

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 1/7/2019.

- ✓ Clearwater River Watershed Restoration and Protection Strategy Project
- ✓ Blue-Green Algae
- ✓ Dissolved Oxygen Logger Deployments
- ✓ Grant applications



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

Chief's Coulee, at Dewey Avenue North in northern Thief River Falls, was sampled in August. It smelled like septic effluent. The septic drainage was present at the downstream end of the culverts under the railroad tracks but was not present at Atlantic Avenue North.

High concentrations of total phosphorus were found in

- Polk County Ditch 2
- Grand Marais Creek (130<sup>th</sup> St. NW).
- Grand Marais Creek (110<sup>th</sup> St. NW)
- Heartsville Coulee at 13<sup>th</sup> St. in East Grand Forks
- Chief's Coulee at Dewey Avenue (very disgusting)

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

- Grand Marais Creek (130<sup>th</sup> St. NW)
- Mud River in Grygla
- Chief's Coulee at Dewey Avenue (also had high *E. coli*, ammonia, nitrogen, orthophosphorus, and total suspended solids)

The Red Lake River at Murray Bridge (pour-point of the watershed) had a relatively low concentration of total suspended solids.

### **Dissolved Oxygen Logger Deployments**

Dissolved oxygen loggers were deployed at six sites in August.

- Poplar River at CR 118 (Station S007-608 on Assessment Unit 09020305-504)
- Poplar River at 310<sup>th</sup> St. SE (Station S009-392 on Assessment Unit 09020305-518)
- Lost River at CSAH 7 (Station S004-500 on Assessment Unit 09020305-645)
- Lost River at Lindberg Lake Road (Station S005-501 on Assessment Unit 09020305-530)
- Mud River in Grygla (Station S008-122 on Assessment Unit 09020304-507)
- Grand Marais Creek at 130<sup>th</sup> St. NW (Station S008-904 on Assessment Unit 09020306-513)

Several other reaches were targeted for continuous dissolved oxygen logger deployments. RLWD Ditch 15, Pennington County Ditch 21, and Darrigan's Creek were dry. There was excavation occurring upstream of the Clear Brook sampling site that would have made this year's measurements unrepresentative of typical conditions in the stream.



Early August dissolved oxygen measurements in the Poplar River at CR 118 were all better than the 5 mg/L standard. However, there were one or two days in which the dissolved oxygen levels dropped below 5 mg/L in the Poplar River upstream of Highway 59 at 310<sup>th</sup> St. SE. In the Lost River, at CSAH 7 north of Gonvick, dissolved oxygen levels frequently dropped below 5 mg/L and greatly fluctuated throughout the days that a logger was deployed. Grand Marais Creek (pictured above) had low flow, high daily fluctuation of dissolved oxygen levels, and daily violations of the 5 mg/L dissolved oxygen standard. At Lindberg Lake Road, the (uncorrected, raw) dissolved oxygen readings from the Lost River were all greater than the 5 mg/L standard

during the first August dissolved oxygen logger deployment. Some readings came close to 5 mg/L, however. The Mud River, in Grygla, experienced large daily fluctuations in dissolved oxygen levels and dropped below 5 mg/L on a daily basis.

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

- Objective 9 – Civic Engagement
  - RLWD staff talked with a landowner on Long Lake to discuss the impairment and possible causes. The landowner gave RLWD staff permission to access the lake to collect samples and conduct a reconnaissance of the lake.
- Objective 10 – Report Writing
  - Reasonable assurances section of the TMDL
  - Clearwater River (09020305-647) *E. coli* sources
  - Long Lake reconnaissance and sampling
    - There currently aren't any significant sources of anthropogenic pollution around the lake. There used to be a cattle operation that may have contributed nutrients to the lake. The cattle had access to the water, but much of the past shoreline disturbance from the cattle has healed-over. There were some chunks of floating algae/nostoc in the southwest portion of the lake. Much of the shoreline consisted of marshes and wetlands. There was a deep layer of floc-like, loose organic sediment along the northeastern shore of the lake that could be disturbed or resuspended during runoff events or windy days. Samples were collected from each end of the lake and both met water quality standards. The description of long Lake in the TMDL was updated to include some of the observations that were made during the reconnaissance of the lake.

