Evaporation rates were changed so that they were equal to the precipitation numbers. In the first draft, evaporation rates were based on data collected at the Minnesota State Climatology Office.
- All the BATHTUB models for the impaired lakes were re-run to verify inputs and results.
- Phosphorus sedimentation models were tested to see which predicts a total phosphorus concentration that was closest to observed concentrations. The default model had been used for the first draft's BATHTUB models, but a different one was used for the revised draft.
- Land use areas for Cameron Lake were revised – the geometry needed to be recalculated in ArcGIS.
- Inflow rates were re-calculated using the simulated land uses that were simulated in the "restored" iterations of the BATHTUB water quality models.
- Revised models by subtracting lake area from the open water land use areas in each lake's drainage area. The model calculates atmospheric deposition over the surface area of the lake separately, so atmospheric deposition on the lake was being double counted in previous iterations of the model.
- Methods for estimating the square kilometers of feedlots in each lake's drainage area were reviewed.

- Lake TMDLs were recalculated using the mass balance numbers (total inflow, tributary inflow, atmospheric deposition, internal loading) that were generated by the revised BATHTUB models.
- Some rounding errors were found (where numbers don't appear to add-up to the total in a table due to digits that are hidden by rounding). The models were re-run using the rounded/adjusted values.

After the detailed text and table edits had been completed, the final step of the TMDL editing involved skimming through the document and making changes to the arrangement of text and figures to make sure that space was used efficiently and other issues.

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

Continuous water quality data from deployed multi-parameter sondes was compiled, drift corrections were applied to the data, and the data was sent to MDH staff. Discrete water quality measurements were also entered into a spreadsheet and sent to MDH staff.

Red Lake River Watershed One Watershed One Plan

The Planning Work Group and MPCA staff reviewed comments from the EPA on the Red Lake River 319 Small Watersheds Focus grant work plan.

Other Notes

- District staff discussed possible projects for a No Child Left Inside grant application
  - Pollinators with scouts? Nature play area in Thief River Falls?
- District staff started working on the entry of 2019 water quality monitoring data.
- Thief River turbidity measurements on December 9, 2019 due to reports of high turbidity on December 5, 2019.
- District staff provided some instruction to Pelican River Watershed District staff on how to use HOBO water level loggers and how to process the data.
- Data from the Hydrolab HL4 multiparameter sonde that was deployed in the Thief River near Thief River Falls and Eureka Manta sondes that were deployed in the Red Lake River near LaFave Park during the fall of 2019 was compiled, corrected, and analyzed. Discrete monitoring data from 2019 monitoring of the Thief River, Mud River, and Red Lake River was compiled and sent to MDH staff along with the data that was collected with deployed water quality loggers.

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

- Darren Carlson, Marshall County SWCD, stated that in 2018 the SWCD installed side water inlet (SWI) culverts within the District's boundary which were in part, funded with the assistance from the District's Erosion Control Funds, RLWD Project No. 164. Carlson requested additional funding from the 2019 Erosion Control Funds, RLWD Project No. 164, in the amount of $12,500 to assist in the design of the structures and installation of SWI culverts located within the District's boundary. Motion by Ose, seconded by Tiedemann, to approve cost share in the amount of $12,500 to assist in the design and installation of side water inlet culverts for the Marshall County SWCD from the 2019 Erosion Control Funds, RLWD 164. Motion carried.

