

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. August 13, 2015.

Chief's Coulee Sampling

Pennington County SWCD and RLWD staff have been collecting samples along Chief's Coulee, a drainage system on the northern part of Thief River Falls, in 2015. The plan was to collect some data prior to planning a project to improve drainage and repair rusting and damaged pipes. Sampling results have revealed that there are bigger problems occurring along this drainage-way than anyone had imagined.

High E. coli concentrations were again found at the Dewey Avenue crossing of Chief's Coulee when it was sampled by the Pennington County SWCD on July 8th, 2015. The record high for E. coli concentrations from samples collected within the Red Lake Watershed District was broken again with a concentration of >24,196 MPN/100ml. There has to be a major source of fecal bacteria somewhere in between the Atlantic and Dewey Avenue crossings of Chief's Coulee. Between those crossings are a grain elevator, a pallet business, some homes, and a sanitary sewer line. Diesel range organics were once again present in measurable concentrations at two of the monitoring sites.



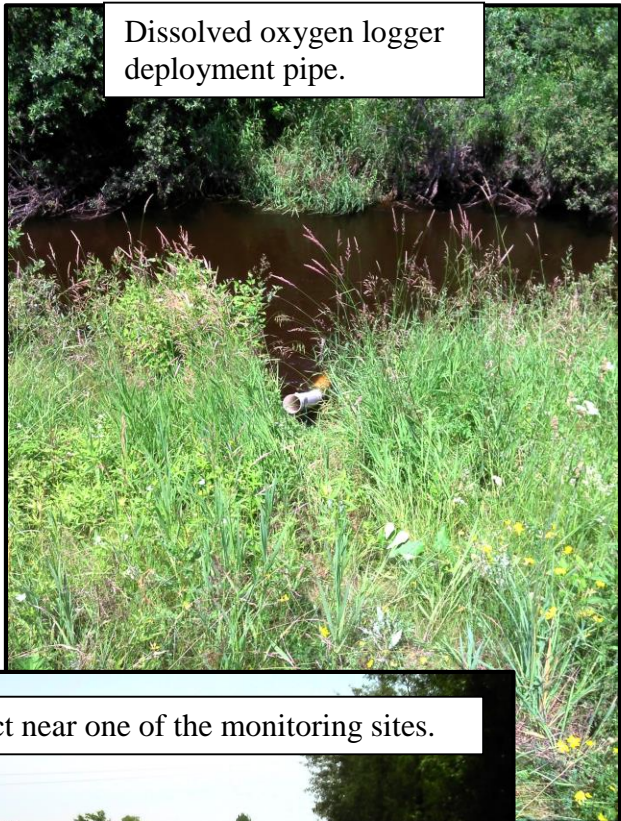
Investigation of the Blue-Green Algae Problem in the Mud River in Grygla

In the past two years, dog sicknesses and even deaths due to poisoning from blue-green algae (microcystin) have been reported after the dogs have drunk water from the Mud River in Grygla during the latter part of the summer. The RLWD is conducting some intensive sampling in the Mud River in an attempt to understand more about when the problem occurs and what might be causing it. Abraxis blue-green algae test strips have been purchased and will be used to test the water when flows are relatively low. A dissolved oxygen logger has been deployed in the river. District staff began sampling two sites along the Mud River in Grygla in the third week of July and will continue to sample those sites weekly through the end of September. A resident of Grygla has been measuring dissolved oxygen and other parameters with a multi-parameter sonde on a regular basis at multiple sites. Initially, flows were high in the river due to discharge from the Moose River Impoundment and chlorophyll-a concentrations were low. Total phosphorus and E. coli concentrations were also low.

A sign has been posted in the park along the river to warn of the potential hazard.



Dissolved oxygen logger deployment pipe.



A recent ditch cleanout project near one of the monitoring sites.



Red Lake Watershed District Long-Term Monitoring Program

High E. coli concentrations were found in:

- Ruffy Brook at CSAH 11
- Silver Creek near Clearbrook
- Hill River at CSAH 35
- Burnham Creek at CSAH 48
- Browns Creek at CR 101

High total phosphorus (relative to proposed river nutrient eutrophication criteria) were found in:

