

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 2/21/2018.

- ✓ District Monitoring
- ✓ Clearwater River Watershed Restoration and Protection Project
- ✓ Clearwater River Open House Event
- ✓ Clearwater River maps
- ✓ Educational Events

### **Red Lake Watershed District Long-Term Monitoring Program**

A full round of sampling at the District's long-term monitoring sites was completed in October.

High concentrations of total suspended solids (in excess of state water quality standards) were found in:

- A ditch along the Wapiti WMA that was being cleaned during a runoff event, sending muddy water downstream to the Mud River.
- Mud River at Highway 89 (18 mg/L, runoff event, recent "cleaning")
- Thief River at CSAH 7 (38 mg/L)
  - The concentration was lower (8 mg/L) downstream at 140<sup>th</sup> Ave NE



High concentrations of *E. coli* bacteria (>126 MPN/100ml) were found in:

- Beau Gerlot Creek at CR 114
- Blackduck River
- Burnham Creek at CSAH 48
- Chief's Coulee at Dewey Avenue
- Clearwater River at CSAH 10

- Cyr Creek
- Darrigan's Creek
- Ditch along the Wapiti WMA
- Grand Marais Creek at 110<sup>th</sup> St NW
- Heartsville Coulee at 13<sup>th</sup> Street SE in East Grand Forks
- Judicial Ditch 30
- Kripple Creek
- Lost River at most of the crossings between Pine Lake and Anderson Lake
- Marshall County Ditch 20
- Moose River at CSAH 54
- Mud River
  - In Grygla
  - Highway 89
- North Cormorant River
- Polk County Ditch 2 at CR 62
- Red Lake River at Greenwood Street in Thief River Falls
- Silver Creek near Clearbrook
- Thief River
  - CSAH 6
  - CSAH 7
  - 140<sup>th</sup> Ave NE

High concentrations of total phosphorus that exceeded stream eutrophication standards were found in:

- Burnham Creek at 320<sup>th</sup> Ave SW
- Chief's Coulee at Dewey Ave
- Grand Marais Creek
  - 110<sup>th</sup> St NW
  - 130<sup>th</sup> St. NW
- Heartsville Coulee at 13<sup>th</sup> Street SE in East Grand Forks
- Mud River at Highway 89
- Polk County Ditch 2
  - CSAH 20
  - CR 62
- Poplar River at CSAH 49
- Thief River at CSAH 6

Low concentrations of dissolved oxygen (<5 mg/L) were found:

- Little Black River at County Road 102
- Lost River at County Road 139 (ponded behind a beaver dam)
- Walker Brook at CSAH 19

A very high (13.2 mg/L) nitrate + nitrite concentration was found in Lower Badger Creek on October 11, 2017. A relatively high nitrate + nitrite concentration was found in the Mud River on October 3, 2017. All tile drainage in that watershed was flowing after a rainfall event. Relatively high nitrates and nitrites concentrations were also found in Beau Gerlot Creek and Terrebonne Creek.

The total organic carbon concentration was relatively high (20.3 mg/L) in the Thief River near Thief River Falls.

Some notably good water quality monitoring results include:

- *E. coli* was okay in Pennington County Ditch 21. The bridge at CSAH 17 had been replaced. That bridge replacement removes the roosting areas that the old bridge provided to pigeons. That should help reduce *E. coli* concentrations in the ditch.
- Total suspended solids concentrations were okay in the Red Lake River at East Grand Forks, Fisher, and Crookston.
- Total suspended solids were very low (1 mg/L or less) in:
  - Clearwater River near Plummer
  - Cyr Creek
  - Darrigan's Creek
  - Hill River
    - 335<sup>th</sup> Ave
    - CR 119
  - Judicial Ditch 73
  - Lost River (CSAH 8)
  - Nasset Brook
  - Poplar River
    - 310<sup>th</sup> St SE near Highway 59
    - CSAH 30 near Fosston
  - Ruffy Brook
- *E. coli* concentrations were very low (<10 MPN/100ml) in:
  - Polk County Ditch 14 near the Maple Lake Outlet
  - Lost River at 109<sup>th</sup> Ave, near the Pine Lake inlet

During early-October sampling, there was a lot of standing water and runoff in the Grygla area after a large rainfall event. A ditch cleanout was in progress along the border of the Wapiti WMA while the Thief River watershed was being sampled in early October. This ditch flows to Branch 55 of Judicial Ditch 11, north of Grygla along CSAH 54. That ditch flows into other branches of JD 11 before emptying into the Mud River. The water in the ditch was very muddy near the cleanout. Before reaching the Mud River, the muddy water in this ditch was diluted by cleaner water from downstream tile drainage systems that were rapidly discharging after the recent rainfall event.



**Ditch cleaning along the Wapati WMA**

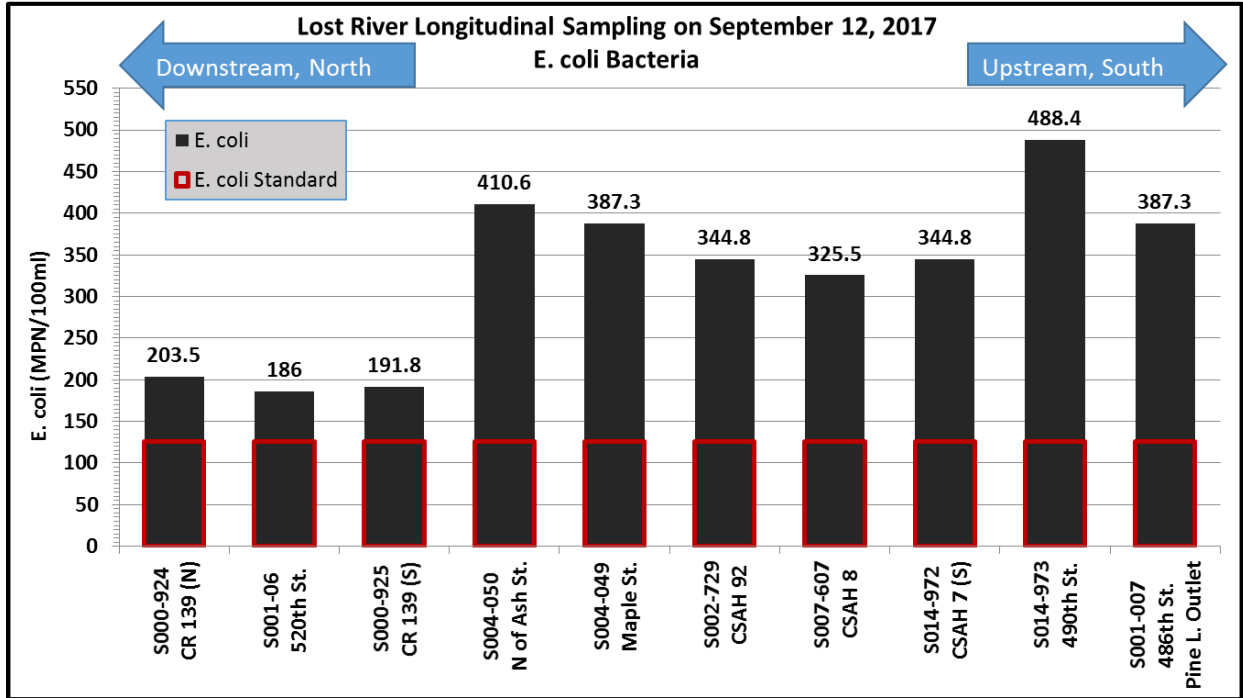


**Early-October tile drainage in the Mud River watershed**

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

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Longitudinal *E. coli* samples were collected along the *E. coli*-impaired reach of the Lost River between Pine Lake and Anderson Lake.



