

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 4/12/2018.

- ✓ River Watch Forum
- ✓ Bartlett Lake paleolimnological study
- ✓ Continuous dissolved oxygen results from the 2017 monitoring season
- ✓ Thief River Watershed One Watershed One Plan
- ✓ Clearwater River Watershed Restoration and Protection Strategy Project

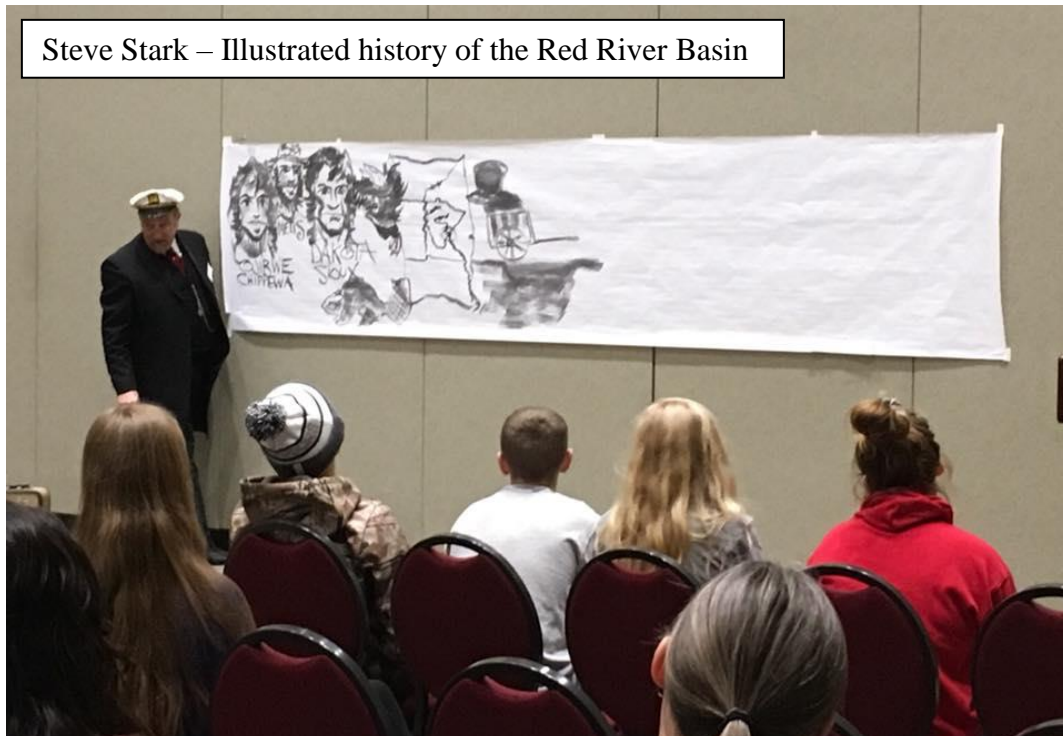
River Watch

The 23rd Annual River Watch Forum was held at the Alerus Center in Grand Forks. Ashley Hitt and Christina Slowinski attended the event and set up a booth with information about the District. Approximately 315 students, teachers, and presenters attended. The forum was international this year due to the attendance of students from Manitoba. The theme of the year was “River Watch in Action.” Students were asked to plan a service project and produce a video. Attendees were treated to presentations from Brad Durick (a Red River catfishing guide) and Steve Stark (illustrated history of the Red River Basin).

The River Watch teams’ videos can be viewed online on the International Water Institute website and YouTube channel. The keynote presentation and other information can also be viewed at the following link.

<http://iwinst.org/mesmerize/watershed-education/river-watch/forum-resources/2018-forum-resources/>

Steve Stark – Illustrated history of the Red River Basin



Bartlett Lake

District staff and Manager Dwight reviewed information from a paleolimnological investigation of Bartlett Lake, which is located in Koochiching County near Northome, MN. The lake is impaired and has suffered from high levels of nutrients, high concentrations of chlorophyll-a, low water clarity, and winter fish kills. The excess nutrients in the lake are attributed to historical impacts from sanitary sewer discharge into the lake, logging operations along the shore, and pollution from a creamery that operated from 1916 to 1974. Sediment cores were collected from the lake and analyzed for geochemical and biological clues that provide information about the lake and its history.

Sedimentation within the lake began to increase within the lake at the time of European settlement and has continued to increase. As much as 75% of the phosphorus in Bartlett Lake is coming from internal loading. Much of that internal loading phosphorus is from the historical pollutant sources (sewer, creamery, and logging). That historic sediment and phosphorus is mobile and can be mixed into the water column due to the relatively shallow maximum depth of the lake (16 feet). Some of that legacy phosphorus is being removed through burial in sediment, but the lake is still impaired. The lake has been slowly recovering since the creamery was closed and a new wastewater treatment system was constructed. Possible actions to speed the recovery process, like an alum treatment, will be explored by the city and the District.

Creamery near Bartlett Lake in Northome, MN



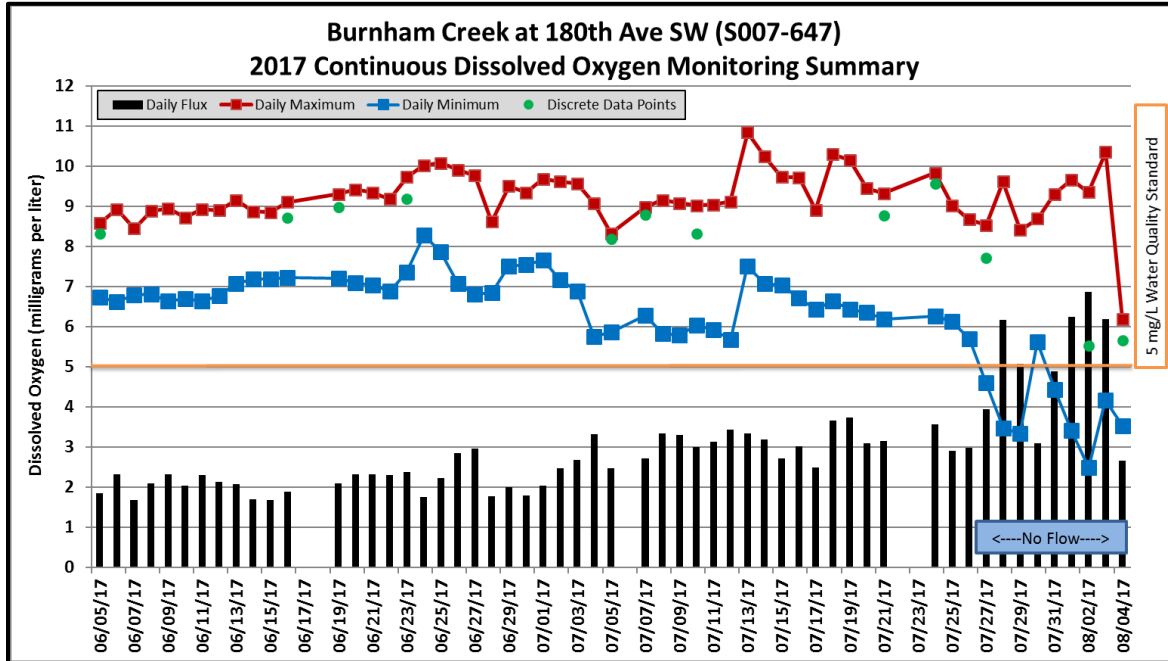
Red Lake Watershed District Long-Term Monitoring Program

2017 dissolved oxygen logger data from Burnham Creek (Polk County Ditch 79) at 180th Ave SW was compiled, corrected, and summarized. This location is the first road crossing downstream of the Spring Gravel Dam stream restoration project. A project has recently been completed to improve fish passage and habitat within the headwaters reaches of Burnham Creek. The dissolved oxygen logger deployment revealed that dissolved oxygen levels in this portion of the stream are good, as long as there is flow. When flow began to cease in late July, daily minimum dissolved oxygen levels began to fall below zero. The dissolved oxygen logger