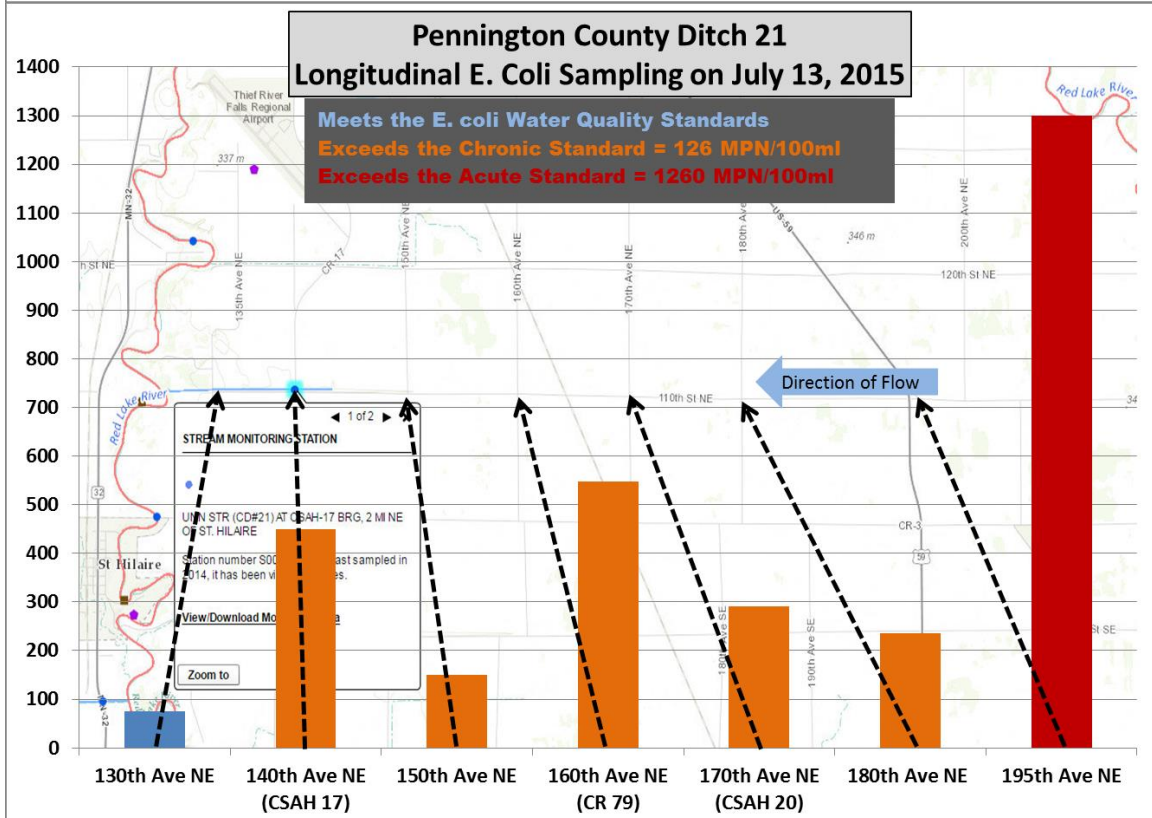
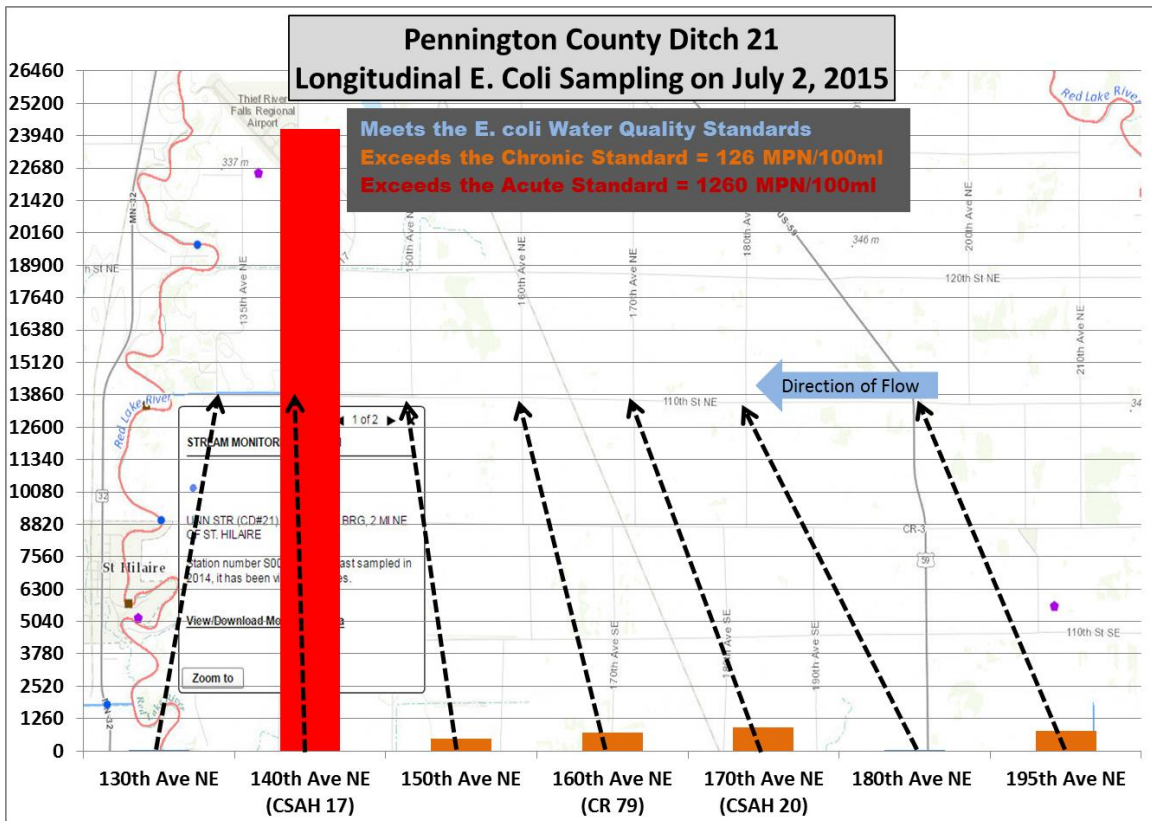
- Browns Creek at CR 101
- Poplar River at CR 118
- Ruffy Brook at CSAH 11
- Clearwater River at CSAH 2
- Lost River upstream Pine Lake