The recently completed restoration of the Blackduck Lake outlet was photographed during the Upper/Lower Red Lakes area sampling trip.



Beaver dams in the Lost River were blocking flow near the County Road 139 crossing near Anderson Lake. Beaver dams downstream of the crossing have been a common occurrence. However, on September 12, 2018, a beaver dam had also been built within the culvert. The culvert was plugged from top to bottom, causing flooding upstream.



**Lost River, ponded behind a beaver dam at CR 139**



**Beaver dam inside the CR 139 culvert**

Continuous dissolved oxygen monitoring in Nasset Creek, Lost River, and Hill River continued through the month of September. Dissolved Oxygen loggers and deployment pipes were retrieved at the end of the month.

The RLWD continued sampling in the Mud River in Grygla through the late summer and September to monitor for the recurrence of blue-green algae blooms in the river. A dissolved oxygen logger was deployed in the river. Despite some low flow conditions, tests did not reveal the presence of algal toxins.

The process of entering the year's data into a database and eventually submitting it to the MPCA for storage in the EQuIS database began in late October, after October sample analysis results were received from the lab. Site establishment forms were completed for sites along the Hill River and the Lost River that were sampled for the first time during longitudinal sampling.

### **Red Lake Watershed District Stream Gaging and Flow Monitoring**

HOBO water level loggers are collecting water level measurements at 24 monitoring sites throughout the Clearwater, Red Lake River, Thief River, and Grand Marais Creek watersheds. Flow was measured at the CR 127 crossing of the Clearwater River.

### **Clearwater River Watershed Restoration and Protection Strategy (WRAPS) Project**

- Objective 1 – Evaluation of Existing Data
  - Walker Brook (AUID 09020305-509) was officially recategorized and will not require a TMDL for the dissolved oxygen impairment on that reach.
- Objective 8 – Data analysis
  - Total phosphorus TMDL for the channelized portion of the Clearwater River (09020305-647)
- Objective 9 – Civic Engagement
  - RLWD staff attended the September 14, 2017 Maple Lake Improvement District meeting to discuss the Clearwater River WRAPS project. Monitoring and issues around the lake were discussed. A board member called the following day with some additional ideas and concerns.
    - The lake association has continued to sample water quality in the lake. The RLWD has assisted other lakes with sample analysis expenses and may be able to help the MLID with their expenses. An invoice was later submitted to the RLWD and the Board of Managers approved the reimbursement of the MLID's 2017 lake water quality sample analysis expenses.
    - Water levels in Ulen Bay and the channel under CSAH 10 that connects the bay to the rest of the lake. The height of the bridge can be an issue too. It sounded like there are times when the water under the bridge is too shallow to drive boats through. They also said that it can be hard to fit boats under the bridge when water levels are higher.

- They have been monitoring dissolved oxygen in the lake. They have found low dissolved oxygen levels during the winter. Dissolved oxygen levels get very low in Maple Bay. The MLID purchased new aerators.
- A lack of flow from the inlet can be a concern.
- The dam was repaired 5-6 years ago so that it would hold more water.
- Members of the MLID are concerned about groundwater supply due to the increased numbers high capacity irrigation wells in the area.
- o An Open House Event for the Clearwater River WRAPS project was held in Red Lake Falls on September 25, 2017.
  - The meeting was promoted through press releases, direct mailing (newsletters), a mass email to a list of Clearwater WRAPS contacts, flyer postings, and social media.
  - Contact lists were updated
  - Short presentations were prepared for the event and were given on each 30-minute mark during the event. A limit of 10-minutes was planned for each presentation, but some went longer due to the amount of interest and questions during those presentations.
    - Visual Tour of the Clearwater River Watershed
    - Water Quality Conditions in the Clearwater River Watershed
  - There was opportunity for small group or one-on-one discussion at informational booths.
- o RLWD staff wrote an article about the Clearwater River for the Polk County Newsletter
- o RLWD staff provided information to the MPCA for a newsletter article entitled “2018 Impaired waters list: Success stories surfacing for Minnesota lakes, streams.”

**One of the presentations at the Clearwater River WRAPS Open House Event**

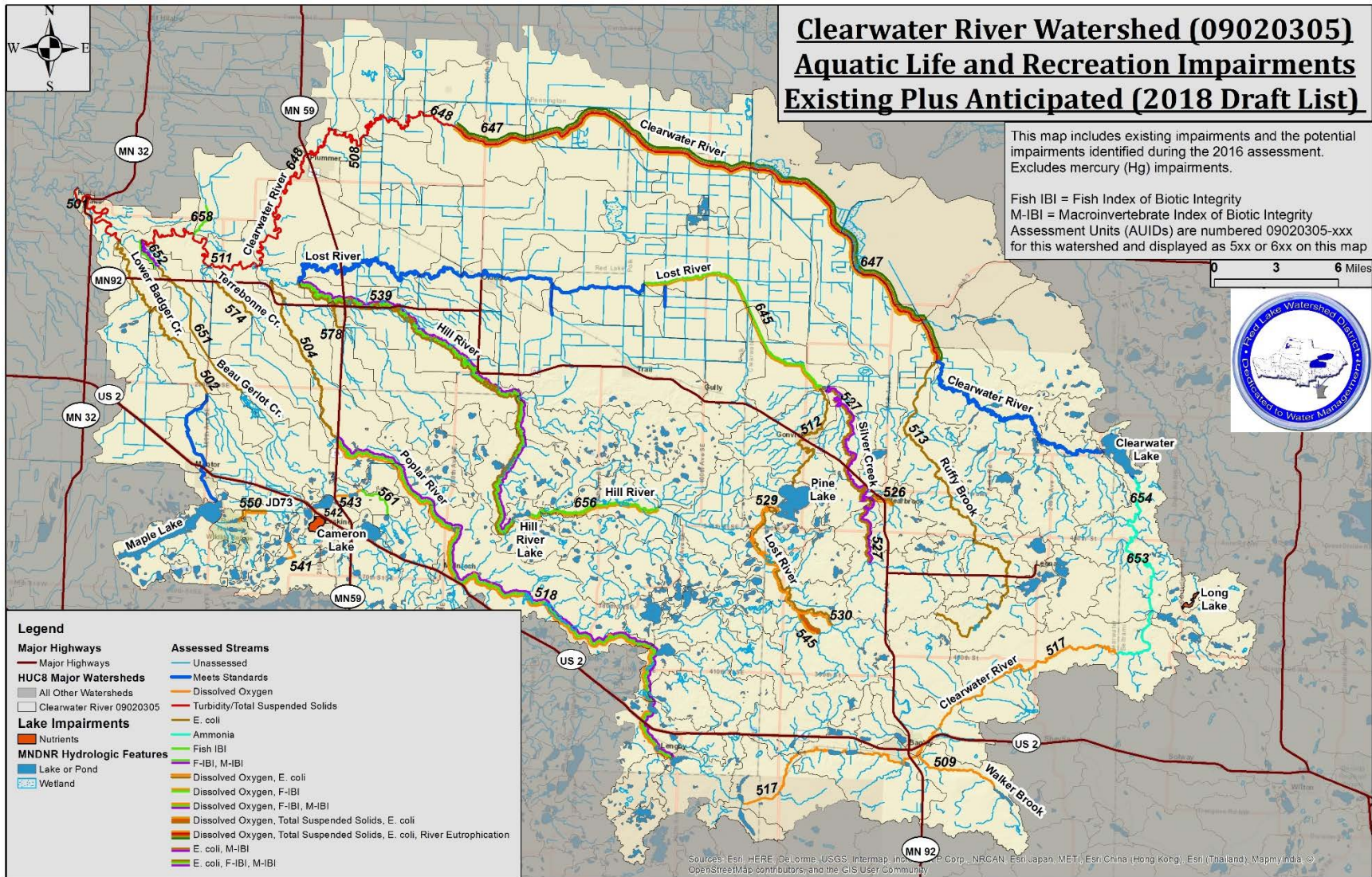




- Objective 10 – Reports
  - Terrebonne Creek *E. coli* sources
  - Brooks Creek *E. coli* sources
  - Clearwater River land use map
  - Direct drainage area table for impaired waters in the Clearwater River watershed
  - Clearwater WRAPS cover
  - The Brooks Creek watershed was examined to identify potential sources of *E. coli* bacteria. The only potential sources are a few residences near the channel. The Brooks Creek drainage area should be targeted for septic system inspections.
  - Upper Clearwater River HUC10 subwatershed protection considerations.
  