**Long Lake, near Pinewood**



**Floc on the bottom of Long Lake, in shallow portions of the northern end**



**Floating mats of algae/nostoc on the surface of Long Lake, in the southwest part of the lake**



- District staff planned to collect longitudinal *E. coli* samples along Brooks Creek in August, but the creek was dry.
- District staff conducted a reconnaissance of the shoreline of Cameron Lake to identify sources of sediment and nutrients. Much of the shoreline is protected by rip-rap. However, some erosion is occurring where lots have been mowed up to the edge of the lake. There is new construction occurring on a lot on the northeastern shore of the lake that is very close to the edge of the lake and loose, small rock has been dumped on the lakeshore. There was evidence that stormwater runoff from the town's streets and parking lots is still a significant source of sediment and nutrients.

**Cameron Lake**



**View of the Erskine Memorial**



**Erosion along south shore**



**Burning trash along the shoreline**



**Stormwater Sediment**



- District staff reviewed a draft application for erosion control along Cameron Lake. Due to the timing of the draft and the fact that stormwater runoff also needs to be addressed, more work will be done to plan projects around Cameron Lake and the application will be submitted in another year.

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

**August 2018**

**Thief River One Watershed One Plan (TR1W1P)**

- RLWD staff participated in a Planning Work Group conference call on August 2, 2018.
- A TR1W1P meeting (all committees) was held on August 8, 2018.
- District staff reviewed a draft of Section 4 of the plan.

**Thief River Blue-Green Algae Bloom**

District staff continued to keep the City of Thief River Falls and other interested parties (Voyageurs View in Red Lake Falls and individual residents) informed about the status of the blue-green algae problem that was found in the Thief River in July. A brief Thief River Falls water quality summary was assembled and shared with the Thief River Falls mayor in preparation for a visit from US Senator Amy Klobuchar.

River:	Thief River	Thief River	Red Lake River	Red Lake River
	140th Ave NE (North Crossing, Road: "Hillyer Bridge")	140th Ave NE (South Crossing, "Golf Course Bridge")	CSAH 7 ("Smiley Bridge")	Greenwood Street
Average Total Phosphorus (mg/L)	0.086	0.065	0.038	0.052
90th Percentile Total Phosphorus (mg/L)	0.174	0.091	0.076	0.084
Average Total Suspended Solids (mg/L)	20.8	12.3	9.7	11.5
90th Percentile Total Suspended Solids (mg/L)	45	22	25.8	22
Average TOC (mg/L)	20.7	No Data	16	15.4
2008-2017, January-December Data from the Minnesota Pollution Control Agency EQuIS database				
River:	Thief River	Thief River	Red Lake River	Red Lake River
	140th Ave NE (North Crossing, Road: "Hillyer Bridge")	140th Ave NE (South Crossing, "Golf Course Bridge")	CSAH 7 ("Smiley Bridge")	Greenwood Street
Average Total Phosphorus (mg/L)	0.080	0.062	0.038	0.052
90th Percentile Total Phosphorus (mg/L)	0.147	0.091	0.061	0.084
Average Total Suspended Solids (mg/L)	22.4	12.3	9.7	11.5
90th Percentile Total Suspended Solids (mg/L)	46.1	22	25.8	22
Average TOC (mg/L)	21.2	No Data	15.8	15.4
2008-2017, April-October Data from the Minnesota Pollution Control Agency EQuIS database				

By August, the Thief River blue-green algae bloom had dissipated. Samples collected from the Thief River were tested for algal toxins and no toxins were detected. Samples sent to RMB Environmental Labs revealed that blue-green algae were still present, but in low concentrations that were not a cause for concern. In response to concerns about blue-green algae in the Red Lake River downstream of the Thief River, RLWD staff collected a sample from the Red Lake River at Hartz Park that was sent to RMB Environmental Labs to be analyzed for the presence of cyanobacteria. Potentially toxic species (*Aphanocapsa*) of cyanobacteria were found in the sample but at low concentration that was not likely to cause harm or other concerns.

A public hearing was held on August 14, 2018 in Thief River Falls to discuss a temporary no wake ordinance for the Thief River between Long’s Bridge and the northern Pennington County border line. The Pennington County Board passed the ordinance, which was effective until November 1, 2018.

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

**August 2018**

The District's Water Quality Coordinator was interviewed by KTRF radio live and in a YouTube video while sampling the Thief River at Long's Bridge on August 15, 2018 (<https://www.facebook.com/trfradio/videos/668889573481724/?t=7>).



The Water Quality Coordinator was also interviewed by a reporter from the Star Tribune. <http://www.startribune.com/odd-potentially-toxic-algae-infests-western-minn-waters/491716831/>.