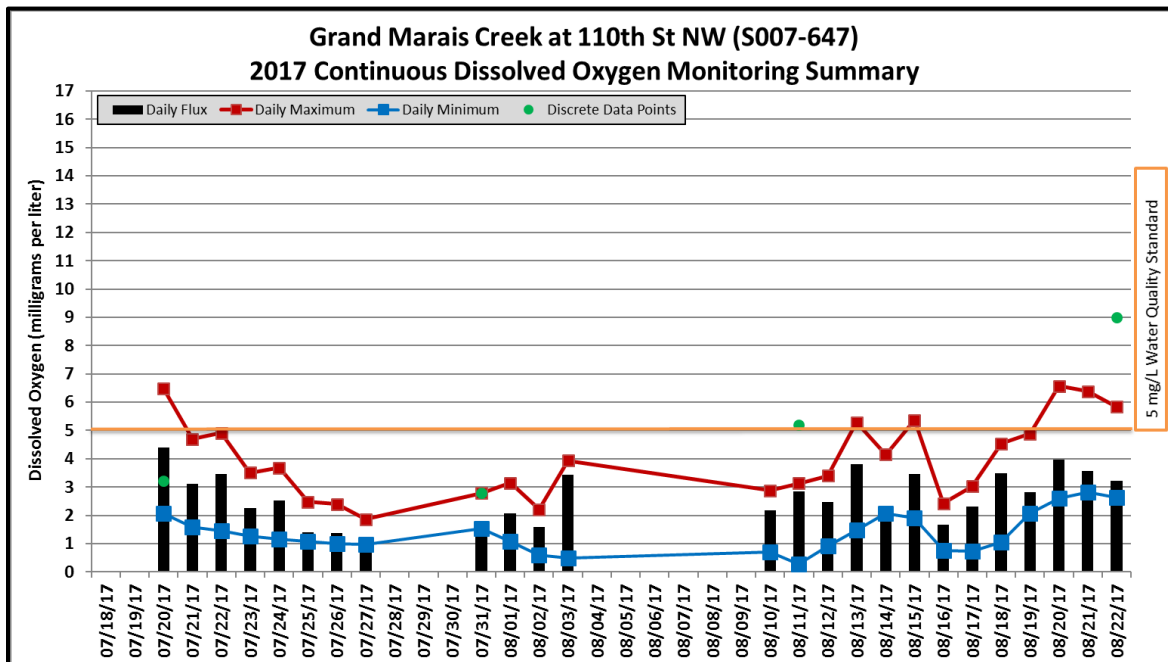
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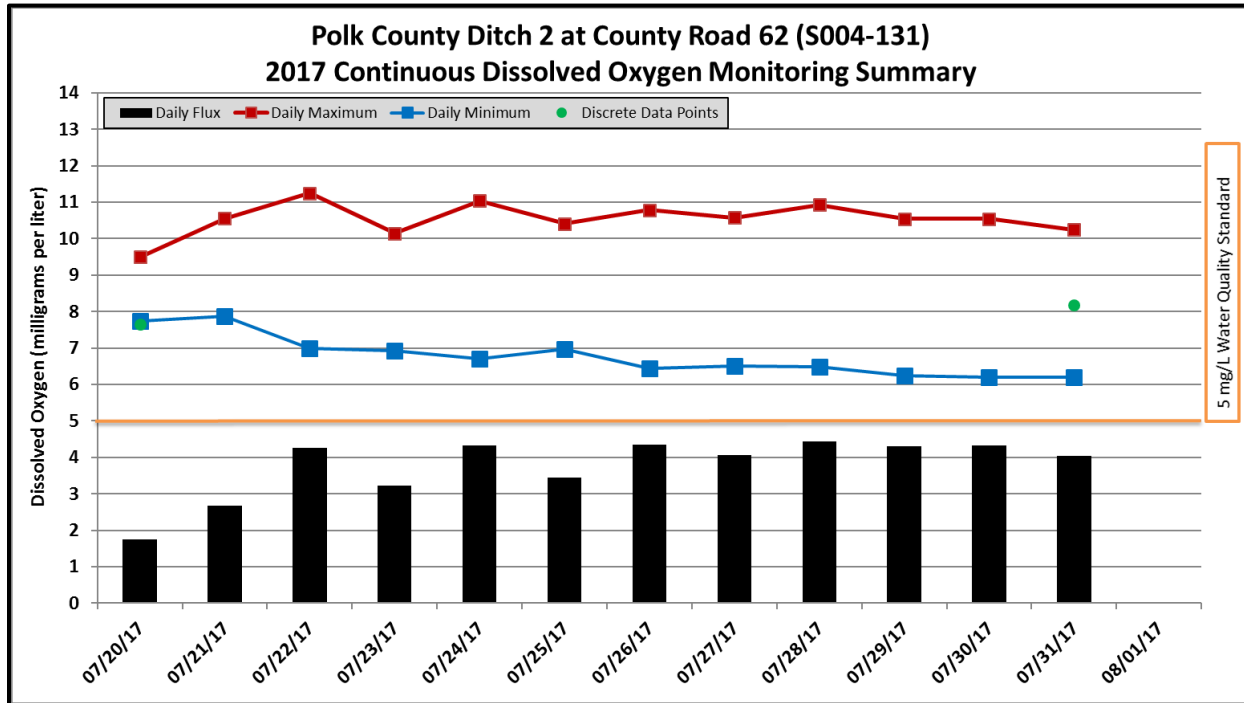
was deployed in a deeper part of the channel on the downstream end of the culvert. Minnows were often present in that little pool.



Dissolved oxygen loggers were also deployed within Grand Marais Creek (at 110th Street NW) in 2017. Unfortunately, conditions in that stream were not as good as those found in Burnham Creek. Daily maximum dissolved oxygen levels rarely rose above the 5 mg/L standard for daily minimums. Flows were very low in Grand Marais Creek during the summer of 2017.



2017 dissolved oxygen logger data from Polk County Ditch 2 at County Road 62 was compiled, corrected, and summarized. Flow in the channel only lasted long enough for one deployment, but all the daily minimum dissolved oxygen concentrations met the 5 mg/L standard.



The East Polk Soil and Water Conservation District’s 2017 monitoring data was received, reviewed, submitted to the Minnesota Pollution Control Agency, and stored in the state’s EQUIS database.

Thief River Watershed Prioritize, Target, and Measure Application (PTMApp) Development

District staff (Ashley Hitt) worked on preparing and performing quality assurance/quality control work on GIS data for the PTMApp process using the lakes routing and priority resource points that were created in January of 2018. Travel time (how long it takes for water to get from one point to another) GIS layers were developed.

Thief River One Watershed One Plan (1W1P)

- District staff reviewed and commented a technical memorandum on Thief River Watershed Protection and Restoration Mapping from Houston Engineering.
- District staff categorized streams in the Thief River watershed using water quality assessment statistics that were generated for the Thief River Watershed Restoration and Protection Strategy project and categorization methods that were similar to those that were proposed in the Houston Engineering Memorandum. Maps were created to help with prioritization for dissolved oxygen, total suspended solids, *E. coli* bacteria, and

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aquatic biology.

- District staff reviewed a prioritization matrix (a table that prioritizes issues in the watershed, mainly based on the number of votes received during the public meetings) for the 1WIP. That prioritization table was reviewed in detail during a planning work group phone conference. Pennington SWCD and District staff worked together to edit the table based on the decisions that were made by the group during the phone conference.
- A meeting of the policy committee, advisory committee, and planning work group was held on February 14, 2018.
- After the February 14, 2018 meeting, Pennington County SWCD and District staff worked together to document the reasons behind the changes to the prioritization matrix that were made by the planning work group.
- After the February 14, 2018 meeting, a draft table was created to summarize the information in the Protection and Restoration maps and the methods that were used for the categorization of streams. A draft narrative was written for the protection and restoration section of the 1WIP by District staff.

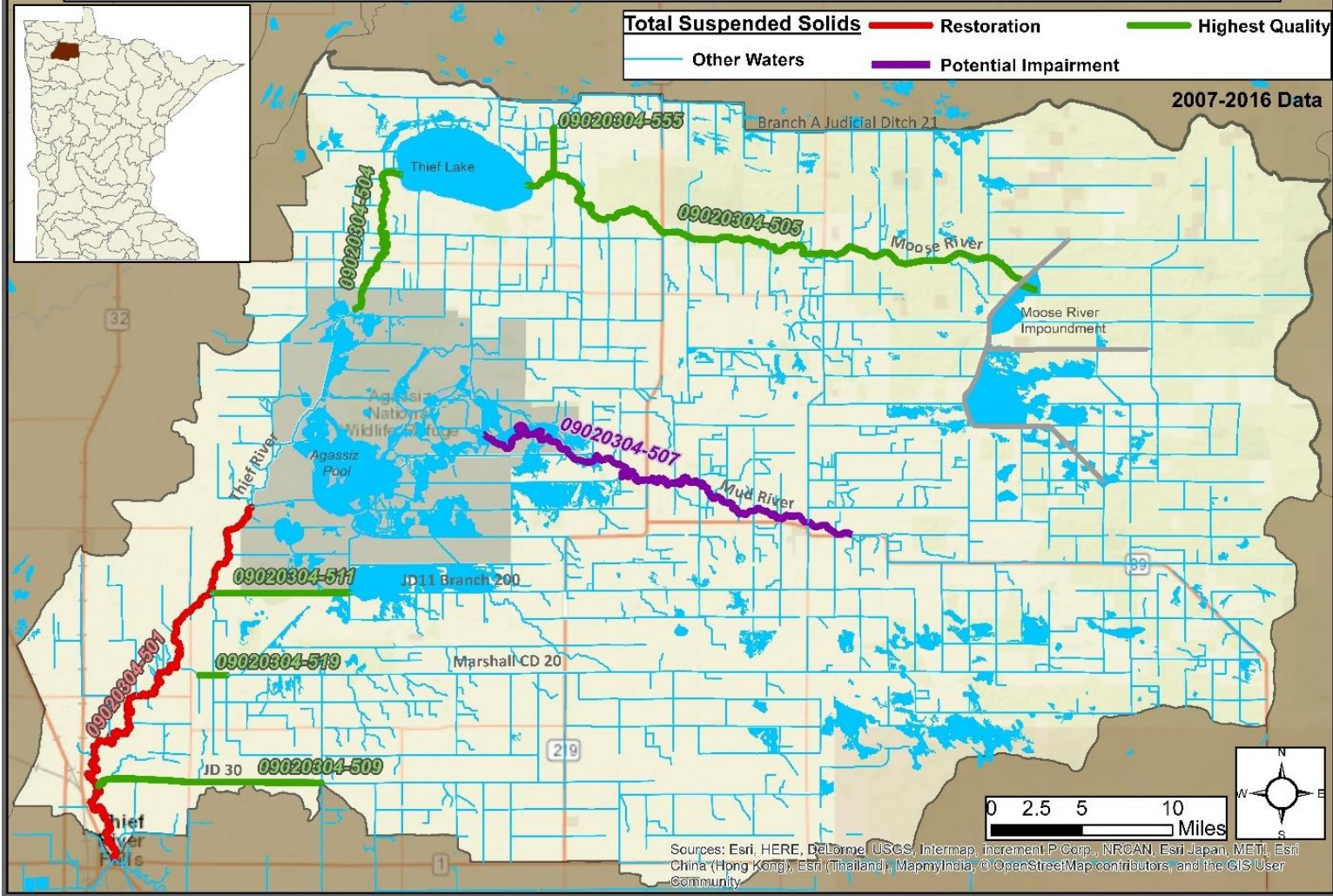
Methods for Classification of Streams for Protection and Restoration	Restoration	Potential Impairment	Nearly Impaired	Highest Quality	Numerical Standard and Other Details
Meets MPCA Minimum Data Requirements	Yes	Yes	Yes	Yes	20 TSS measurements 5 <i>E. coli</i> measurements/calendar month 20 DO measurements 12 TP measurements over 2 or more years
Assessment Period	2007-2016	2007-2016	2007-2016	2007-2016	
Included in the Draft 2018 List of Impaired	Yes	No	No	No	
Meets Standards?	No	No	Yes, borderline/uncertain	Yes, with confidence	
Total Suspended Solids (TSS)	>10% exceed the standard	>10% exceed the standard	7.5-10% exceed the standard	<7.5% exceed the standard	30 mg/L - Central River Nutrient Region 15 mg/L - North River Nutrient Region Uses April-September Daily Averages
<i>E. coli</i> Bacteria	>157.5 MPN/100ml	>126 MPN/100ml	>94.5 MPN/100ml	<94.5 MPN/100ml	126 MPN/100ml monthly geometric mean
Dissolved Oxygen (DO)	>10% of discrete daily minimums are <5 mg/L	>10% of discrete daily minimums are <5 mg/L	5-10% of discrete daily minimums are <5 mg/L	<5% of discrete daily minimums are <5 mg/L	5 mg/L May-September Daily Minimums All discrete data
	and >10% of pre-9am daily minimums are <5 mg/L		or >10% of pre-9am daily minimums are <5 mg/L	and <5% of pre-9am daily minimums are <5 mg/L	5 mg/L May-September Daily Minimums Continuous and discrete data recorded earlier than 9:00am
Total Phosphorus (TP)	None - not assessed in 2013	TP and at least one response variable exceed standards	>75 µg/L - Central >37.5 µg/L - North Response variables meet standards if TP exceeds the standard	<75 µg/L - Central <37.5 µg/L - North	Summer (June-September) Average 100 µg/L - Central River Nutrient Region 50 µg/L - North River Nutrient Region
Index of Biological Integrity (IBI)	None - not assessed in 2013	Score is lower than the lower confidence limit	Score is between the lower and upper confidence limits	Score is higher than the upper confidence limit	Varies by location +/- 10-point F-IBI confidence limits +/- 13.5-point M-IBI confidence limits