- Newsletters and maps:

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

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# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

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## Impaired Waters in the Clearwater River (09020305) Watershed

Assessment Unit ID	Waterbody Name	Description	Existing Impairments (2016)	New Impairments (2018)	Proposed Delistings, Corrections	HUC10	HUC10 Name
60-0189-00	Cameron Lake	226 acre lake near Erskine, MN	Nutrients			0902030506	Lower Badger Creek
04-0295-00	Long Lake	85 acre lake north of Little Buzzle Lake and Pinewood		Nutrients		0902030501	Upper Clearwater River
09020305-501	Clearwater River	Lower Badger Creek to Red Lake River	Turbidity/TSS			0902030507	Lower Clearwater River
09020305-502	Lower Badger Creek	CD14 to Clearwater River		<i>E. coli</i>		0902030506	Lower Badger Creek
09020305-504	Poplar River	Highway 59 to Lost River		<i>E. coli</i>		0902030504	Poplar River
09020305-508	County Ditch 57	Unnamed ditch to Clearwater River	DO		DO	0902030507	Lower Clearwater River
09020305-509	Walker Brook	Walker Brook Lake to Clearwater River	DO			0902030501	Upper Clearwater River
09020305-511	Clearwater River	Lost River to Beau Gerlot Creek	Turbidity/TSS			0902030507	Lower Clearwater River
09020305-512	Lost River	Pine Lake to Anderson Lake		<i>E. coli</i>		0902030505	Lost River
09020305-513	Ruffy Brook	Headwaters to Clearwater River	Fecal coliform ( <i>E. coli</i> )			0902030502	Middle Clearwater River
09020305-517	Clearwater River	Headwaters to T148 R36W S36 east line	DO			0902030501	Upper Clearwater River
09020305-518	Poplar River	Spring Lake to Highway 59	DO	F-IBI, M-IBI		0902030504	Poplar River
09020305-526	Clear Brook	Headwater to Silver Creek		DO, <i>E. coli</i>		0902030505	Lost River
09020305-527	Silver Creek	Headwaters to Anderson Lake	Fecal coliform ( <i>E. coli</i> )	M-IBI		0902030505	Lost River
09020305-529	Lost River	T148 R38W S17 south line to Pine Lake	DO	<i>E. coli</i>		0902030505	Lost River
09020305-530	Lost River	Unnamed cr to T148 R38W S20 north line		DO, <i>E. coli</i>		0902030505	Lost River
09020305-539	Hill River	Hill River Lake to Lost River		<i>E. coli</i> , F-IBI		0902030503	Hill River
09020305-541	Bee Lake Inlet	Eighteen Lake to Bee lake	DO		DO	0902030506	Lower Badger Creek
09020305-542	Poplar River Diversion	Badger Lake to Mitchell Lake	DO		DO	0902030506	Lower Badger Creek
09020305-543	Poplar River Diversion	Unnamed ditch to Badger lake	DO			0902030506	Lower Badger Creek
09020305-545	Nassett Creek	T148 R38W S28 south line to Lost River		TSS, DO, <i>E. coli</i>		0902030505	Lost River
09020305-550	Judicial Ditch 73	Unnamed ditch to Tamarack Lake		DO, <i>E. coli</i>		0902030506	Lower Badger Creek
09020305-561	Tributary to the Poplar River Diversion	Gerdin Lake to Poplar River Diversion		F-IBI		0902030506	Lower Badger Creek
09020305-574	Terbonne Creek	CD4 to CD58	<i>E. coli</i>			0902030507	Lower Clearwater River
09020305-578	Brooks Creek	Unnamed cr to Hill River		<i>E. coli</i>		0902030503	Hill River
09020305-645	Lost River	Anderson Lake to Unnamed Cr (CSAH 28)		DO, F-IBI		0902030505	Lost River
09020305-647	Clearwater River	Ruffy Brook to JD1	Turbidity/TSS, DO	<i>E. coli</i> , Eutrophication	DO	0902030502	Middle Clearwater River
09020305-648	Clearwater River	JD1 to Lost River	Turbidity/TSS, DO		DO	0902030507	Lower Clearwater River
09020305-651	Beau Gerlot Creek	Upper Badger Creek to -96.1947 47.8413		<i>E. coli</i>		0902030507	Lower Clearwater River
09020305-652	Beau Gerlot Creek	-96.1947 47.8413 to Clearwater River		F-IBI, M-IBI		0902030507	Lower Clearwater River
09020305-653	Clearwater River	T148 R35W S31 west line to unnamed cr	Ammonia (un-ionized)		Ammonia	0902030501	Upper Clearwater River
09020305-654	Clearwater River	unnamed cr to Clearwater Lake	Ammonia (un-ionized)		Ammonia	0902030501	Upper Clearwater River
09020305-656	Hill River	Unnamed cr (Br4 CD 81 near Olga) to Hill River Lake		DO, F-IBI		0902030503	Hill River
09020305-658	County Ditch 23	-96.1479 47.8855 to Clearwater River		F-IBI		0902030507	Lower Clearwater River

TSS = Total Suspended Solids

DO = Dissolved Oxygen

F-IBI = Fish Index of Biotic Integrity

M-IBI = Macroinvertebrate Index of Biotic Integrity

Fecal Coliform (*E. coli*) = The reach was found to be impaired for aquatic recreation by high fecal coliform concentrations and current *E. coli* data confirmed the impairment.

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

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## YOU CAN HELP RESTORE THE CLEARWATER RIVER WATERSHED!

Shoreline Restoration  
Stream Bank Stabilization  
Wetland Restoration  
Rain Gardens  
Sediment Ponds  
Grazing Management



## CONTACT

Red Lake Watershed District: 218-681-5800, [coreyh@wiktel.com](mailto:coreyh@wiktel.com)  
Red Lake County Soil & Water Conservation District: 218-253-2593  
East Polk Soil & Water Conservation District: 218-563-2777  
Clearwater County Soil & Water Conservation District: 218-694-6845  
Beltrami County Soil & Water Conservation District: 218-333-4158

For detailed information about the watersheds in the Red Lake Watershed District, visit:  
[www.rldwatersheds.org](http://www.rldwatersheds.org)



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Thief River Falls, MN 56701  
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## Clearwater River Watershed Restoration and Protection Strategy Project Newsletter

JOIN THE CONVERSATION  
[www.rldwatersheds.org](http://www.rldwatersheds.org)  
[www.redlakewatershed.org](http://www.redlakewatershed.org)



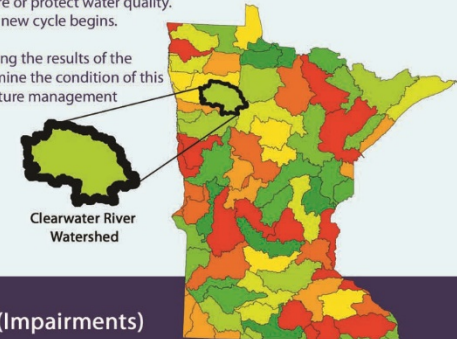
## Clearwater River Watershed Restoration and Protection Project Update Newsletter

The Minnesota Pollution Control Agency (MPCA) employs a watershed approach to restoring and protecting Minnesota's rivers, lakes, and wetlands. During the 10-year cycle, the MPCA and its partner organizations work on each of the state's 80 major watersheds to evaluate water conditions, establish priorities and goals for improvement, and take actions designed to restore or protect water quality. When a watershed's 10-year cycle is completed, a new cycle begins.