### Other Blue-Green Algae Testing



**8. Interpret**

ppb

10  
5  
2.5  
1  
0

CONTROL LINE      TEST LINE

INTERPRET TEST

CONTROL LINE	TEST LINE	INTERPRETATION
NO CONTROL LINE PRESENT	NO TEST LINE PRESENT	INVALID RESULT
CONTROL LINE PRESENT	NO TEST LINE PRESENT	>10 ppb
CONTROL LINE PRESENT	MODERATE INTENSITY TEST LINE PRESENT	BETWEEN 0 AND 10 ppb

Maple Lake  
8/24/18  
14:45

Maple Lake was sampled for algal toxins at the north swimming beach on August 24, 2018 and the concentration had decreased since July (0-1 ppb). A landowner along the lake contacted the RLWD to express concern about increased development around the lake and the effect it might be having upon water quality and weed/algae growth in the lake. The lake resident also shared photos of the proliferation of filamentous algae that occurred in the southwest end of the lake.

The Mud River in Grygla was tested for the presence of algal toxins on August 9, 2018 and August 22, 2018. No algal toxins were detected in the Mud River.

The District received a call from the City of Erskine about a potential blue-green algae bloom in Cameron Lake. Cameron lake was sampled for algal toxins on August 13, 2018 and a concentration of approximately 2.5 – 5 ppb was found. That concentration presents a low risk to humans but is noteworthy because the District has found very few positive results for algal toxins since it began using Abraxis test kits several years ago.

### **Thief River Watershed Restoration and Protection Strategy (WRAPS)**

The Thief River Watershed Restoration and Protection Strategy and the Thief River Total Maximum Daily Load reports were officially released for public comment on June 25, 2018 and the public comment period ended on July 25, 2018. Only a few minor comments were received during the comment period. The draft reports are available on the MPCA website at: <https://www.pca.state.mn.us/water/watersheds/thief-river>.

### **Other Notes**

- Water quality related notes from the August 23, 2018 Red Lake Watershed District Board of Managers meeting:
  - The Board voted to approve funding to provide matching funds for the East Polk SWCD's Clean Water Fund grant application to target the watersheds of impaired and nearly impaired lakes for water and sediment control basin installation.
- District staff began looking into the MN DNR Permitting and Reporting System (MPARS) requirements for vegetation removal within lakes to prepare for a potential vegetation removal project within Bartlett Lake.
- District staff received training in first aid and CPR.
- The Crookston Times published an article about the educational kiosks that were installed at impoundments ([http://www.crookstontimes.com/news/20180827/local-watershed-districts-join-in-efforts-to-stimulate-education-with-assistance-from-red-river-water-management-boards-outreach-program?fbclid=IwAR1yVB2C3jszHtAFCVhJ24\\_Tz\\_qrVv4S6SreOTRlxHewnd2toV70pHdZPT0](http://www.crookstontimes.com/news/20180827/local-watershed-districts-join-in-efforts-to-stimulate-education-with-assistance-from-red-river-water-management-boards-outreach-program?fbclid=IwAR1yVB2C3jszHtAFCVhJ24_Tz_qrVv4S6SreOTRlxHewnd2toV70pHdZPT0)).
- District staff set up an informational booth at the Clearwater County Fair on August 1-5, 2018.
- The International water Institute held a kayaking event on the Red Lake River in St. Hilaire on August 8, 2018.

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

August 2018

- The District submitted a Clean Water Fund application for the stabilization of the outlet of Pennington County Ditch 1.