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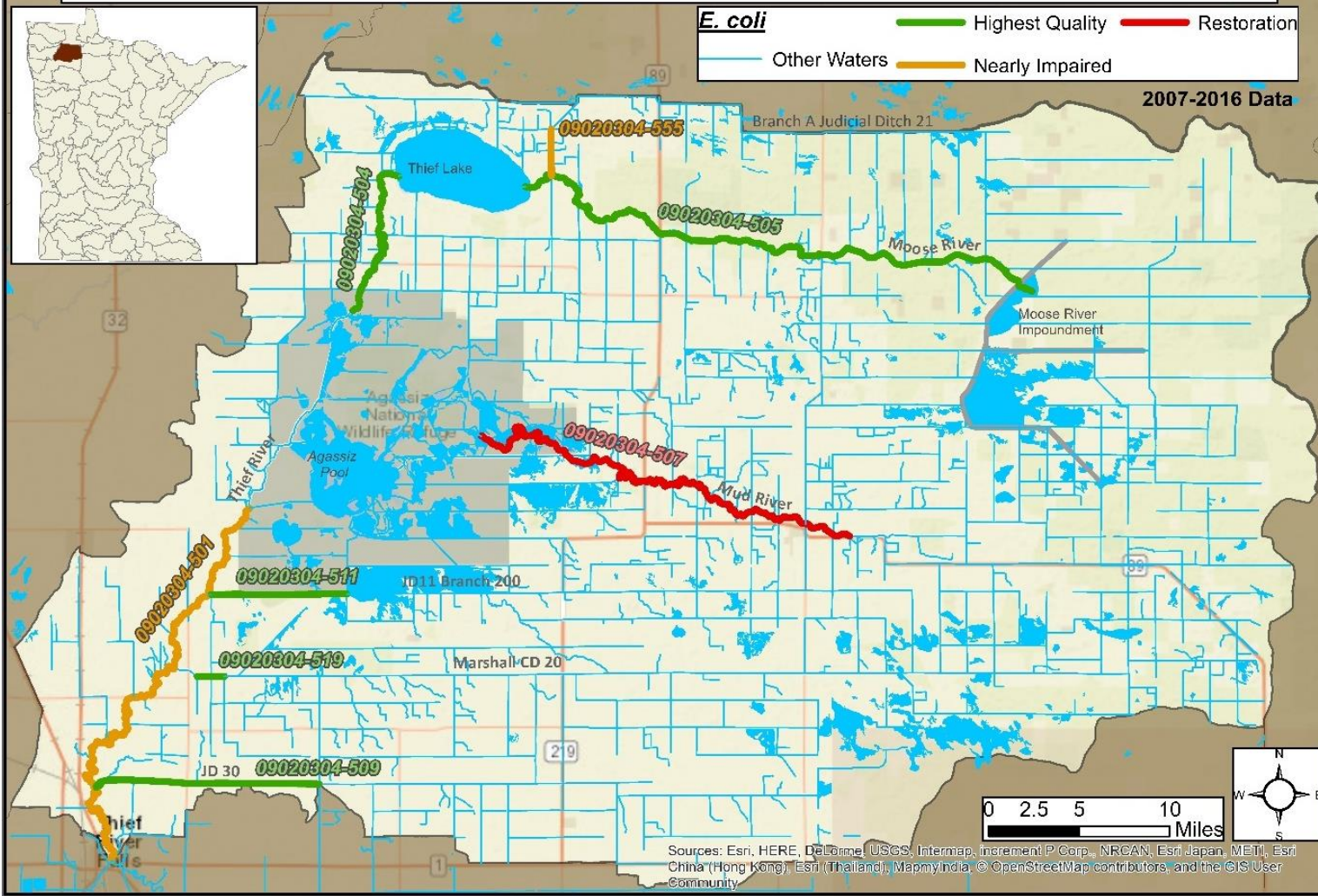
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Assessment Unit ID	Waterbody Name	Reach Description	River Nutrient	Total Suspended Solids	E. coli Bacteria	Dissolved Oxygen	Total Phosphorus and River Eutrophication	Index of Biological Integrity
			Region (Applied to Local Planning)					
09020304-501	Thief River (Natural)	Agassiz Pool to Red Lake R	Central	Restoration (Impaired)	Nearly Impaired	Highest Quality	Highest Quality	Nearly Impaired
09020304-501	Thief River (SD 83)		Central					Nearly Impaired
09020304-504	Thief River	Thief Lake to Agassiz Pool	Central	Highest Quality	Highest Quality	Highest Quality	Highest Quality	Nearly Impaired
09020304-505	Moose River	Headwaters to Thief Lake	North	Highest Quality	Highest Quality	Restoration (Impaired)	Potential Impairment	Potential Impairment
09020304-507	Mud River	Headwaters to Agassiz Pool	North	Nearly Impaired	Restoration (Impaired)	Restoration (Impaired)	Potential Impairment	Nearly Impaired
09020304-509	Judicial Ditch 30	T154 R42W S14, East Line (JD30) to Thief R	North	Highest Quality	Highest Quality	Highest Quality	Nearly Impaired	Potential Impairment
09020304-511	Br. 200 of JD 11	270th St NE (near Lost R Pool outlet) to 180th Ave NE ditch	North	Highest Quality	Highest Quality	Potential Impairment	Potential Impairment	Nearly Impaired
09020304-513	Marshall CD 20	400th Ave NE to CD 32	North			Nearly Impaired		Nearly Impaired
09020304-519	Marshall CD 20	Branch A of CD 30 to Branch D of CD 20	North	Highest Quality	Highest Quality	Nearly Impaired	Nearly Impaired	Nearly Impaired
09020304-521	Judicial Ditch 11	S. Pool outlet of Moose R. Imp. to unnamed ditch along Benville Rd	North			Highest Quality		
09020304-527	Tributary to Branch 95 of JD 11	Unnamed ditch to Branch 95 of JD 11	North					Highest Quality
09020304-534	Br. 200 of JD 11	CSAH 219 to 290th Ave NE	North			Potential Impairment		
09020304-535	Judicial Ditch 11	330th Ave NE (Mud R) to 290th Ave NE	North			Highest Quality		
09020304-536	Judicial Ditch 11	290th Ave NE, through Agassiz Pool, to the Thief R.	North					Nearly Impaired
09020304-537	Judicial Ditch 13	Br 3 of JD 13 to 330th Ave NE, north of Goodridge	North					Nearly Impaired
09020304-540	Judicial Ditch 13	T154 R40W S16, east line to Br D of JD 18	North					Potential Impairment
09020304-541	Judicial Ditch 18	T154 R40W S27, midpoint to T154 R42W S13, west line	North					Nearly Impaired
09020304-543	Br 1 of JD 11	Br 15 of JD 11 to Br 7 of JD 11	North			Nearly Impaired		Nearly Impaired
09020304-548	County Ditch 20	Clifford Ln NW to an unnamed ditch east of Sharon Rd intersection	North					Potential Impairment
09020304-549	Trib to Marshall CD 20	Bottom Rd NW to CD 20, near Jelle	North					Nearly Impaired
09020304-550	Lat 1 JD 23	Headwaters to Thief River	Central					Nearly Impaired
09020304-551	Main JD 23	Lat 2 JD 23 to Thief River	Central					Potential Impairment
09020304-552	County Ditch 27	Unnamed ditch to Br 3 CD 20	Central					Nearly Impaired
09020304-554	Marshall Co. Ditch 32	E line of Sect. 19, Grand Plain Twp., Section 19 to CD 20	Central					Nearly Impaired
09020304-555	Branch A of JD 21	Br 6 of JD 21 To Moose River	North	Highest Quality	Nearly Impaired	Highest Quality	Highest Quality	Nearly Impaired
09020304-557	Branch A of JD 21	410th Ave NE to Br 29 of JD 21	North					Nearly Impaired
09020304-558	Marshall CD 35	Br 11 SD 83 to Thief River	Central					Nearly Impaired
09020304-559	Unnamed ditch	Headwaters to Mud Lake	Central					Nearly Impaired