Red Lake River Watershed Assessment Project (Red Lake River WRAP)

- Task 2 – Water Quality Monitoring
 - Longitudinal samples and field measurements were collected along Pennington County Ditch 21 on two occasions in July (July 2nd and July 13th).
 - A record high E. coli concentration (for the RLWD monitoring program) of 24,196 MPN/100ml was recorded at the CSAH 17 crossing of CD21 on July 2nd, 2015.
 - High E. coli concentrations were found at multiple locations on July 13th. The highest readings were found at 195th Avenue NE, near Highway 59 (1,299.7 MPN/100ml) and CSAH 17 (450 MPN/100ml). In both instances, E. coli concentrations were much lower at the next crossings downstream. E. coli sources may be localized (e.g. birds under a bridge) and are not traveling far downstream during low flows due to settling, filtering, and die-off.
 - Low dissolved oxygen levels were recorded at the CSAH 17 crossing on both trips. The dissolved oxygen levels at that site were considerably lower than the next crossing upstream and downstream.
 - All of the turbidity levels were less than 10 NTRU on July 13th, 2015. Most were under 5 NTRU. Five of the seven total suspended solids (TSS) samples were only 1 mg/l.
 - Temperatures were lower at the CSAH 17 crossing than any other crossing by several degrees on both days that the ditch was sampled. Yet, dissolved oxygen was much lower.
 - Further investigation of the area between the 150th Avenue and CSAH 17 crossings will need to be investigated more closely to see what could be affecting dissolved oxygen and E. coli bacteria levels so greatly at that specific site.