- Engineer Nate Dalager, HDR Engineering, Inc., discussed the U.S. Army Corps of Engineers (Corps) permit for the Thief River Falls Westside FDR Project, RLWD Project No. 178. Dalager noted that the Corps is not regulating the outlet as a wetland, rather they are regulating it as a stream since they state it is a tributary to the Red Lake River. There was discussion concerning the channel in reference as an outlet to Pennington County Ditch #1 and would it have other regulatory rules if the Corps recognized the channel as a legal drainage system? Dalager indicated that the Corp is also regulating the portion of Pennington County Ditch #1 west of TH #32 as a stream so he doubted that would matter. Dalager discussed the Corps' concern with stabilization of the bank of the outlet. Dalager and Administrator Jesme will work with staff from the Corps to ensure that all information is provided in hopes of a timely and positive determination for receipt of the permit.
- The Upper/Lower Red Lake WRAPS public meeting will be held on December 12th, from 4:00-6:00 p.m. at the North Beltrami County Community Center in Kelliher, MN.
- Staff member Hanson participated in a Public Open House for Bartlett Lake on December 5th in the Northhome City Hall. The next meeting will be held on January 22, 2020 at 10:00 a.m. at the Northome City Hall. Notes from the meeting were included in the packet.
- Manager Dwight commented on a discussion he had with MnDNR Staff regarding alternatives for the Pine Lake Project, RLWD Project No. 26.
- The District received word of the passing of former Board Member, Vernon Johnson. Mr. Johnson served on the District Board for 21 years. He also served on the RRWMB Board. https://www.ceasefuneralhome.com/obituaries/Vernon-E-Johnson?obId=9474009#/celebrationWall

Vernon Johnson was an advocate of water quality projects, especially in the Clearwater River Watershed. He was supportive of staff. He had a calm, wise demeanor which made it easy to respect him and view him as a role model. His success in life, in general, was also admirable. He was a landowner in Clearwater County and had a cabin on Clearwater Lake, one of the most beautiful lakes in the area.

Water quality related notes and minutes from the December 30, 2019 Red Lake Watershed District Board of Managers meeting.

- The District was informed that a Conservation Partners Legacy (CPL) Grant in the amount of $168,420 was received for the Burnham Creek Wildlife Habitat Structure Repair, RWLD Project No. 43A, which is adjacent to the BR 6 structure. Administrator Jesme stated, that a requirement of the grant is to give an opportunity to the Conservation Corps to see if there is any work, they may be able to complete. Jesme will work with staff from the MnDNR and HDR Engineering, Inc., to review the Work Plan for submittal to CPL
- Manager Dwight discussed the Pine Lake Project, RLWD Project No. 26 and conversations he has had with several agency personnel. Discussion was held on the replacement of the outlet structure which would allow for better winter drawdown to hold additional spring floodwaters, as well as incorporating fish passage, and would also help with less ice damage to the shore bank due to a lower water level. MnDNR Fisheries has indicated that by lowering the water in the fall thus minimizing the area to aerate is better for fisheries as it takes the water out of the vegetated areas. Administrator Jesme stated that CPL grants could be applied for as there would be Natural

Resource Enhancement (NRE) benefits on the project, plus Flood Damage Reduction funding. Manager Torgerson inquired on the possibility of diverting water around the lake in an emergency. Engineer Nate Dalager stated that they have not looked at that possibility.