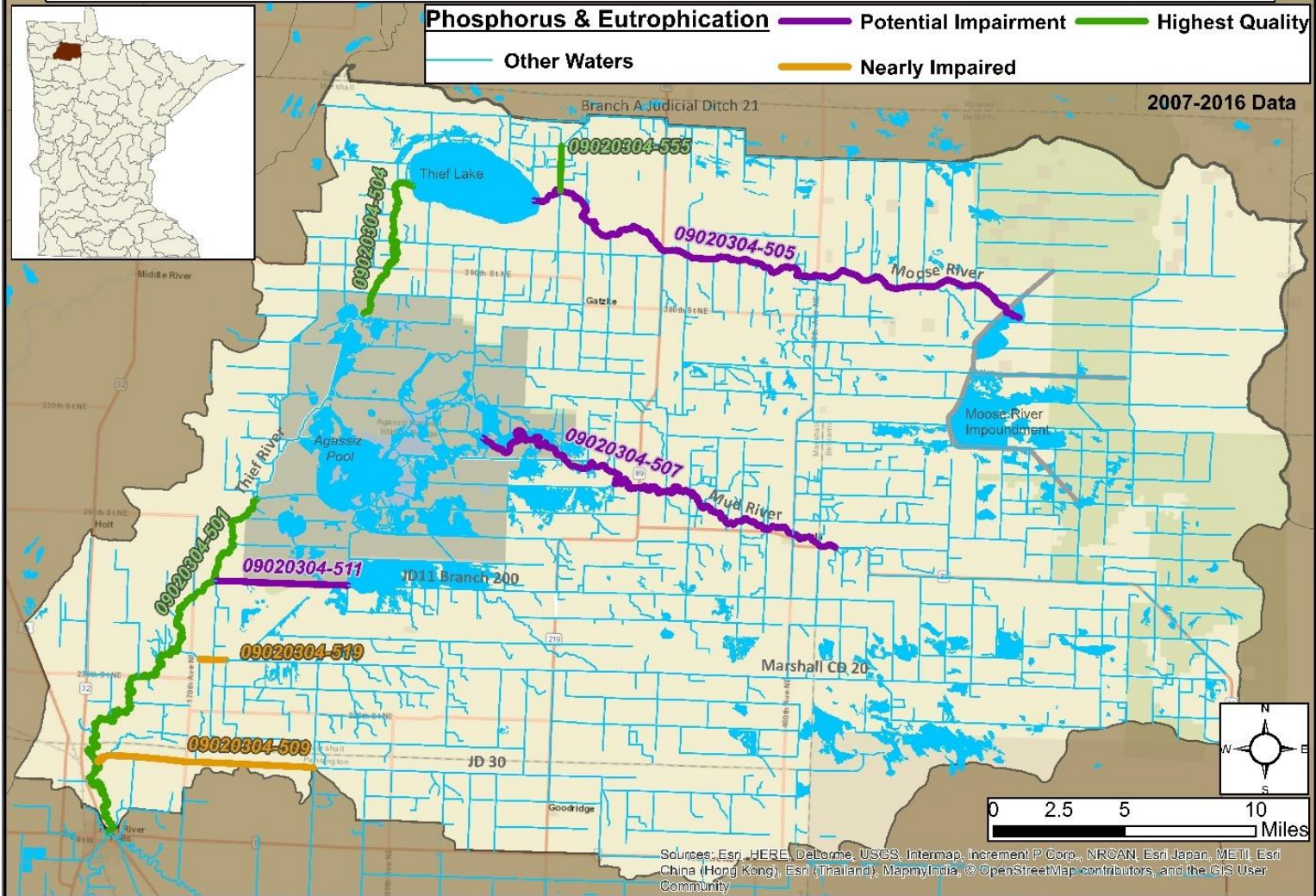
Thief River Watershed - Total Suspended Solids Categorization of Waters for Restoration and Protection



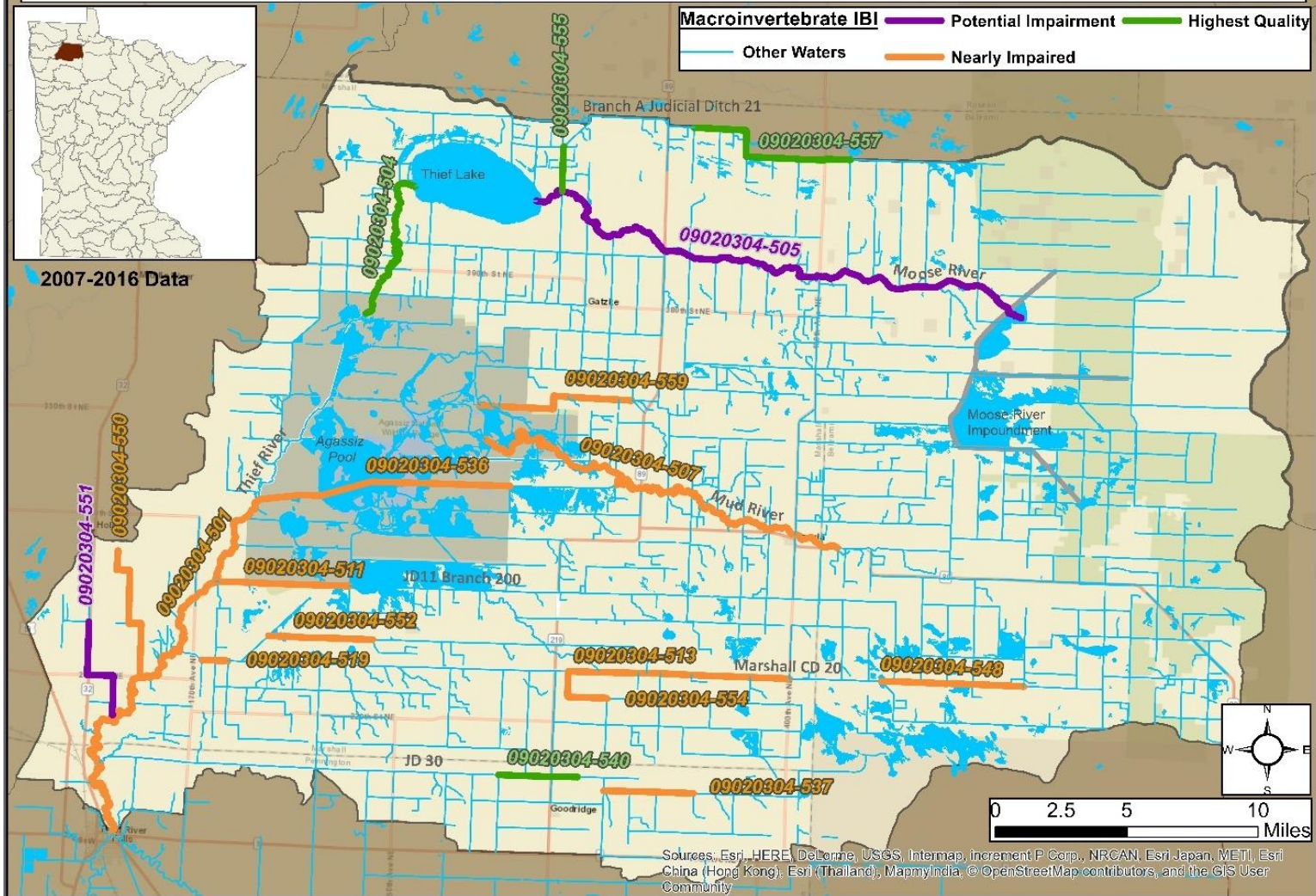
Thief River Watershed - E. coli Bacteria Categorization of Waters for Restoration and Protection