The Red Lake Watershed District is currently drafting the results of the study of the Clearwater River Watershed to determine the condition of this water resource and create plans that will guide future management and work to improve water quality.

### What is the Watershed Approach?

Watch the videos:  
<http://www.pca.state.mn.us/ktqhe8a>



## Identified Water Quality Issues (Impairments)

These four water quality issues were found to be the main issues in the Clearwater River Watershed as identified by this intensive watershed study and the stressor identification study. The short videos below explain these issues in more detail. Restoration and Protection strategies are currently being written to address these issues. For specifics on issues in specific streams, see the inside of this newsletter.

- Turbidity and Total Suspended Solids** – tells us how cloudy the water is from sediment. Sediment enters the water from soil erosion. Cloudy water can hurt fish, aquatic insects, plant life within rivers, habitat, recreational suitability, drinking water supplies, and more.  
Watch the video: <http://youtu.be/EKH3jZvADTK>
- Low Dissolved Oxygen** - Fish, snails, crayfish, insects and other animals that live in the water, need certain levels of oxygen to survive. Waters that have low levels of dissolved oxygen (less than 5 milligrams per liter) are considered unhealthy.  
Watch the video: <http://youtu.be/qUq7JFdVo3g>
- E. Coli Bacteria** - Bacteria is everywhere. Some bacteria can be good and is necessary for digestion (think of yogurt). Bad bacteria, however, can make us sick. Some of these bad bacteria, fecal coliform and E. coli, can be found in the water in which we enjoy swimming.  
Watch the video: <http://youtu.be/vkYUijXyqLI>
- Water flow** – Water flow, or the amount of water flowing in a stream is important for determining erosion potential. Flowing water can have tremendous power. Faster water has more erosive power. Therefore, changes to the landscape that increase the rate of runoff will also increase erosion. Aquatic life can also be harmed by low flow levels that can create dry channels, stagnant water, and low dissolved oxygen concentrations.

## Watershed Restoration & Protection Plan Progress

### Official Water Quality Assessment

Water quality monitoring data collected from 2006-2015 was compared against state standards to determine which stretches of river had impairments. The results are in the loose insert in this mailing. The resulting plan from this project will determine how to fix these impaired streams. To learn more about what these impairments are and what they mean, see the video links on the first page of this newsletter and the glossary below.

#### Glossary of Water Quality Measurements (Impairments)

**M-IBI:** Macroinvertebrate Index of Biological Integrity, shows if the stream is healthy for invertebrates (insects, crayfish, etc)

**F-IBI:** Fish Index of Biological Integrity, shows if the stream is healthy for fish.

**Dissolved Oxygen:** Fish and other aquatic creatures need oxygen to survive. Low levels of dissolved oxygen are considered unhealthy.

**E.coli:** E. coli bacteria comes from warm-blooded animals such as cattle and humans. It can contaminate the water for swimming.

**Turbidity/Total Suspended Solids (TSS):** tells us how cloudy the water is from sediment.

~ For further information about dissolved oxygen, E.coli and turbidity, see the videos links on the first page of this newsletter. ~

### Next Steps

These impaired rivers have been studied carefully to determine exactly what is causing impacts to fish and other aquatic organisms (insects, crayfish, etc). This stage of the process is called stressor identification.

Next, is a discussion of what projects can be done to fix these water quality problems/impairments. For example, if the stream bank is eroding, a vegetation buffer and trees could be planted to help stabilize the stream bank.

### Public Meetings

Local citizens can help become involved with implementation strategies for restoration and protection of the Clearwater River Watershed, review the draft plan and give your input. Please join us:

**September 25, 2017**

**Red Lake Falls Community Center, 3:30-6:30pm**



**WE ARE HERE**



2014

1

#### Current Condition

All past data was compiled and used to evaluate the current condition of the Clearwater River Watershed. Gaps in the data were identified for collecting new data.

2014-2015

2

#### Data Collection

New data was collected in 2014 and 2015 and combined with historical data. Water chemistry, stream channel stability, and biological community data was collected to inform this study.

2016-2017

3

#### Model & Map

Use computers to model and map the watershed and set targets for reduction of pollutants in the Clearwater River Watershed.

2017

4

#### Assessment & Stressor ID

Water quality and biologic impairments are identified. The causes of those problems are investigated.