Meetings and Events from December 2019

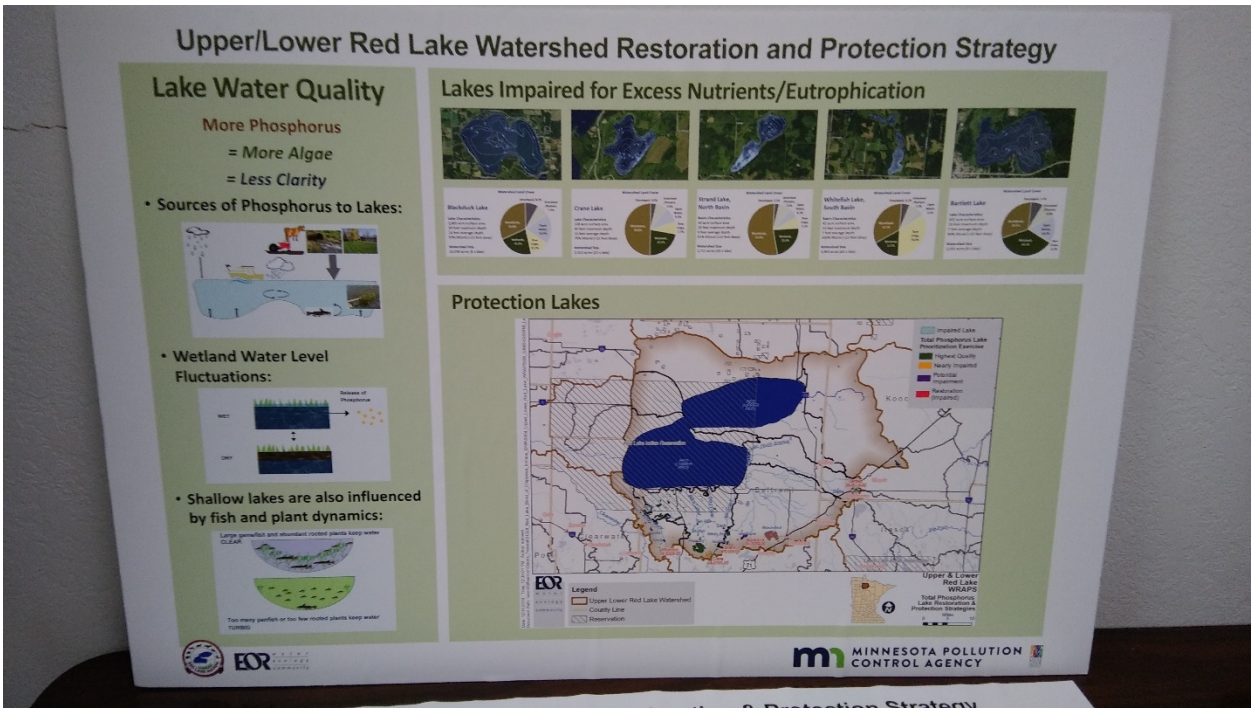
- **December 2, 2019 –** Thief River One Watershed One Plan Public Hearing
- **December 2, 2019** – Thief River 1W1P Planning Work Group Meeting to discuss a work plan for the first round of funding
- **December 5, 2019** – Bartlett Lake Management Planning Kick-Off Open House
- **December 5-7, 2019** - Minnesota Association of Watershed Districts 2019 Annual Meeting and Trade Show
- **December 11, 2019** – Red Lake River One Watershed One Plan Planning Work Group conference call
- **December 12, 2019** – Upper/Lower Red Lakes Public Open House event at Kelliher
    - District staff put together a display with information about projects and monitoring in the Upper/Lower Red Lakes watershed. The following photos include some of the other informational displays that were at the event.