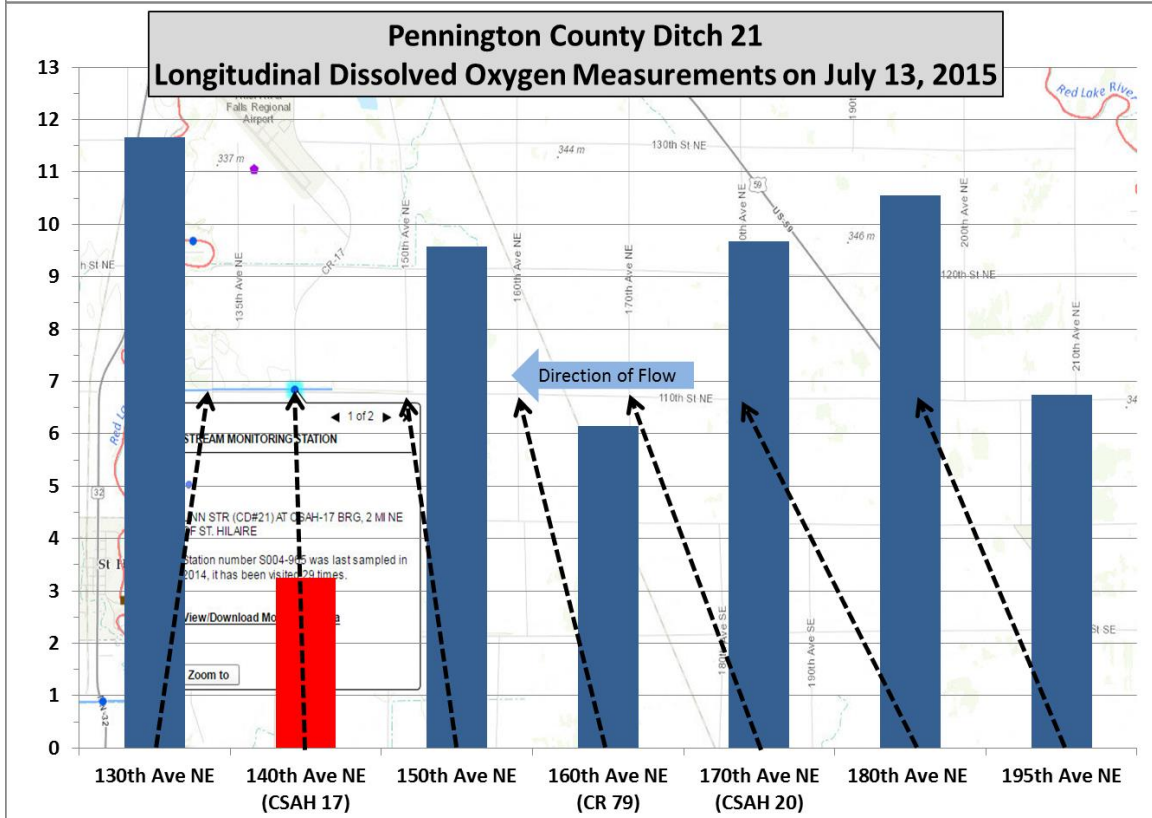
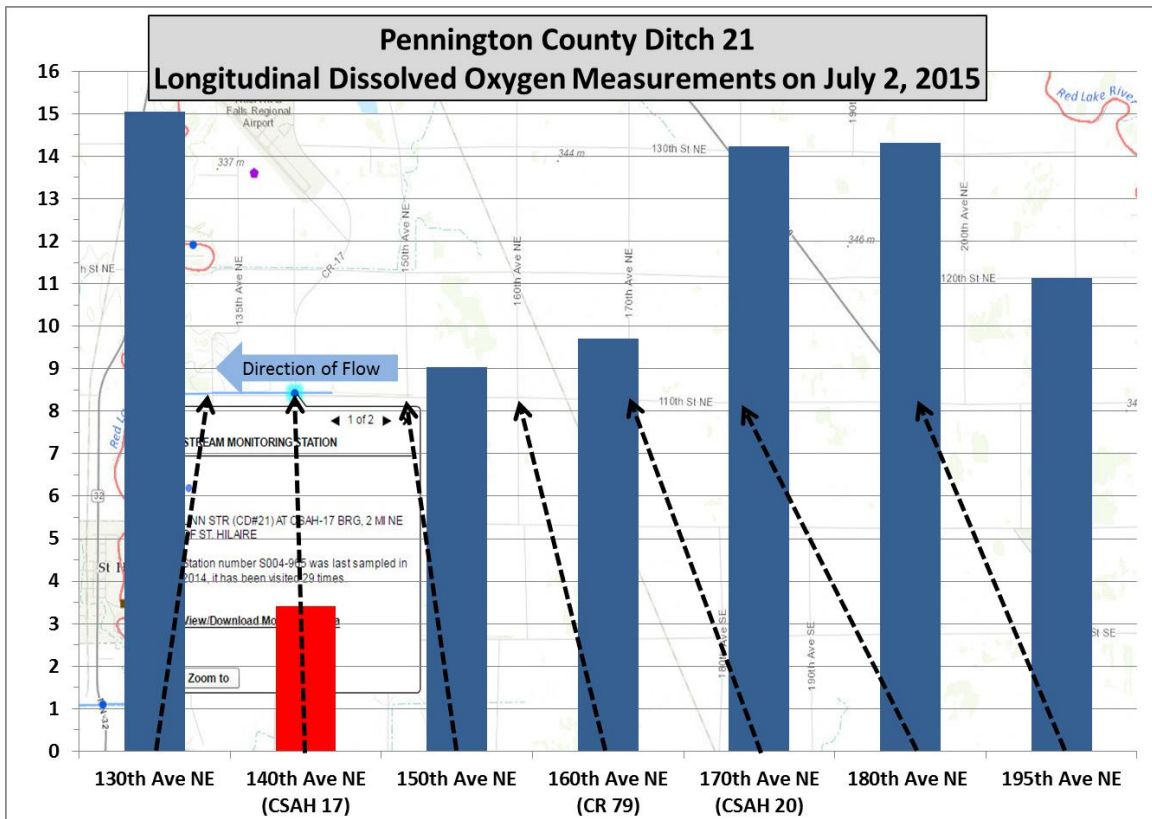
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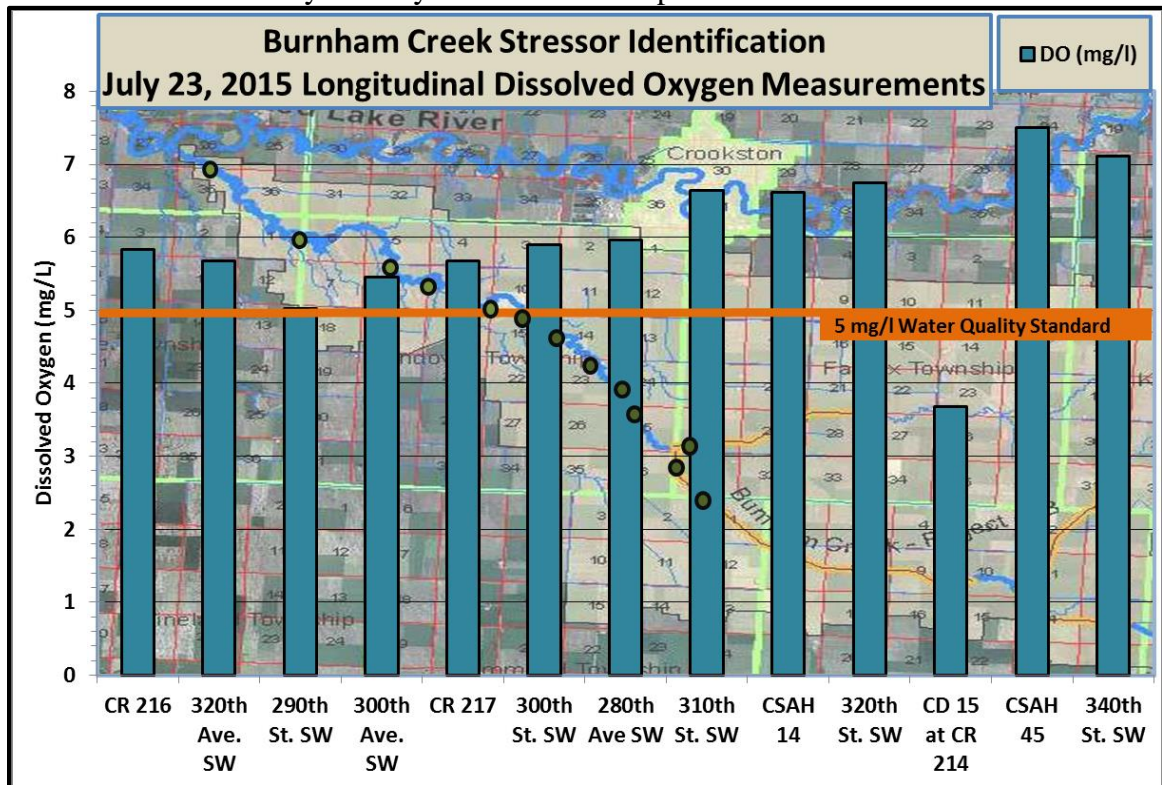
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- Longitudinal field measurements of water quality were collected along Burnham Creek on July 23, 2015 to learn more about the extent of the dissolved oxygen problems along Burnham Creek. Downstream of CSAH 45, there are areas in which water becomes ponded and stagnant within the channel.
 - Dissolved oxygen was significantly lower at the sites in the lower reaches of the creek. None of the sites on Burnham Creek were lower than the 5 mg/l standard, but a number of the sites in the downstream reaches of Burnham Creek were close to that threshold.
 - Polk County Ditch 15, which flows into Burnham Creek downstream of CSAH 45, had a low dissolved oxygen concentration of just 3.68 mg/l.
 - Turbidity actually decreased from upstream to downstream.