2017-2018

5

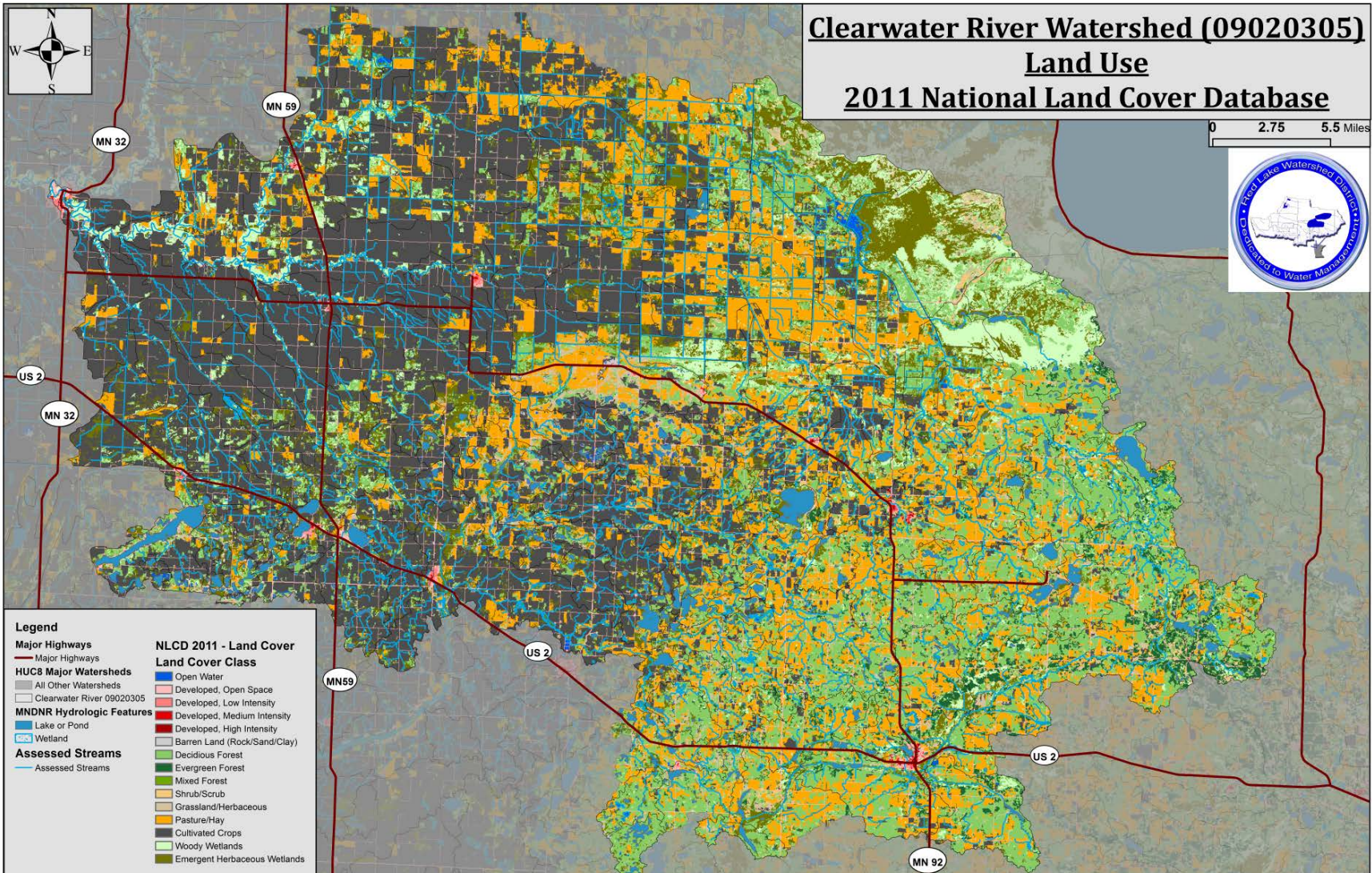
#### Final Plans

Final management plans will prioritize targeted activities in the watershed that will allow water bodies to safely meet water quality standards. These plans will guide local management of water resources in the Clearwater River Watershed.

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

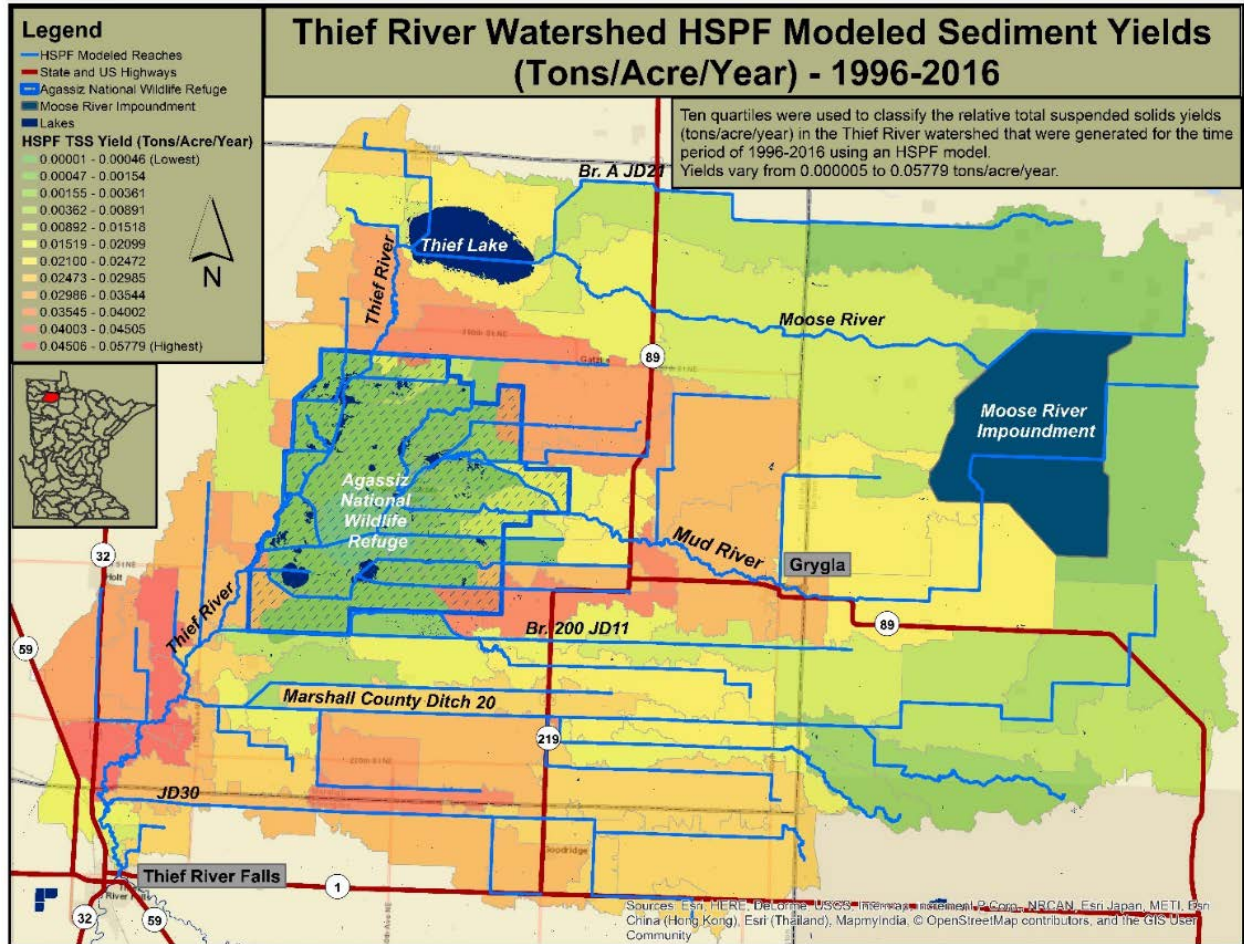
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## Clearwater River Watershed (09020305) Land Use 2011 National Land Cover Database



**Thief River Watershed Restoration and Protection Strategy**

- RLWD staff created a GIS layer of Thief River watershed sediment yields using data from the Thief River watershed HSPF model.
- Comments and suggestions on the Thief River TMDL and WRAPS documents were received from the MPCA.



**Upper/Lower Red Lakes Watershed Restoration and Protection Strategy**

In October 2017, MPCA staff were working on edits to the Upper/Lower Red Lakes Watershed Stressor Identification Report and addressing comments. Red Lake Department of Natural Resources staff shared the results of microbial source tracking samples that they collected during the summer of 2017. RLWD reviewed the Upper and Lower Red Lakes stressor identification document with MPCA staff.