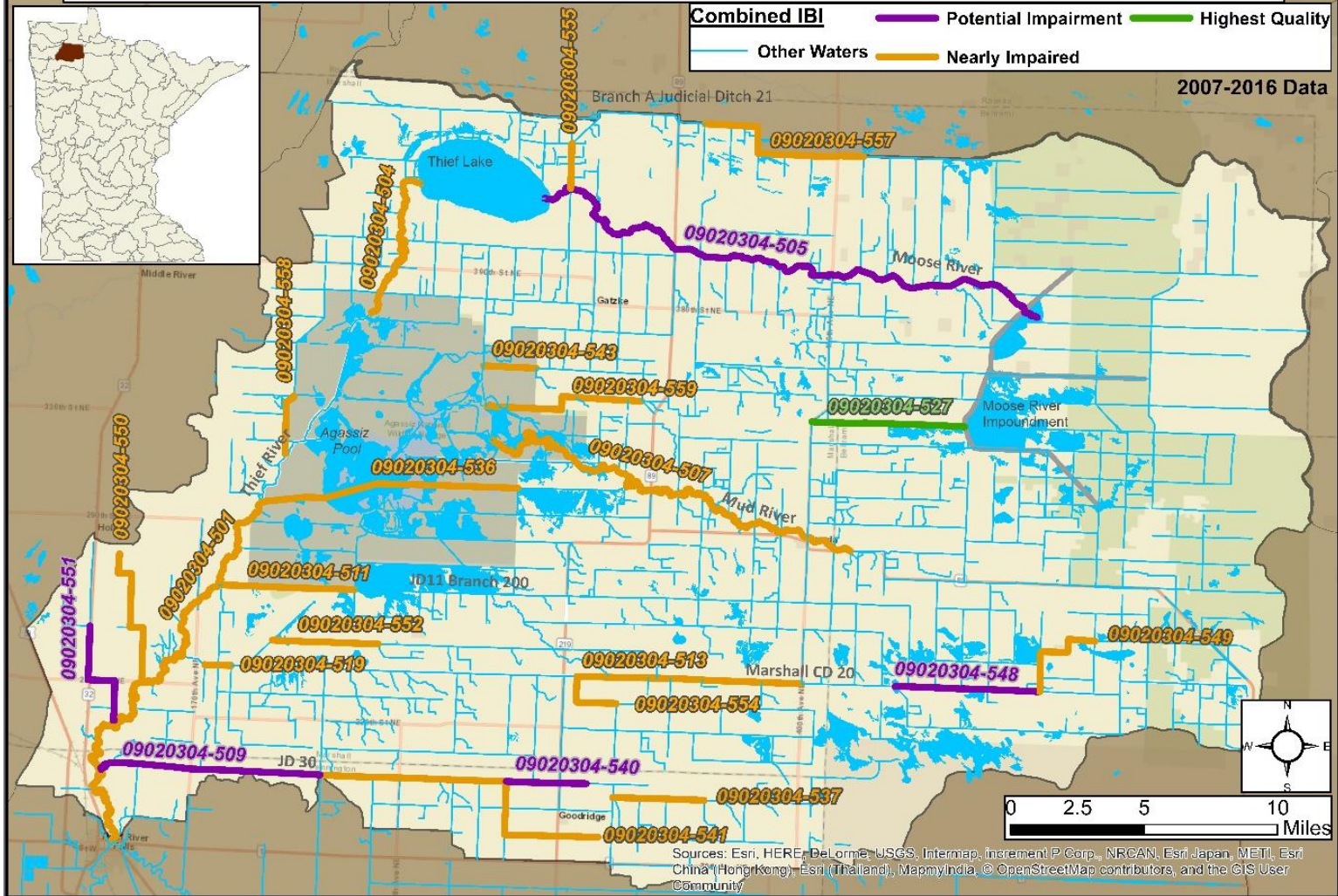
Thief River Watershed - Total Phosphorus and River Eutrophication Categorization of Waters for Restoration and Protection



Thief River Watershed - Macroinvertebrate Index of Biological Integrity Prioritization of Waters for Restoration and Protection



Thief River Watershed - Index of Biological Integrity Categorization of Waters for Restoration and Protection



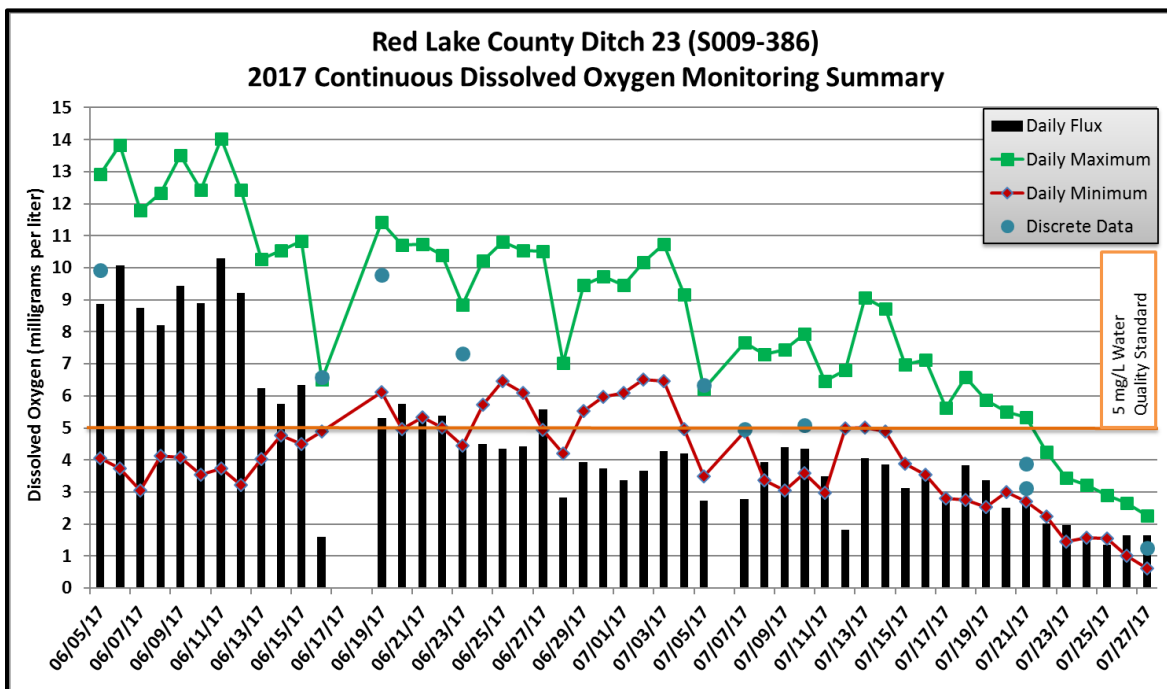
Red Lake River One Watershed One Plan (1W1P)

The Red Lake River 1W1P has been allocated \$677,551 from the Minnesota Board of Water and Soil Resources Clean Water Funding for implementation of the 1W1P. The Planning Work Group has been meeting periodically to develop an initial work plan that describes how that money will be spent.

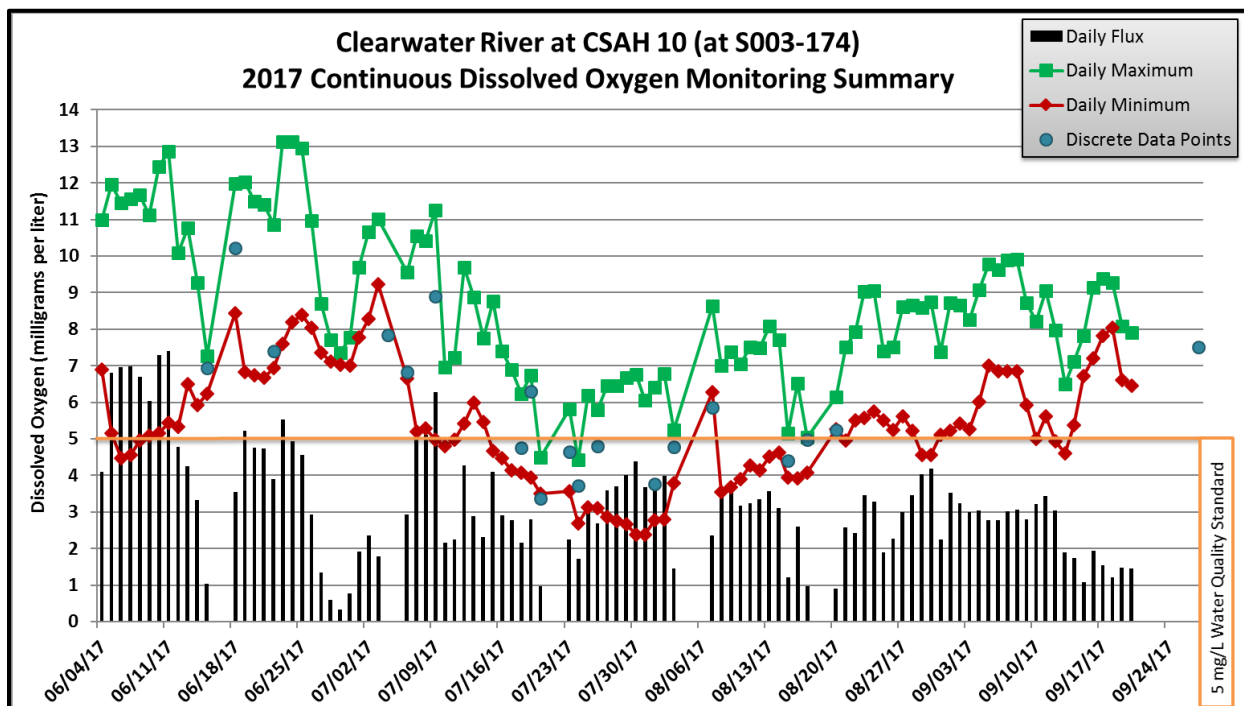
Clearwater River Watershed Restoration and Protection Strategy (WRAPS) Project

A draft work plan and budget for a contract extension were developed in February of 2018. The contract will be extended through March of 2019. Funds remaining in the budgets of completed objectives will be moved to the budget of the report writing objective.