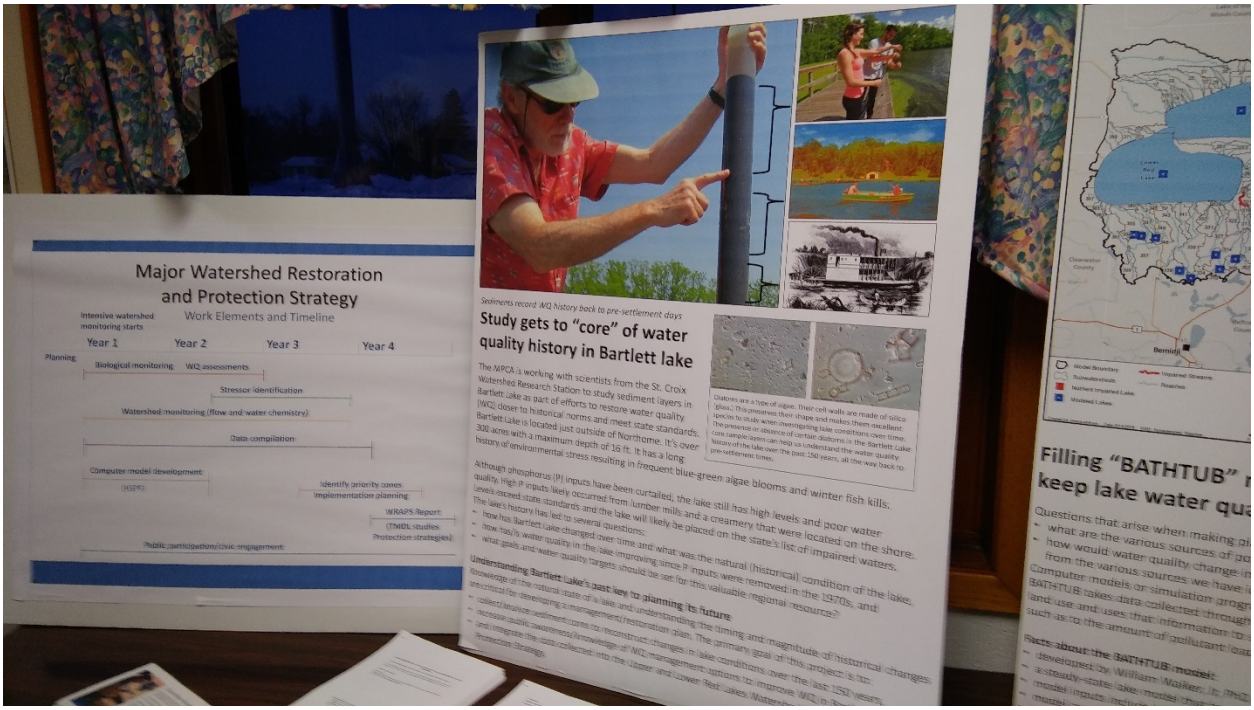

Upper/Lower Red Lake Watershed Restoration and Protection Strategy
Stream Bacteria Impairments
What is the PROBLEM?
• Bacteria levels in the streams are too high for safe contact (wading, swimming, or boating)
• Bacteria levels which exceed 126 organisms per 100 mL
WHERE is the problem?
What is the CAUSE?
Fecal pollution from:
• Humans, Livestock, Wildlife, and Pets
Humans
Cows
Pigs
Birds
Chickens
Gulls
Geese
Deer
Dogs
Horses
Source Molecular
Impaired Stream Reach
Humans
Livestock
Beaver
Birds
Estimated Number of ITPHSS
MST Biomarker
Active Feedlot Animals
MST Biomarker
MST Biomarker
MST Biomarker
Shotley Brook (-502)
Battle River, North Branch (-503)
North Cormorant River (-506)
South Cormorant River (-507)
Darrigans Creek (-508)
Blackduck River (-510)
Blackduck River (-512)
Hay Creek (-518)
Sandy River (-522)
Mud River (-541)
O'Brien Creek (-544)
Unnamed creek (-600)
How do we FIX IT?
• Improve livestock and manure management:
– Horse and livestock exclusions from the streams
– Manure spreading management
• Improve riparian vegetation:
– Bank revegetation
– Riparian buffers
• Address failing septics:
– Septic system inspections and maintenance education
MINNESOTA POLLUTION CONTROL AGENCY