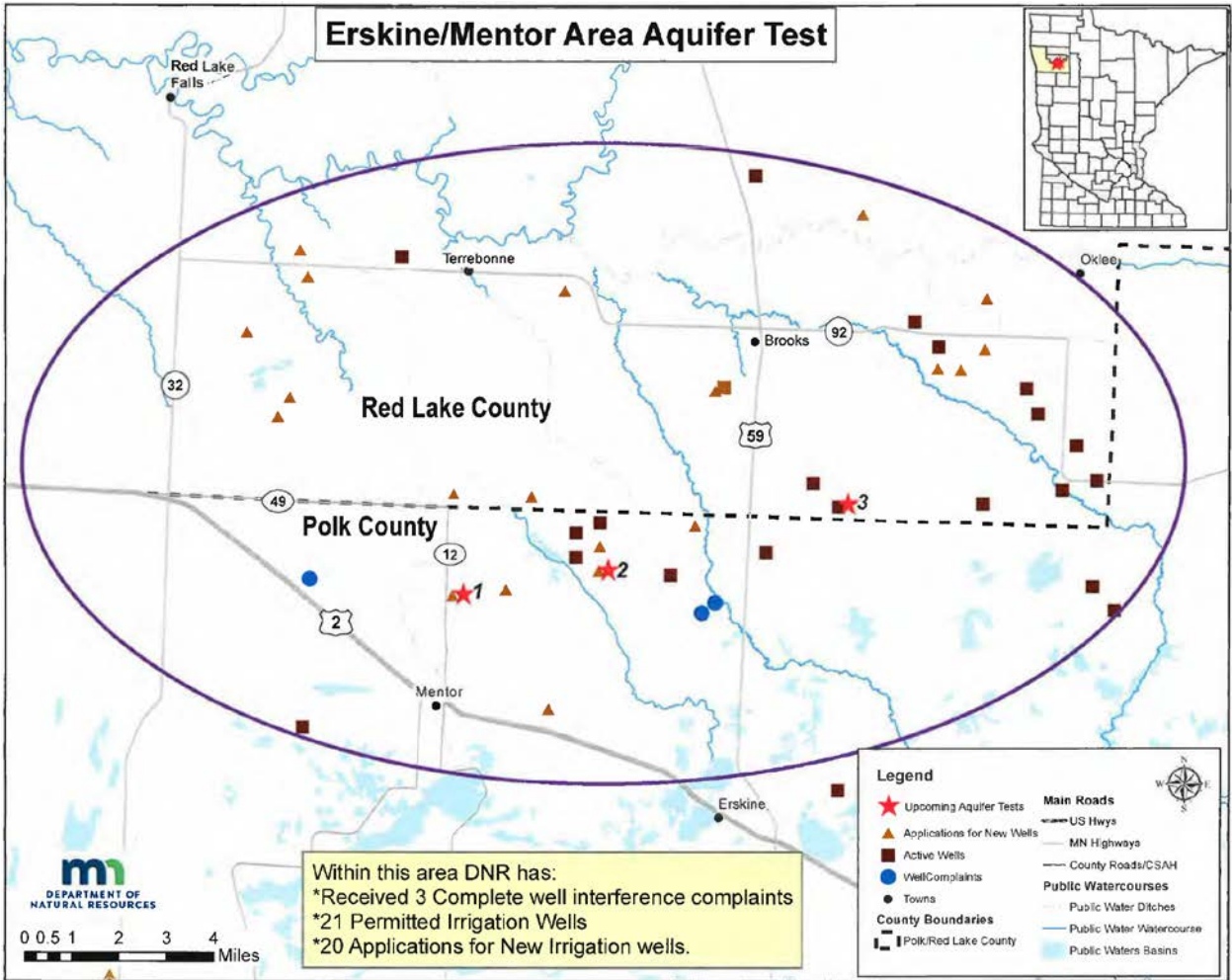
# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

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2017 Upper/Lower Red Lakes Microbial Source Tracking Results							
Site	River	Date	Analysis	Marker Quantified	DNA Analytical Results	Concentration	RMB <i>E. coli</i> Results
BATT-NB	North Branch Battle River	8/14/2017	Beaver	1.36E+02	Detected	Low concentration	133.4 MPN/100mL
BATT-NB	North Branch Battle River	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
BATT-NB	North Branch Battle River	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
BATT-NB	North Branch Battle River	8/14/2017	Ruminant	1.36E+04	Detected	Moderate concentration	
BLAC-H	Blackduck	8/14/2017	Ruminant	ND	Not Detected	Not Detected	111.9 MPN/100mL
BLAC-H	Blackduck	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
BLAC-H	Blackduck	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
BLAC-H	Blackduck	8/14/2017	Beaver	6.61E+02	Detected	Low concentration	
CORM-B	North Cormorant	8/14/2017	Beaver	2.93E+02	Detected	Low concentration	63.8 MPN/100mL
CORM-B	North Cormorant	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
CORM-B	North Cormorant	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
CORM-B	North Cormorant	8/14/2017	Ruminant	ND	Not Detected	Not Detected	
CORMORANT_36	North Cormorant	8/14/2017	Beaver	ND	Not Detected	Not Detected	866.4 MPN/100mL
CORMORANT_36	North Cormorant	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
CORMORANT_36	North Cormorant	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
CORMORANT_36	North Cormorant	8/14/2017	Ruminant	1.78E+04	Detected	Moderate concentration	
CORMORANT_72	North Cormorant	8/14/2017	Beaver	ND	Not Detected	Not Detected	54.6 MPN/100mL
CORMORANT_72	North Cormorant	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
CORMORANT_72	North Cormorant	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
CORMORANT_72	North Cormorant	8/14/2017	Ruminant	ND	Not Detected	Not Detected	
MUDR-M	Mud River	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	127.4 MPN/100mL
MUDR-M	Mud River	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
MUDR-M	Mud River	8/14/2017	Bird	ND	Not Detected	Not Detected	
MUDR-M	Mud River	8/14/2017	Beaver	6.74E+02	Detected	Low concentration	
S004-533	O'Brien Creek	8/14/2017	Ruminant	ND	Not Detected	Not Detected	52.9 MPN/100mL
S004-533	O'Brien Creek	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S004-533	O'Brien Creek	8/14/2017	Bird	ND	Not Detected	Not Detected	
S004-533	O'Brien Creek	8/14/2017	Beaver	DNQ	Detected	Low concentration	
S004-831	Blackduck	8/14/2017	Ruminant	DNQ	Detected	Low concentration	228.2 MPN/100mL
S004-831	Blackduck	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S004-831	Blackduck	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
S004-831	Blackduck	8/14/2017	Beaver	ND	Not Detected	Not Detected	
S004-832	Darrigan's Creek	8/14/2017	Ruminant	5.49E+02	Detected	Low concentration	1119.9 MPN/100mL
S004-832	Darrigan's Creek	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S004-832	Darrigan's Creek	8/14/2017	Human: EPA	DNQ	Detected	Low concentration	
S004-832	Darrigan's Creek	8/14/2017	Beaver	ND	Not Detected	Not Detected	
S007-880	Hay Creek	8/14/2017	Ruminant	ND	Not Detected	Not Detected	143.9 MPN/100mL
S007-880	Hay Creek	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S007-880	Hay Creek	8/14/2017	Bird	DNQ	Detected	Low concentration	
S007-880	Hay Creek	8/14/2017	Beaver	DNQ	Detected	Low concentration	
S007-883	South Cormorant	8/14/2017	Ruminant	ND	Not Detected	Not Detected	25.3 MPN/100mL
S007-883	South Cormorant	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S007-883	South Cormorant	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
S007-883	South Cormorant	8/14/2017	Beaver	ND	Not Detected	Not Detected	
S007-884	Shotley Brook	8/14/2017	Beaver	ND	Not Detected	Not Detected	122.3 MPN/100mL
S007-884	Shotley Brook	8/14/2017	Bird	ND	Not Detected	Not Detected	
S007-884	Shotley Brook	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S007-884	Shotley Brook	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	
S007-887	Sandy River	8/14/2017	Ruminant	ND	Not Detected	Not Detected	45 MPN/100mL
S007-887	Sandy River	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S007-887	Sandy River	8/14/2017	Bird	DNQ	Detected	Low concentration	
S007-887	Sandy River	8/14/2017	Beaver	3.20E+02	Detected	Low concentration	
S007-888	Unnamed Stream	8/14/2017	Beaver	ND	Not Detected	Not Detected	307.6 MPN/100mL
S007-888	Unnamed Stream	8/14/2017	Bird	DNQ	Detected	Low concentration	
S007-888	Unnamed Stream	8/14/2017	Human: Dorei	ND	Not Detected	Not Detected	
S007-888	Unnamed Stream	8/14/2017	Human: EPA	ND	Not Detected	Not Detected	



**Erskine Area Groundwater Discussion**



An informational meeting was organized by the MN DNR at the Win-E-Mac School Commons on October 19, 2017 to discuss groundwater levels in the Erskine area. DNR staff shared information about the ways in which it appropriates the use of groundwater (permitting process), unique aspects of the Erskine-area groundwater supply, and aquifer tests. They addressed questions and concerns from the audience. Presentations and demonstrations were used to convey information about how different types of aquifers work and how they can be affected by high capacity wells.