- Objective 8 – Data Analysis
 - Nasset Creek dissolved oxygen data was examined to find clues about what is causing the low dissolved oxygen problem. Dissolved oxygen is okay at the furthest downstream monitoring site, but it is sometimes low at upstream monitoring sites. The creek runs through some beaver ponds in the upstream portions of the stream in which water may be relatively stagnant.
 - Flow data from Clear Brook (collected during a stormwater study) was combined with modeled flows to improve upon the accuracy of *E. coli* TMDL calculations.
 - 2017 dissolved oxygen logger data from Red Lake County Ditch 23 was compiled, corrected, and summarized. Daily minimum dissolved oxygen levels often dropped below the 5 mg/L standard. When flows ceased in the ditch, later in the summer, the daily minimums and maximums were both lower than 5 mg/L.

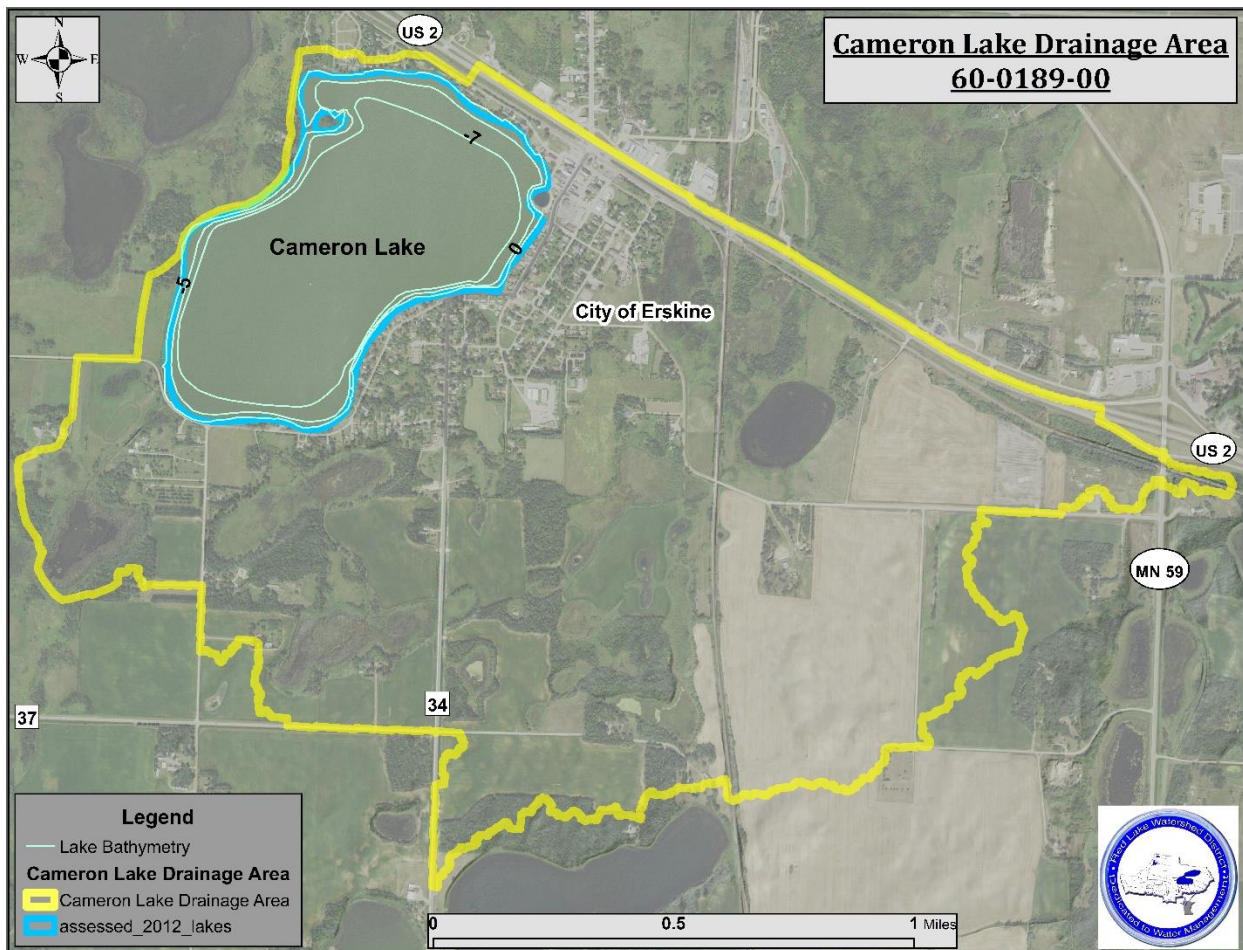


- 2017 dissolved oxygen logger data from the Clearwater River at CSAH 10 was compiled, corrected, and summarized. This site was monitored in response to complaints of late-summer fish kills and other issues like swimmer's itch in the river. Daily minimum dissolved oxygen levels began dropping below the 5 mg/L standard in the late summer, while wild rice paddies were discharging. No evidence of a fish kill was noted during this monitoring effort, however. This reach of the Clearwater River met MPCA standards for fish and macroinvertebrates indices of biological integrity during the most recent (2015) assessment. A dissolved oxygen impairment of this reach (09020305-647) was removed from the 2018 303(d) List of Impaired Waters, but the 2017 data shows that additional improvement may be needed to avoid future re-listing of that impairment.



- Objective 9 – Civic Engagement
 - Staff from RMB Environmental Laboratories obtained MP3 audio files of the completed Water Minutes (read by Joel Heitkamp). District staff shared them with other local agency staff.
- Objective 10 – Reports
 - TMDL Section 4.4.8: Causes of low dissolved oxygen in Nasset Creek (Assessment Unit 09020305-545)
 - TMDL Section 4.4.10: Causes of low dissolved oxygen in the Lost River (Assessment Unit 09020305-645, Anderson Lake to CSAH 28)
 - TMDL Section 4.4.9: Causes of low dissolved oxygen in Judicial Ditch 73 (Assessment Unit 09020305-550)
 - TMDL Section 1.3: Priority Ranking

- An impaired waters table was created for Section 1.2 of the TMDL.
- A table was created to show the seasonality of *E. coli* concentrations in impaired streams of the Clearwater River watershed (total of 58 impairments).
- TMDL Section 4.3.4: Stressors of fish index of biological integrity in a tributary of the Poplar River Diversion (Gerdin Lake outlet channel, AUID 09020305-561).
- TMDL Section 4.3.6: Stressors of fish index of biological integrity in Beau Gerlot Creek (AUID 09020305-652).
- TMDL Section 4.3.7: Stressors of macroinvertebrate index of biological integrity in Beau Gerlot Creek (AUID 09020305-652).
- Information was added to Section 2.5.2 of the WRAPS (Protection Considerations for the Middle Clearwater River HUC10 Subwatershed).
- TMDL Section 4.4.4: Causes of Low Dissolved Oxygen in Clear Brook (AUID 09020305-652).
- Section 3.2, Lake Characterization (Cameron Lake portion)
 - Drainage area delineation
 - Map of the Cameron Lake drainage area



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The following table shows the months in which exceedances of the *E. coli* standard have occurred, flow levels at which they have occurred, and possible sources of excess bacteria.

<i>E. coli</i> Seasonality		Timing of Exceedances (Flow)								Seasonal Variation					Identifiable Sources				
Assessment Unit	Stream Name	Flow and Water Quality Station ID	Very High Flows	High Flows	Mid-Range Flows	Low Flows	Very Low Flows (or No Flow)	Unknown	May	June	July	August	September	Livestock	Birds	Stormwater	Waterfowl	Septic/Wastewater	
09020305-502	Lower Badger Creek	S004-837	208.1	98.4	94.3	125.1	IF	IF	35.7	159.2	171.7	52.5	101.2						
09020305-504	Poplar River	S007-608	206.5	104.0	62.3	83.7	IF	IF	23.0	145.3	226.3	101.2	78.5						
09020305-512	Lost River	S007-607	190.8	100.0	93.7	124.1	28.1	IF	7.8	80.0	139.7	117.8	47.3						
09020305-513	Ruffy Brook	S008-057	813.0	IF	163.6	IF	IF	IF	147.3	216.6	304.5	270.0	252.8						
09020305-526	Clear Brook	S004-044	66.3	155.7	IF	9.3	140.2	16.9	IF	128.9	111.6	73.4	IF						
09020305-527	Silver Creek	S002-082	88.3	37.7	86.5	105.0	124.2	IF	24.5	146.5	543.7	369.5	164.1						
09020305-529	Lost River	S005-283	60.5	67.8	193.7	293.4	IF	IF	49.0	131.3	107.2	72.1	105.0						
09020305-530	Lost River	S005-501	IF	IF	IF	IF	IF	116.5	28.2	74.6	142.7	148.5	71.8						
09020305-539	Hill River	S002-134	IF	113.0	12.1	149.4	90.2	IF	35.4	288.0	298.7	182.0	148.3						
09020305-545	Nassett Creek	S004-205	IF	IF	IF	IF	IF	128.5	25.0	207.8	425.7	248.6	113.6						
09020305-550	JD73	S003-318	297.2	140.2	162.8	IF	115.6	IF	IF	118.3	233.3	318.5	230.8						
09020305-574	Terrebonne Creek	S004-819	212.1	IF	IF	IF	328.9	8.1	39.4	260.8	410.1	338.0	239.8						
09020305-578	Brooks Creek	S005-506	IF	IF	IF	IF	IF	145.6	IF	147.6	148.9	315.2	IF						
09020305-647	Clearwater River	S002-916	IF	65.9	IF	120.8	IF	IF	12.8	77.5	112.2	164.2	91.9						
09020305-651	Beau Gerlot Creek	S004-816	IF	63.4	335.8	105.0	IF	88.9	22.2	94.2	531.1	292.0	53.8						
Concentrations are shown in MPN/100ml.																			
All concentrations are geometric means.																			
Geometric Monthly geometric means were calculated from 2007-2016 data.																			
Flow-based geometric means are site-specific (flow monitoring and TMDL calculation sites).																			
Monthly geometric means are calculated for aggregate data from all sites along an assessment unit.																			
Concentrations greater than 126 MPN/100ml exceed the impairment threshold for monthly geometric means.																			
IF = Insufficient Data (<5 samples)																			
Highlighted numerical values exceed the 126 MPN/100ml standard.																			