- Task 3 – Continuous Dissolved Oxygen Monitoring
 - MPCA staff suggested collecting some additional continuous dissolved oxygen data at sites in the Red Lake River watershed to create a better understanding of the extent of some of the dissolved oxygen impairments that were identified in the watershed. There was enough money left in the budget to monitor two sites for half of the monitoring season (5 deployments).
 - Dissolved oxygen loggers were deployed in Burnham Creek at CSAH 45 and the Black River at CR 58.
 - Low dissolved oxygen levels were recorded in Burnham Creek at CSAH 45 on July 17th and 18th.

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- In the Black River at CR 58, dissolved oxygen levels hit extreme highs and lows and fell below 5 mg/l on many days.



Black River at CR 58



Burnham Creek at CSAH 45



- Task 5 – Flow Monitoring
 - Check-ups of HOBO water level loggers were conducted. The loggers were cleaned and data was downloaded to make sure they were working properly.
 - Flow in the Red Lake River has been high throughout the summer of 2015. Recent stage measurements at the CSAH 27 crossing have been approximately 2 feet higher than they were in the spring. Water levels have been too high to allow for the retrieval of the HOBO water level logger that is installed at that site. As of July 16th, the U.S. Army Corps of Engineers had been releasing 500 cubic feet per

second (CFS) of water from the Lower Red Lake Dam. After the torrential rains that occurred on July 16th in Thief River Falls, however, discharge was lowered to 250 CFS until flow was increased again on July 23rd, 2015.

- Task 6 – Stream Channel Stability Assessment
 - DNR staff are working on analyzing geomorphologic data and writing a geomorphology report about the Red Lake River watershed.
- Task 12 – Reports
 - A semi-annual progress report for the Red Lake River WRAP project was completed and submitted to the MPCA Project Manager.

Thief River Watershed Restoration and Protection (WRAP) Project

- Task 1 – Evaluation of Existing Data
 - An assessment of 2005 – 2014 monitoring data was conducted to provide information in the Watershed Restoration and Protection Strategy Report about the current condition of rivers, streams, and ditches in the Thief River watershed.
 - Currently, there are a total of 58 established assessment units within the Thief River watershed with a total length of 260.99 miles. Many of those units, however, are small segments of ditches. Many of those smaller segments have no monitoring sites associated with them. There are some ditch systems within the watershed (Judicial Ditch 11, Marshall County Ditch 20, Branch A of Judicial Ditch 21, and the Judicial Ditch 30/18/13 system that could have been satisfactorily assessed by monitoring sites located near the pour points of those systems. A significant percentage of assessment units may never be monitored or assessed unless water quality problems are identified at downstream sites. There are 23 of the watershed's assessment units (56.62 miles of channel) that have no water quality data. There are 22 assessment units that have been visited, but have fewer than 20 days with monitoring data (generally, too few measurements for an assessment). There are more that may be lacking data for one or more parameters. So, at least 45 assessment units (78%) in the Thief River watershed are lacking the minimum amount of water quality data needed for an assessment. A total of 48 assessment units (83%) were not assessed during the 2013 assessment.
 - During the 2013 assessment, many reaches with water quality monitoring data were not officially assessed for aquatic life due to channelization. Despite extensive data collection (2,350 discrete daily data points available, total – that's 235 per year) in the watershed, only 35% of the 260.99 miles of stream channels in the watershed were officially assessed in some form that year (including Branch A of JD21, which was listed for an E. coli impairment, but not officially assessed for aquatic life). During the assessment process, conventional water chemistry parameters were still assessed using existing standards, but not made official. Water chemistry data was assessed for this report in 2015 by applying existing (E. coli, pH, DO, un-ionized ammonia) and proposed (TSS, TP, BOD, DO Flux) State water quality standards to data collected during the years of 2005 through 2014.