Well interference has become an issue in the Erskine area. Three valid well interference complaints have been filed and the DNR will be conducting three aquifer tests. The complaints have been validated by professional well drillers. The affected wells in this area have not gone “dry.” They have been affected by reduced flows and lowered levels, but there has still been water within the casings.

Aquifer tests will show the extent of the effect of high capacity wells upon neighboring wells.

The tests will also evaluate the ability of the aquifer to recover after a drawdown. The aquifer tests will be completed in the spring of 2018. The first aquifer test was completed the day before this meeting. The test involves pumping a large amount of water from the well. To passersby, it might look like a lot of water is being wasted as it is gushing into a ditch.

Irrigation wells have been recently installed in the area. The cone of depression around an irrigation well can negatively affect neighboring residential wells. The effect can be compounded when high capacity irrigation wells are located too close to each other. Intersecting cones of depression can have a compounded effect on shallower residential wells. High capacity irrigation wells may also be depressurizing the aquifer. If a confined aquifer is depressurized, it is harder to get the water out of the aquifer. There are a lot of flowing wells in this area. Flowing residential wells may stop flowing when high capacity wells depressurize the aquifer.

The geology is complex in this portion of Polk County. There are layers of clay and sand that are not nice and even. Unfortunately, the knowledge of the geology in this area is limited. The DNR knows a little about the geology from well logs, but not much has been mapped. There may be a couple of layers of aquifers in this area that are recharged along the eastern edge of Polk County. Studies for the purpose of mapping of geology and aquifers are typically spearheaded by counties, with help from the MN DNR. A geologic atlas for Polk County is under development.

Tritium is used to “age” water. The presence of tritium indicates that the water is “young” and has been in the ground for a relatively short length of time. Some water in Minnesota’s aquifers is thousands of years old.

The permitting process is very rigorous and can take 1-2 years to complete. The process requires farmers to “jump through plenty of hoops” and requires annual reporting. Monitoring wells are sometimes required. The DNR wants to make sure that the water supply is sustainable and limit drawdowns to 75% of the available head. It takes time to complete the tests and process data. Permits do not have end dates, but they can be re-considered if problems are found.

There were some conflicting messages at this meeting. At first, the presenters gave the impression that a high capacity permittee causes another well to go dry (well-interference), the high capacity permittee can simply pay for improvements to the affected well and continue pumping and affecting the area’s groundwater resources. After some concern was expressed, they added that the permittee may have to reduce their pumping rate and that the DNR does an analysis on the effects of the high capacity well upon the aquifer. So, there was at least some assurance that the DNR will do something to protect the resource. The DNR doesn’t know much about this aquifer, yet also stated that the agency was not concerned about the sustainability of the aquifer at this time. If well interference is occurring, then the resource is being affected and there at least be some concern. Despite the information that was presented about the problems that unbridled installation of high capacity wells can cause, local politicians called for more and faster permitting of these wells in the area.

MN DNR Well Interference Fact Sheet:

[http://files.dnr.state.mn.us/waters/watermgmt\\_section/appropriations/well\\_interference\\_fact\\_sheet.pdf](http://files.dnr.state.mn.us/waters/watermgmt_section/appropriations/well_interference_fact_sheet.pdf)

Crookston Times article about the meeting:

<http://www.crookstontimes.com/news/20171020/area-legislators-minnesota-dnr-host-erskine-meeting-to-discuss-water-supply>

### **River Watch and Public Education**

District staff assisted schools with sampling for the River Watch program in September. A River Watch Kick-Off event was held at the RLWD office in coordination with the Thief River Falls Community Paddle Event.

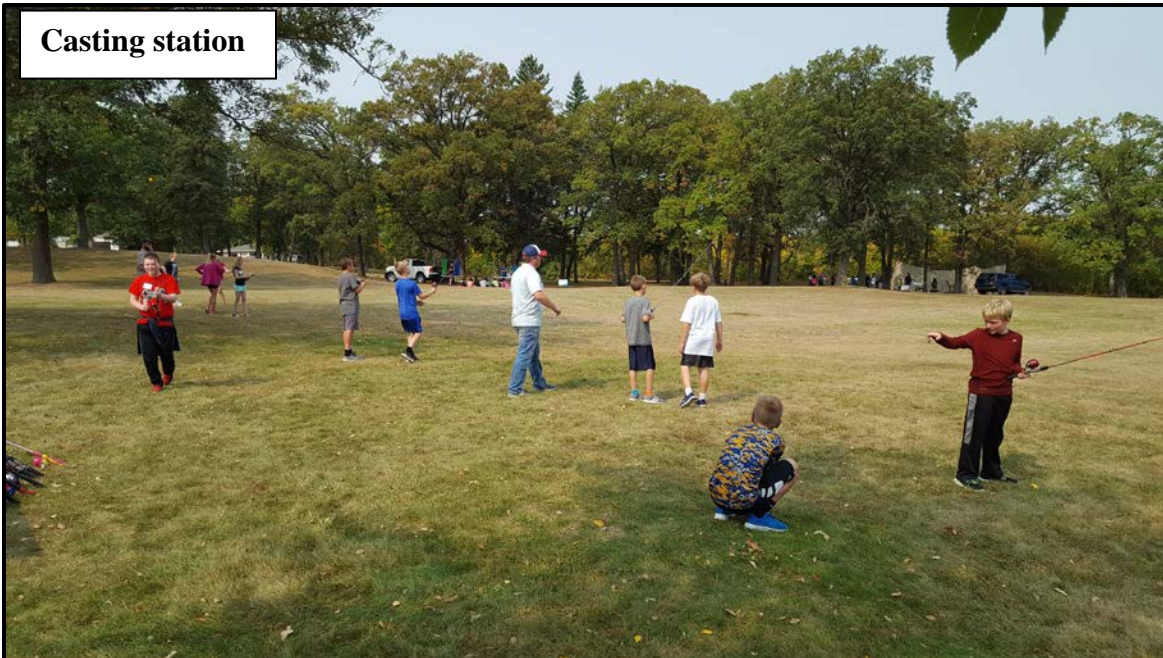


RLWD staff helped with the Pennington County Outdoor Education Day that was organized by the Pennington County Soil and Water Conservation District and took place in Oakland Park in Thief River Falls. Ashley Hitt helped with the aquatic invasive species station. Brady Stanley helped with the casting station. Corey Hanson helped with the “Incredible Journey” water cycle station.

**“Incredible Journey” Station**



**Casting station**



**Aquatic Invasive Species Station**



RLWD staff (Corey Hanson, Ashley Hitt, and Christina Slowinski) helped run the water quality station at the Northwest Minnesota Water Festival educational events for 4<sup>th</sup> grade students that were held in Warren and Fertile. A total of 682 fourth graders attended the events.