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The following tables contain a list of the impaired waters within the Clearwater River Watershed.

Clearwater River Watershed (09020305) Rivers, Streams, and Ditches on the Draft 2018 303(d) List of Impaired Waters								
Affected Use: Pollutant/Stressor	Assessment Unit ID	Stream or Lake Name	Location/Reach Description	Designated Use Class	HUC10 Subwatershed	Year Listed	Target Start/Completion	Addressed in This TMDL?
<i>Aquatic Recreation: Nutrient/Eutrophication Biological Indicators (Phosphorus)</i>	04-0295-00	Long Lake	85-acre lake, 2 miles north of Pinewood	2B, 3C	0902030501	2018	2016/2019	Yes
	15-0156-00	Stony Lake	67-acre lake, 4 miles south of Gonvick	2B, 3C	0902030505	2018	2016/2019	Yes
	60-0189-00	Cameron Lake	226-acre lake, in Erskine	2B, 3C	0902030506	2018	2016/2019	Yes
<i>Aquatic Recreation: Escherichia coli Bacteria</i>	09020305-502	Lower Badger Creek	CD 14 to Clearwater River	2B, 3C	0902030506	2018	2016/2019	Yes
	09020305-504	Poplar River	Highway 59 to Lost River	2B, 3C	0902030504	2018	2016/2019	Yes
	09020305-512	Lost River	Pine Lake to Anderson Lake	2B, 3C	0902030505	2018	2016/2019	Yes
	09020305-513	Ruffy Brook	Headwaters to Clearwater R	2B, 3C	0902030502	2008	2014/2019	Yes
	09020305-526	Unnamed Creek (Clear Brook)	Headwaters to Silver Creek	2B, 3C	0902030505	2018	2016/2019	Yes
	09020305-527	Silver Creek	Headwaters to Anderson Lake	2B, 3C	0902030505	2006	2014/2019	Yes
	09020305-529	Lost River	T148 R38W S17, south line to Pine Lake	2B, 3C	0902030505	2018	2016/2019	Yes
	09020305-530	Lost River	Unnamed Cr to T148 R38W S20, north line	1B, 2Ag, 3B	0902030505	2018	2016/2019	Yes
	09020305-539	Hill River	Hill River Lake to Lost River	2B, 3C	0902030503	2018	2016/2019	Yes
	09020305-545	Unnamed Creek (Nassett Creek)	T148 R38W S28, south line to Lost River	1B, 2Ag, 3B	0902030505	2018	2016/2019	Yes
	09020305-550	Judicial Ditch 73	Unnamed ditch (Near 187th Ave SE) to Tamarack Lk	2B, 3C	0902030506	2018	2016/2019	Yes
	09020305-574	Terrebonne Creek	CD 4 to CD 58	2B, 3C	0902030507	2010	2014/2019	Yes
	09020305-578	Brooks Creek	Unnamed cr to Hill River	2B, 3C	0902030503	2018	2016/2019	Yes
	09020305-647	Clearwater River	Ruffy Brook to JD1	2B, 3C	0902030502	2018	2016/2019	Yes
	09020305-651	Beau Gerlot Creek	Upper Badger Cr to -96.1947 47.8413	2B, 3C	0902030507	2018	2016/2019	Yes

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Clearwater River Watershed (09020305) Rivers, Streams, and Ditches on the Draft 2018 303(d) List of Impaired Waters								
Affected Use: Pollutant/Stressor	Assessment Unit ID	Stream or Lake Name	Location/Reach Description	Designated Use Class	HUC10 Subwatershed	Year Listed	Target Start/Completion	Addressed in This TMDL?
Aquatic Life: Total Suspended Solids/Turbidity	09020305-501	Clearwater River	Lower Badger Creek to Red Lake River	2B, 3C	0902030507	2006	2014/2019	Yes
	09020305-510	Clearwater River	Ruffy Brook to Lost River	2B, 3C	0902030502	2010	2014/2019	No*
	09020305-511	Clearwater River	Lost R to Beau Gerlot Crk	2B, 3C	0902030507	2008	2014/2019	Yes
	09020305-545	Unnamed Creek (Nassett Creek)	T148 R38W S28, south line to Lost River	1B, 2Ag, 3B	0902030505	2018	2016/2019	Yes
	09020305-647	Clearwater River	Ruffy Brook to JD1	2B, 3C	0902030502	2008	2014/2019	Yes
	09020305-648	Clearwater River	JD1 to Lost River	2B, 3C	0902030502	2008	2014/2019	Yes
Aquatic Life: Low Dissolved Oxygen	09020305-508	(Red Lake) County Ditch 57	Unnamed ditch to Clearwater River	2B, 3C	0902030507	2002	n/a	No****
	09020305-509	Walker Brook	Walker Brook Lake to Clearwater River	2B, 3C	0902030501	2002	n/a	No*****
	09020305-517	Clearwater River	Headwaters to T148 R36W S36, east line	2B, 3C	0902030501	2006	2014/2019	No***
	09020305-518	Poplar River	Spring Lake to Highway 59	2B, 3C	0902030504	2002	2014/2019	No***
	09020305-526	Unnamed Creek (Clear Brook)	Headwaters to Silver Creek	2B, 3C	0902030505	2018	2016/2019	No***
	09020305-529	Lost River	T148 R38W S17, south line to Pine Lake	2B, 3C	0902030505	2006	2014/2019	No***
	09020305-541	Unnamed Creek (Bee Lake Inlet)	Eighteen Lake to Bee Lake	2B, 3C	0902030506	2006	n/a	No****
	09020305-542	Unnamed Creek (Poplar River Div.)	Mitchell Lake to Badger Lake	2B, 3C	0902030506	2006	n/a	No****
	09020305-543	Poplar River Diversion	Unnamed ditch to Badger Lk	2B, 3C	0902030506	2006	2014/2019	No*****
	09020305-545	Unnamed Creek (Nassett Creek)	T148 R38W S28, south line to Lost River	1B, 2Ag, 3B	0902030505	2018	2016/2019	No***
	09020305-550	Judicial Ditch 73	Unnamed ditch (Near 187th Ave SE) to Tamarack Lk	2B, 3C	0902030506	2018	2016/2019	No***
	09020305-645	Lost River	Anderson Lake to Unnamed Cr	2B, 3C	0902030505	2018	2016/2019	No***
	09020305-656	Hill River	Unnamed Cr to Hill River Lake	2B, 3C	0902030503	2018	2016/2019	No***

*This specific reach is not listed on the draft 2016 List of Impaired waters because it has been recommended for delisting (meets standards) or because it has been split into multiple reaches that now have unique AUIDs.

**Mercury impairments have been addressed by a statewide mercury TMDL that was approved by the EPA in 2007: <https://www.pca.state.mn.us/sites/default/files/wq-iw4-01b.pdf>

***An examination of data and physical features of the watercourse's drainage area revealed that the impairment is caused by non-pollutant factors.

****EPA category changed from 5 to 3. AUID was removed from the Draft 2018 List of Impaired Waters

*****EPA category changed from 5 to 4D. AUID was removed from the Draft 2018 List of Impaired Waters

*****EPA category changed to 4C. AUID will remain on the Draft 2018 List of Impaired Waters, but a TMDL is not required.

RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

February 2018

Clearwater River Watershed (09020305) Rivers, Streams, and Ditches on the Draft 2018 303(d) List of Impaired Waters								
Affected Use: Pollutant/Stressor	Assessment Unit ID	Stream or Lake Name	Location/Reach Description	Designated Use Class	HUC10 Subwatershed	Year Listed	Target Start/Completion	Addressed in This TMDL?
Aquatic Life: Poor Fish Index of Biological Integrity	09020305-518	Poplar River	Spring Lake to Highway 59	2B, 3C	0902030504	2018	2016/2019	No***
	09020305-539	Hill River	Hill River Lake to Lost River	2B, 3C	0902030503	2018	2016/2019	No***
	09020305-561	Unnamed creek (Tributary to Poplar River Diversion)	Gerdin Lake to Poplar River Diversion	2B, 3C	0902030506	2018	2016/2019	No***
	09020305-645	Lost River	Anderson Lake to Unnamed Cr	2B, 3C	0902030505	2018	2016/2019	No***
	09020305-652	Beau Gerlot Creek	-96.1947 47.8413 to Clearwater River	2B, 3C	0902030507	2018	2016/2019	No***
	09020305-656	Hill River	Unnamed Cr to Hill River Lake	2B, 3C	0902030503	2018	2016/2019	No***
	09020305-658	(Red Lake) County Ditch 23	-96.1479 47.8855 to Clearwater River	2B, 3C	0902030507	2018	2016/2019	No***
Aquatic Life: Poor Aquatic Macroinvertebrate Index of Biological Integrity	09020305-518	Poplar River	Spring Lake to Highway 59	2B, 3C	0902030504	2018	2016/2019	No***
	09020305-527	Silver Creek	Headwaters to Anderson Lake	2B, 3C	0902030505	2018	2016/2019	No***
	09020305-652	Beau Gerlot Creek	-96.1947 47.8413 to Clearwater River	2B, 3C	0902030507	2018	2016/2019	No***
Aquatic Life: Nutrient/Eutrophication Biological Indicators (Phosphorus)	09020305-647	Clearwater River	Ruffy Brook to JD1	2B, 3C	0902030502	2018	2016/2019	Yes
Aquatic Consumption: Mercury in Fish Tissue	15-0149-00	Pine Lake	1240-acre lake, 2.5 miles south of Gonvick	2B, 3C	0902030505	2006	2008/2021	No**
	09020305-510	Clearwater River	Ruffy Brook to Lost River	2B, 3C	0902030502	1998	2007/2008	No*
	09020305-514	Clearwater River	Clearwater Lake to Ruffy Brook	2B, 3C	0902030501, 0902030502	1998	2007/2008	No*
	09020305-516	Clearwater River	T148 R35W S31, west line to Clearwater Lake	1B, 2A, 3B	0902030501	1998	2007/2008	No*
	09020305-647	Clearwater River	Ruffy Brook to JD1	2B, 3C	0902030502	1998	2007/2008	No**
	09020305-648	Clearwater River	JD1 to Lost River	2B, 3C	0902030502	1998	2007/2008	No**
	09020305-649	Clearwater River	Clearwater Lake to Unnamed Creek	2B, 3C	0902030501	1998	2007/2008	No**
	09020305-653	Clearwater River	T148 R35W S31, west line to Unnamed Cr	1B, 2Ag, 3B	0902030501	1998	2007/2008	No**
	09020305-654	Clearwater River	Unnamed cr to Clearwater Lk	1B, 2Ag, 3B	0902030501	1998	2007/2008	No**
09020305-650	Clearwater River	Unnamed cr to Ruffy Brook	2B, 3C	0902030502	1998	2007/2008	No**	
*This specific reach is not listed on the draft 2016 List of Impaired waters because it has been recommended for delisting (meets standards) or because it has been split into multiple reaches that now have unique AUIDs.								
**Mercury impairments have been addressed by a statewide mercury TMDL that was approved by the EPA in 2007: https://www.pca.state.mn.us/sites/default/files/wq-iw4-01b.pdf								
***An examination of data and physical features of the watercourse's drainage area revealed that the impairment is caused by non-pollutant factors.								
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Other Notes