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River/ Stream/ Ditch	AUID (Last 3 Digits)	Reach Description	Miles	Days With Data	Fish IBI	Macro-invertebrate IBI	Total Suspended Solids	Eutrophication (TP & Chl- a, DO Flux, BOD, or pH)	Un-ionized Ammonia	Dissolved Oxygen	E. coli Bacteria	Better Since the 2013 Assessment	Worse Since the 2013 Assessment
Thief River	501	Agassiz Pool to Red Lake R	21.96	712	Sup	Sup	Imp	PI	Sup	Imp	Sup	E. coli, DO5_All	DO12, DO7
Thief River	504	Thief Lk to Agassiz Pool	7.9	229	PI	Sup	Sup	Sup	Sup	Sup	Sup	E. coli	
Moose River	505	Headwaters to Thief Lk	23.35	184	PI	Sup	Sup	PI	Sup	Imp	Sup		DO, TSS
Mud River	507	Headwaters to Agassiz Pool	20.01	290	PI	Sup	Sup	PI	Sup	Imp	Sup		
Unnamed Ditch (Judicial Ditch 18-30)	509	T154 R42W S14, east line (JD30) to Thief R	8.45	125	PI	IF	Sup	PI	Sup	PI	Sup		DO
County Ditch 20	510	Unnamed ditch to Thief River	0.95	3	IF	IF	IF	IF concern	IF	IF	IF concern		
Unnamed Ditch (Ditch 200)	511	Unnamed ditch to unnamed ditch	5	155	PI	PI	Sup	PI	Sup	PI	Sup	DO	
Unnamed Ditch (Ditch 200)	512	Unnamed ditch (Upstream of 180th Ave NE) to Thief River	0.11	1	IF	IF	IF	IF	IF	IF	IF		
County Ditch 20	513	Unnamed ditch to CD 32	8.4	38	Sup	Sup	IF	IF	IF	IF	IF concern		DO
County Ditch 20	515	CD 32 to CD 31	2	1	IF	IF	IF	IF	IF	IF	IF concern		E. coli
County Ditch 21	517	Unnamed ditch to Unnamed ditch	4.98	1	IF	IF	IF	IF	IF	IF	IF concern		E. coli
County Ditch 20	519	Unnamed ditch (Branch A CD 30) to Unnamed ditch (Branch D CD 20)	1	171	PI	PI	Sup	Sup	Sup	Sup	Sup	TSS, DO	
Judicial Ditch 11	521	Unnamed ditch (Moose R Impoundment South Pool Outlet) to unnamed ditch (Benville Rd)	0.98	37	IF	IF	IF	IF	IF	IF	IF		
Judicial Ditch 11	522	Unnamed ditch (Benville Rd) to Unnamed ditch	1.51	2	IF	IF	IF	IF	IF	IF	IF		
Judicial Ditch 11	525	Unnamed ditch to JD 11 (Outpost Rd to Gunpowder Rd)	0.52	2	IF	IF	IF	IF	IF	IF	IF		
Judicial Ditch 11	526	Unnamed ditch to Mud R	4.39	1	IF	IF	IF	IF	IF	IF	IF		
Unnamed Ditch	527	Unnamed ditch to unnamed ditch	7.9	14	Sup	IF	Sup	Sup	IF	IF	IF		
Unnamed Ditch	534	Unnamed ditch to unnamed ditch	2	103	IF	IF	Sup	IF concern	IF	PI	IF		
Judicial Ditch 11	536	Unnamed ditch (Branch 194 of JD11) to Thief River	9.7	84	Sup	PI	IF	IF	Sup	IF	IF		
Unnamed ditch	537	Unnamed ditch to JD 13	3.4	2	PI	PI	IF	IF	IF	IF	IF		
Judicial Ditch 13	540	T154 R40W S16, east line to JD 18	3.01	1	PI	Sup	IF	IF	IF	IF	IF		
Judicial Ditch 18	541	T154 R40W S27, midpoint to T154 R42W S	12.5	1	PI	IF	IF	IF concern	IF	IF	IF		
Unnamed Ditch (Br1 of JD11)	543	Unnamed ditch (Br15 JD11) to unnamed ditch (Br 7 JD11)	1.98	95	Sup	IF	IF	IF concern	Sup	IF	IF		
IF	Insufficient data. Either there is no data, or the data doesn't meet minimum requirements for an assessment.												
IF concern	Insufficient data to assess the reach, but some of values collected fail to meet the water quality standard. Target this reach for additional monitoring.												
PI	2005-2014 data indicates that the reach is not meeting the standard for this parameter, but it the reach is not officially listed as impaired.												
Imp	The reach is officially listed as impaired for this parameter.												
Sup	Current data indicates that the reach is meeting the standard for this parameter.												