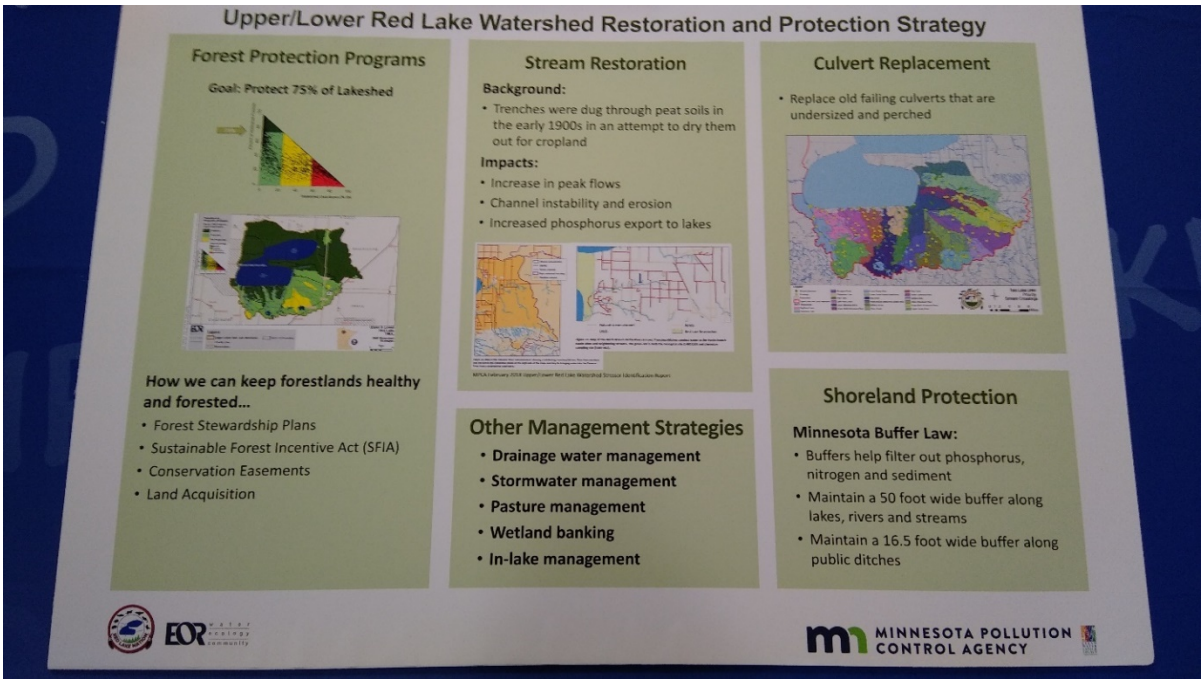

Upper/Lower Red Lake Watershed Restoration & Protection Strategy
What is the PROBLEM?
• Too much stream sediment harms fish & macro-invertebrate (bug) habitat & survival
• High TSS = low clarity = poor habitat
• Pike Creek TSS (PIKE-8)
• Mud River TSS (MUDR-I)
What is the CAUSE?
• Channel instability
• Bank erosion
• Altered hydrology
• Land
Stream Total Suspended Solids Impairments
WHERE is the problem?
• North Cormorant
• Pike
• Mud
How do we FIX IT?
• Forest protection programs
• Conservation easements
• Drainage water management
• Stream restoration
• Culvert replacements
Blackduck Lake Total Maximum Daily Load (TMDL) Study Fact Sheet
Bartlett Lake Total Maximum Daily Load (TMDL) Study Fact Sheet
Strand Lake, North Basin Total Maximum Daily Load (TMDL) Study Fact Sheet
Whitefish Lake, South Basin Total Maximum Daily Load (TMDL) Study Fact Sheet
Cross Lake Total Maximum Daily Load (TMDL) Study Fact Sheet
MINN CONTROL AGENCY

RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

December 2019






Upper/Lower Red Lake Watershed Restoration and Protection Strategy
Forest Protection Programs
Goal: Protect 75% of Lakeshed
How we can keep forestlands healthy and forested…
• Forest Stewardship Plans
• Sustainable Forest Incentive Act (SFIA)
• Conservation Easements
• Land Acquisition
Stream Restoration
Background:
• Trenches were dug through peat soils in the early 1900s in an attempt to dry them out for cropland
Impacts:
• Increase in peak flows
• Channel instability and erosion
• Increased phosphorus export to lakes
Culvert Replacement
• Replace old failing culverts that are undersized and perched
Other Management Strategies
• Drainage water management
• Stormwater management
• Pasture management
• Wetland banking
• In-lake management
Shoreland Protection
Minnesota Buffer Law:
• Buffers help filter out phosphorus, nitrogen and sediment
• Maintain a 50 foot wide buffer along lakes, rivers and streams
• Maintain a 16.5 foot wide buffer along public ditches
MINNESOTA POLLUTION CONTROL AGENCY