- Edits were made to a water quality training presentation about water quality parameters to shorten the length of the presentation. Ashley Hitt gave the presentation at the training session this year.
- A water quality report for the months of September and October of 2017 was completed.
- Water quality related notes from the February 8, 2018 Red Lake Watershed District Board of Mangers meeting:
 - The District agreed to assist the West Polk SWCD for the Red Lake River One Watershed One Plan Ditch Inventory Project, that would identify sites in need of side water inlet culverts within Polk County ditches. Pennington County SWCD received a Clean Water Fund Drainage Ditch Inventory Grant and were able to transfer the remaining funds to the West Polk SWCD. Administrator Jesme state that the grant in the amount of \$44,540.82 requires a 25% match. Jesme indicated that under the Red Lake River One Watershed One Plan concept, this project would identify sites for erosion control/sediment reduction projects, that could be funded under the District’s Erosion Control Funds, RLWD Project No. 164. The Board voted to approve the 25% match for the Red Lake River One Watershed One Plan Ditch Inventory Project (not to exceed \$12,500).
 - The Board reviewed a letter from the City of Thief River Falls regarding the development of a pilot project to explore a flexible permitting requirement for the Thief River Falls municipal wastewater treatment system. Administrator Jesme stated that the wastewater treatment system releases high phosphates into the Red Lake River, but when they look at the upstream and downstream water numbers it has no effect on the water quality. Jesme stated that the MPCA can require that the city improve the phosphate limits. The City is proposing a potential project within the Red Lake River subwatershed, to implement with the District, to find a project that will provide “more bang for the buck”, rather than buy low-value/high-cost upgrades to the waste water treatment system. Administrator Jesme stated that the District could complete a PTMapp study that would determine locations to reduce sediment loads within the subwatershed. It was the consensus of the Board to gather more information and report back to the Board.
 - Staff member Loren Sanderson that the Sportsman Club notified that aeration on Pine Lake will begin next week due to low oxygen levels. The District is the permit holder for the aeration permit, with the Sportsman Club responsible for notification, signage and operation.
- Based upon discussion with local agencies (including the RLWD, Red Lake DNR, and the International Water Institute), the MPCA is making some changes to that way that the Surface Water Assessment Grant program is managed.
 - Budgeting for equipment and supplies may be more flexible. Unlike other programs, SWAG grants have required itemization of expenses for the smallest of items and required a change order for the purchase of anything that was slightly different than the specific things listed in the work plan. They are planning to change that system to only require line itemization for purchases over \$500.

- Staffing costs will be broken down by person rather than objective. This is being done in an attempt to eliminate the need for moving funds from one objective to another through contract amendments.
- Contracts will no longer require lake and stream sample analysis to be reported as separate line items.
- Minnesota Board of Water and Soil Resources (BWSR) staff compiled a list of themes, lessons learned, and actions that could improve the 1W1P process from their notes that were compiled during the December 2017 1W1P/WRAPS focus group meeting in Rogers (attended by a member of the District staff).
 - Lessons Learned:
 - Resolution process is beneficial to LGUs.
 - Early conversations or activities (e.g. Bus tour of watershed) during pre-planning help to strengthen relationships.
 - Exit interviews of LGUs (and state agency staff) involved in a 1W1P process by non-BWSR staff can help strengthen the program and help identify adaptations needed.
 - Actions related to the 1W1P policy committee:
 - Associations (AMC, MAWD, MASWCD, etc.) could send letters to constituents that explain reasons for support of the 1W1P program and benefits of participating. The letters could remind everyone about background of program (Local Government Water Round Table). This should include commenting on the pilot watershed-based funding. Note: it is particularly important for county commissioners to understand the benefits to their organization from participation in multiple watershed plans versus one county water plan.
 - Allow the expenditure of planning grant dollars to hire an unbiased, external facilitator in addition to a plan writer consultant (may be within same consulting firm, but someone specifically assigned to facilitate based on their background and expertise in facilitating). While this is a current eligible use of funds, this should be made more explicit and encouraged. BWSR guidance should be developed to help planning groups determine if they need a facilitator, as all groups may not need one. Note: Depending on the people involved, we (BWSR) have heard that a facilitator could be used for ~30-60% of meetings and may be needed for multiple committees.
 - BWSR document "Operating Procedures" should be revised to include:
 - Better descriptions of options for governance structures
 - A description of each individual board's role in 1W1P development and implementation
 - How individual boards interact with the 1W1P Policy Committee
 - Actions related to the role and influence of BWSR:
 - The planning grant RFP process is being reevaluated and adapted to be more transparent and to encourage more information sharing/pre-planning to occur before applying for a grant.

- Develop more BWSR staff training/guidance on items they assist with during scoping and other 1W1P planning stages.
- Actions related to the role of a consultant:
 - BWSR should assist LGUs/planning groups with selecting and managing a consulting firms.
- Actions related to preparation for a 1W1P process
 - BWSR staff should be more intentional about informing local partners that they are available to attend Board meetings to share information on the 1W1P program early in the pre-planning process. Note: this could include development of a presentation w/"myth-busters" as well as statements that address why LGUs should participate in the 1W1P program.
 - Current discussions of adaptations to the RFP process should encourage more pre-planning conversations.
- Actions related to coordination between the 1W1P and WRAPS processes:
 - BWSR and MPCA should continue to explore opportunities to streamline planning processes and avoid duplication.
 - Examine ways to connect public participation processes in the WRAPS and 1W1P programs. This should include ideas for involving potential 1W1P Policy Committee members before the 1W1P process begins.

February 2018 Meetings and Events

- **February 2, 2018** – Thief River One Watershed One Plan Coordination Call
- **February 5, 2018** – Red Lake River One Watershed One Plan meeting at the Pennington Soil and Water Conservation District
- **February 7, 2018** – River Watch Forum at the Alerus Center
- **February 8, 2018** – Thief River 1W1P Prioritization Matrix phone conference
- **February 14, 2018** – Thief River 1W1P Meeting (Policy Committee, Advisory Committee, and Planning Work Group)
 - Priority Issues
 - Introduction
 - Protection and restoration strategies
 - Identify and prioritize issues
 - Altered hydrology
 - Capital projects
 - Strategies and actions
 - PTMApp
 - Governance
- **February 15, 2018** – East Polk County SWCD Annual Planning Meeting
 - Maps of Clearwater River Watershed water quality impairments were printed and shared with the group.
 - The group was very interested in finding ways to improve water quality in Cameron Lake (an impaired lake).

- The group was also interested in expanding sediment basin implementation from the Sand Hill river Watershed to the Clearwater River Watershed.
- **February 21, 2018** – Red Lake River 1W1P Policy Committee meeting (Corey Hanson)
- **February 21, 2018** – 15th Annual Red River Basin Water Quality Monitoring Training (Ashley Hitt and Christina Slowinski)
 - Water Quality Parameters and What They Mean (Ashley Hitt, RLWD)
 - Why We Sample and What These Data are Used for (Evelyn Ashiamah, MPCA)
 - Standard Operating Procedures (Danni Halvorson, IWI)
 - AIS and Infested Water Sampling (Andy Ulven, IWI)
 - Lab Quality Control and Chain of Custody (Moriya Rufer, RMB Labs)
 - Hands-on, break-out sessions for sonde calibration and collection of field measurements
 - Certification test
- **February 27, 2018** – Thief River 1W1P phone conference
- **February 27, 2018** – Bartlett Lake Meeting at the Northome City Hall (Brian Dwight attended)

Quote of the Month:

“Hungry dogs run faster.”
- Jason Kelce

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](https://www.facebook.com/redlakewatershed) to stay up-to-date on RLWD reports and activities.