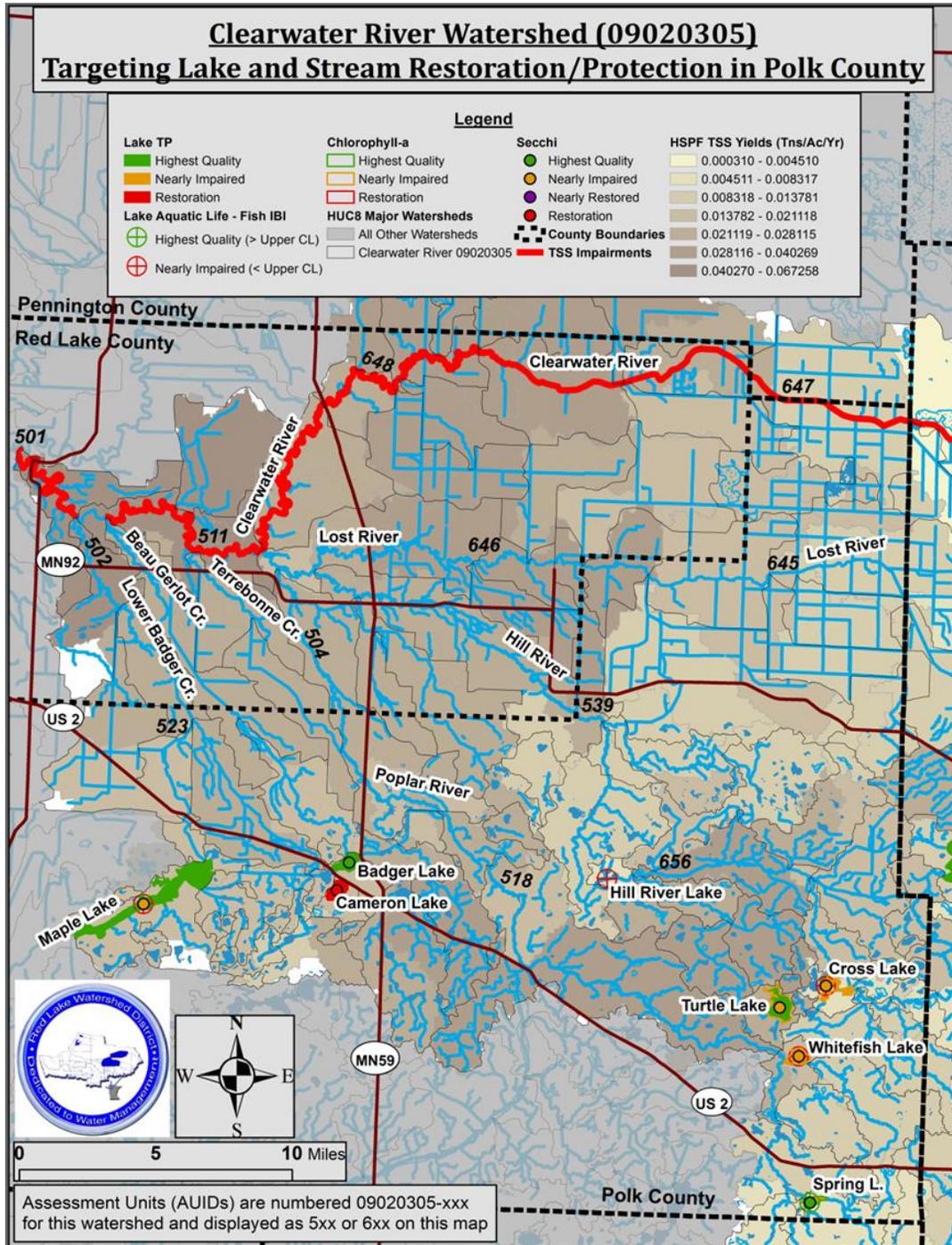


	CD 1
	CD 1 Outlet Channel Stabilization
	Section Boundary
	Major Roadway
	Minor Roadway
	Railroad

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

August 2018

- District staff helped the East Polk SWCD with a Clean Water Fund application to install water and sediment control basins (WASCOBs) in the Clearwater River watershed. The installations will be targeted in the drainage areas of impaired and nearly-impaired lakes to reduce sediment and nutrient runoff. The RLWD Board of Managers approved a contribution of cost-share funding to the project.



## RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

August 2018

- The Pennington SWCD board approved funds to hire a company to televise (inspect with video equipment) the underground portions of Chief's Coulee to identify sources of the water quality problems that have been found in that drainageway. Obstacles prevented the complete inspection of the pipes. There were locations where the pipe had caved-in. The pipe was also rusted out on the bottom causing the robot to get stuck in a few spots. The inspection didn't reveal point sources along the portions of the pipe that were televised. The pipe is getting replaced in the spring.
- The Pennington SWCD also moved forward with hiring a consultant to complete a geotechnical survey of a potential streambank stabilization project at Hartz Park in Thief River Falls.
- The Red Lake River Watershed was selected for participation in the Clean Water Act Section 319 Small Watersheds Program.
- International Water Institute monitoring staff reported that contractors were in the process of clearing trees and excavating banks along the Mud River, upstream of the Highway 89 crossing.



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.