**Other Notes**

- RLWD staff and managers attended Governor Dayton's 25 by '25 Town Hall event at the University of Minnesota, Crookston.
  - Governor Mark Dayton announced a new "25 by '25" Water Quality Goal to spur collaboration and action to improve Minnesota's water quality 25 percent by 2025. Without additional action, the quality of Minnesota's waters is expected to improve only 6 to 8 percent by 2034. Governor Dayton wanted to hear from Minnesotans and hosted a series of Town Halls over the summer and fall of 2017.
  - RLWD staff reviewed 26 by 25 Town Hall information, agenda, and information from past events. RLWD staff prepared a list of project ideas from WRAPS and One Watershed One Plan reports to bring to the event.
  - RLWD staff also attended the Minnesota Department of Agriculture listening session that was held prior to the 25 by '25 Town Hall
  - Results and photos from the Crookston 25BY25 Event:  
<https://www.eqb.state.mn.us/content/crookston-tuesday-september-5-2017>
  - Results and photos from the Bemidji 25BY25 Event:  
<https://www.eqb.state.mn.us/content/bemidji-%E2%80%93-wednesday-september-13-2017>
- The MPCA released a 2018 Draft List of Impaired Waters
- A newly hired technician, Christina Slowinski, began working at the District on September 18, 2017.
- Flow was measured in the Clearwater River at County Road 127.
- A water quality report was written for the month of June 2017.
- RLWD staff participated in discussions about Cycle 2 of the MPCA 10X/WRAPS process with staff from other watershed districts and with MPCA staff.
- RLWD staff reviewed Thief River One Watershed One Plan documents
  - Priority Resource Matrix
  - Story maps (informational website)
  - Resource station maps (maps that will be used at "resource stations" during the public meetings.
  - Land and Resource Inventory
- RLWD staff provided Houston Engineering with a Thief River watershed HSPF-modeled sediment yield GIS layer for the Thief River One Watershed One Plan.
- Construction began on the restoration of the outlet of Blackduck Lake
- Water quality related notes from the September 14, 2017 RLWD Board of Managers meeting.
  - The Board reviewed a Clean Water Fund Assistance Contract with the West Polk SWCD for stabilization of the outlet of Polk County Ditch 63, RLWD Project No. 134. The Board approved the Clean Water Fund Assistance Contract with the West Polk SWCD, in the amount of \$128,750, with a 25% in-kind match in the amount of \$25,570 from the District's Erosion Control Funds.
  - The Board reviewed a Memorandum of Agreement between the District, Pennington SWCD and the West Polk SWCD for the Red Lake River One Watershed One Plan Ditch Inventory. Pennington SWCD received a Clean Water

Fund Drainage Ditch Inventory and Inspection grant in 2014. The Pennington SWCD had remaining funds from the grant and were able to transfer the balance to the West Polk SWCD. An inventory of over 372 miles of legal ditch systems needs to be completed by December 31, 2018. The West Polk SWCD contacted the District, to inquire if the District would have staff available to assist with the completion of the grant. Administrator Jesme indicated he felt that the District staff would be able to assist the West Polk SWCD with the inventory of legal ditch systems and since this area is located in the Red Lake River 1W1P, the information could be used to solidify funding from the Clean Water Legacy for implementation of projects. The Board approved the Memorandum of Agreement between the District, Pennington SWCD and West Polk SWCD for the Red Lake River One Watershed One Plan Ditch Inventory.

- Water quality related notes from the October 26, 2017 RLWD Board of Managers meeting.
  - Administrator Jesme stated that the Maple Lake Association collects the water quality samples on Maple Lake, with the analysis of the samples completed by RMB Labs in Detroit Lakes. The Maple Lake Association has asked if the District would consider paying for the costs of the analysis; costs for the analysis in 2017 was \$700. Motion by Dwight, seconded by Ose, to approve paying for the costs of the water quality analysis for samples collected on Maple Lake by the Maple Lake Association. Motion carried.

#### **September and October 2017 Meetings and Events**

- **September 5, 2017** – Minnesota Department of Agriculture Town Hall Listening Session at the University of Minnesota, Crookston
- **September 5, 2017** – Crookston 25 by '25 Town Hall Meeting at the University of Minnesota, Crookston
- **September 7, 2017** – Thief River One Watershed One Plan Coordination Call
- **September 8, 2017** – Crookston Community Paddle Event
- **September 9, 2017** – Crookston Community Paddle Event
- **September 11, 2017** – Pennington County Water Resources Advisory Committee Meeting
  - The Pennington SWCD has applied for an additional \$40,000 to upgrade low-income septic systems
  - Two systems still need to be upgraded within the Chief's Coulee drainage area out of the three public health threats that were found.
  - RLWD staff (Christina S.) will be helping with a ditch inventory in Polk County.
  - Progress has been made on the City of Thief River Falls Stormwater Assessment. A list of potential projects has been created. Projects have been ranked in order of treatment effectiveness. A new parking lot and stormwater pond are in the process of being constructed on the west side of Digi-Key in Thief River Falls.
  - Pennington SWCD Ditch Outlet Analysis update: The college has "flown" 5 ditch outlets with drones. Trees make the process challenging. Real elevations are needed for control points. Accuracy should be within a few centimeters.

- NRCS National Water Quality Initiative provides funding for EQIP program implementation that could be targeted within 1WIP watersheds.
- The SWCD has cost share money for installing buffers to comply with the Buffer Law. They are offering \$200/acre for grass and \$300/acre for native grass. The money must be allocated by the end of March 2018.
- Aquatic Invasive Species educational items and materials were distributed during the Lions Fishing Derby.
- The Pennington SWCD held a well water testing clinic. Some wells tested positive for nitrates.
- Brent Mason was hired by the MN DNR for the Clearwater/Beltrami County area Hydrologist position that was vacated when Dan Thul retired.
- New roundabouts might be constructed in Thief River Falls:
  - Near Challenger Elementary
  - Near Petro Pumper
  - On Highway 32 by Mark Boulevard and the 125<sup>th</sup> Ave NE bypass.
- New rip-rap is in place along Branch 200 of Judicial Ditch 11 below the outlet of Farmes Pool.
- Grazing is almost done for the year within Agassiz National Wildlife Refuge.
- Agassiz National wildlife refuge has been spraying ditches and banding ducks.
- USFWS staff are helping with forest fires and hurricane response.
- September 11, 2017 – River Watch Kick-Off Event at the RLWD office
- **September 11, 2017** – Thief River Falls Community Paddle Event
- **September 12, 2017** – East Grand Forks Community Paddle Event
- **September 13, 2017** – Thief River One Watershed One Plan meeting in Grygla
- **September 13, 2017** – Pennington County Outdoor Education Day
- **September 13, 2017** – Bemidji Water Quality Town Hall (not attended by the RLWD)
- **September 14, 2017** – Clearwater River WRAPS discussion at the Maple Lake Improvement District Meeting
- **September 19, 2017** – Northwest Minnesota Water Festival in Warren, MN
- **September 20, 2017** – Northwest Minnesota Water Festival in Fertile, MN
- **September 25, 2017** – Clearwater River WRAPS Public Open House Event, Red Lake Falls
- **September 26, 2017** – Red Lake River One Watershed One Plan Planning Team Meeting and PTMApp Meeting
- **September 27, 2017** – Meeting with MPCA, IWI, and RLDNR staff, at the RLWD Office, to discuss the MPCA’s plans for future monitoring (Surface Water Assessment Grants, biological monitoring, and Cycle 2 of the 10X plan) and ways that the MPCA’s plans/process could be improved.
- **September 29, 2017** – Thief River One Watershed One Plan conference call
- **September 29, 2017** – Red Lake River Corridor Enhancement meeting
  - Recap of community paddling events
  - Master plan updates
  - Northwest Minnesota Foundation grant implementation
  - We Are Water



- **October 11, 2017** – Thief River One Watershed One Plan meeting
- **October 12, 2017** – Red Lake River One Watershed One Plan Meeting
  - Prioritized projects
- **October 18, 2017** – Red Lake River One Watershed One Plan Policy Committee meeting
- **October 19, 2017** – Groundwater informational meeting in Erskine

**Quote of the Month:**

“We more frequently fail to face the right problem than fail to solve the problem we face.”

- Anonymous

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](http://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](http://www.rlwdwatersheds.org).

“Like” the Red Lake Watershed District on [Facebook](https://www.facebook.com/redlakewatershed) to stay up-to-date on RLWD reports and activities.