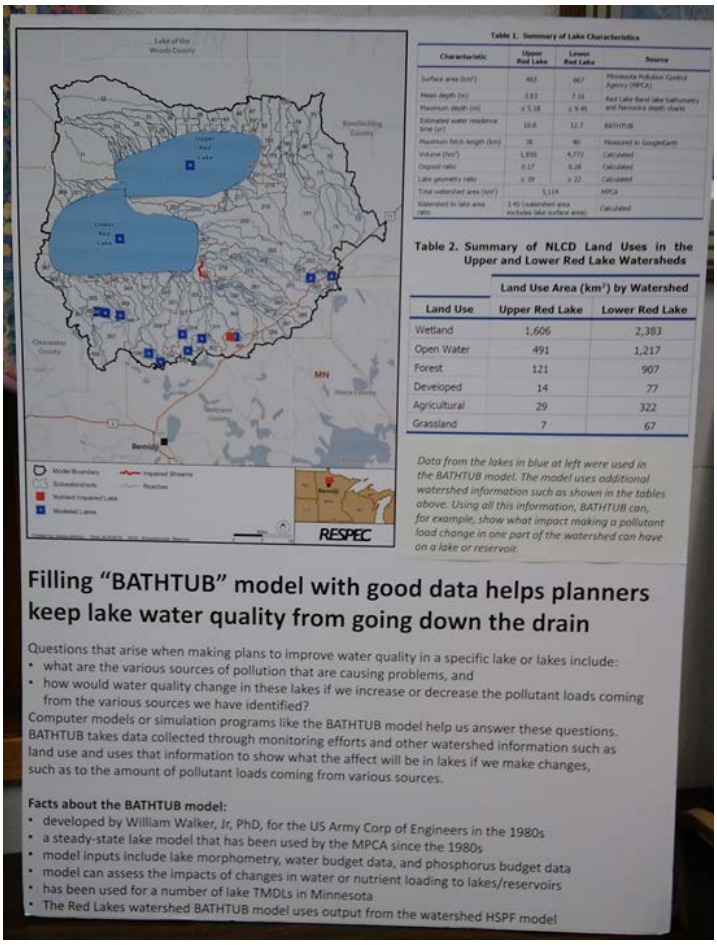


Table 1. Summary of Lake Characteristics
Table 2. Summary of NLCD Land Uses in the Upper and Lower Red Lake Watersheds
Land Use Area (km²) by Watershed
Land Use | Upper Red Lake | Lower Red Lake
Wetland | 1,606 | 2,383
Open Water | 491 | 1,217
Forest | 121 | 907
Developed | 14 | 77
Agricultural | 29 | 322
Grassland | 7 | 67
Data from the lakes in blue at left were used in the BATHTUB model. The model uses additional watershed information such as shown in the tables above. Using all this information, BATHTUB can, for example, show what impact making a pollutant load change in one part of the watershed can have on a lake or reservoir.
RESPEC
Filling "BATHTUB" model with good data helps planners keep lake water quality from going down the drain
Questions that arise when making plans to improve water quality in a specific lake or lakes include:
• what are the various sources of pollution that are causing problems, and
• how would water quality change in these lakes if we increase or decrease the pollutant loads coming from the various sources we have identified?
Computer models or simulation programs like the BATHTUB model help us answer these questions. BATHTUB takes data collected through monitoring efforts and other watershed information such as land use and uses that information to show what the affect will be in lakes if we make changes, such as to the amount of pollutant loads coming from various sources.
Facts about the BATHTUB model:
• developed by William Walker, Jr, PhD, for the US Army Corp of Engineers in the 1980s
• a steady-state lake model that has been used by the MPCA since the 1980s
• model inputs include lake morphometry, water budget data, and phosphorus budget data
• model can assess the impacts of changes in water or nutrient loading to lakes/reservoirs
• has been used for a number of lake TMDLs in Minnesota
• The Red Lakes watershed BATHTUB model uses output from the watershed HSPF model

- **December 16, 2019** - Red Lake River 319 Small Watersheds Focus Grant conference call (MPCA staff and the Red Lake River 1W1P Planning Work Group) to discuss estimates of pollutant reductions.
- **December 23, 2019** – BWSR Grant Reporting Training/Refresher at the RLWD office

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.