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<u>River/ Stream/ Ditch</u>	<u>AUID (Last 3 Digits)</u>	<u>Reach Description</u>	<u>Miles</u>	<u>Days With Data</u>	<u>Fish IBI</u>	<u>Macro-invertebrate IBI</u>	<u>Total Suspended Solids</u>	<u>Eutrophication (TP & Chl- a, DO Flux, BOD, or pH)</u>	<u>Un-ionized Ammonia</u>	<u>Dissolved Oxygen</u>	<u>E. coli Bacteria</u>	<u>Better Since the 2013 Assessment</u>	<u>Worse Since the 2013 Assessment</u>
County Ditch 20	546	Unnamed ditch to Unnamed ditch	3.02	1	IF	IF	IF	IF	IF	IF	IF concern		
County Ditch 20	548	Unnamed ditch to unnamed ditch	5.4	2	PI	PI	IF	IF	IF	IF	IF concern		
Unnamed Ditch (Jelle Rd Ditch)	549	Unnamed ditch to CD 30	4	1	Sup	IF	IF	IF	IF	IF	IF concern		
Unnamed Ditch (Lat 1, JD23)	550	Headwaters to Thief R	5.8	1	PI	PI	IF	IF	IF	IF	IF		
Unnamed Ditch (Main JD23)	551	Unnamed ditch to Thief River	4.6	2	PI	PI	IF	IF	IF	IF	IF		
County Ditch 27	552	Unnamed ditch to unnamed ditch	4	2	PI	PI	IF	IF	IF	IF	IF		
County Ditch 32	554	Unnamed ditch to CD 20	2.5	2	PI	PI	IF	IF	IF	IF	IF		
Unnamed Ditch (Branch A of JD21)	555	Unnamed ditch to Moose R	1.7	70	Sup	Sup	Sup	Sup	Sup	Sup	Imp (June)	E. coli	
Unnamed Ditch (Branch A of JD21)	556	Unnamed ditch to Unnamed ditch	5.72	1	IF	IF	IF	IF	IF	IF	IF		
Unnamed Ditch	557	Unnamed ditch to unnamed ditch	7	2	Sup	PI	IF	IF	IF	IF	IF		
Unnamed Ditch (Marshall CD 35)	558	Unnamed ditch to Thief River	2.33	1	PI	IF	IF	IF	IF	IF	IF		
Unnamed Ditch (Br 2 JD11)	559	Headwaters to Mud Lk	6.3	1	Sup	PI	IF	IF	IF	IF	IF		
IF	Insufficient data. Either there is no data, or the data doesn't meet minimum requirements for an assessment.												
IF concern	Insufficient data to assess the reach, but some of values collected fail to meet the water quality standard. Target this reach for additional monitoring.												
PI	2005-2014 data indicates that the reach is not meeting the standard for this parameter, but it the reach is not officially listed as impaired.												
Imp	The reach is officially listed as impaired for this parameter.												
Sup	Current data indicates that the reach is meeting the standard for this parameter.												

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Thief River Watershed Assessment Units with No Data			
<u>River/Stream/Ditch Name</u>	<u>AUID</u>	<u>Reach Description</u>	<u>Miles</u>
Thief River	09020304-502	Agassiz Pool below Mud R	3.26
Thief River (Agassiz Pool)	09020304-503	Agassiz Pool above Mud R	5.96
Mud River (Agassiz Pool)	09020304-508	Agassiz Pool portion	10.66
County Ditch 20	09020304-514	Unnamed ditch along CSAH 54 to CD 32	0.49
County Ditch 20	09020304-516	CD 31 to Unnamed ditch	2
County Ditch 22	09020304-518	Unnamed ditch to Unnamed ditch	3.51
Unnamed Ditch (Moose R Impoundment)	09020304-520	Unnamed ditch to unnamed ditch	1.01
Judicial Ditch 11	09020304-523	Unnamed ditch to Unnamed ditch (Carmel Rd)	0.99
Judicial Ditch 11	09020304-524	Unnamed ditch to Unnamed ditch (Carmel Rd to Outpost Rd)	1.96
Unnamed Ditch (Br55 JD11, Hwy 54 Road Ditch)	09020304-528	Unnamed ditch (Br 95 JD11, 330th St NE) to unnamed ditch (Br 51 JD11, 340th St	0.8
Unnamed Ditch	09020304-529	Unnamed ditch to unnamed ditch	2
Unnamed Ditch	09020304-530	Unnamed ditch to Mud R	1.54
Unnamed Ditch	09020304-531	Unnamed ditch to Lost R	0.84
Unnamed Ditch	09020304-532	Lost R to Unnamed ditch	2.67
Unnamed Ditch	09020304-533	Unnamed ditch to Unnamed ditch	2.47
Judicial Ditch 11 (Lost River Pool)	09020304-535	Unnamed ditch (Mud River) to unnamed ditch (Br 194 JD11)	4
Judicial Ditch 13	09020304-538	Unnamed ditch (195th St NE) to Unnamed ditch (200th St NE)	0.5
Judicial Ditch 13	09020304-539	Unnamed ditch to T154 R40W S15, west	1.01
Unnamed Ditch (Mud River Pool)	09020304-542	Unnamed ditch to Mud R (Agassiz Pool)	2.33
Webster Creek	09020304-544	Unnamed ditch to Agassiz Pool	4.47
Webster Creek (Agassiz Pool)	09020304-545	Agassiz Pool portion to Mud R	2.24
County Ditch 21	09020304-547	Unnamed ditch to Unnamed ditch	0.48
Unnamed ditch (Br 1 CD20)	09020304-553	CD 27 to CD 20	1.43
Totals:		23 Reaches	56.62

- Task 3 – Continuous Dissolved Oxygen Data
 - USGS staff provided RLWD staff with continuous dissolved oxygen data that was collected in and around Agassiz National Wildlife Refuge.
- Task 5 – Flow Monitoring
 - Check-ups of HOB0 water level loggers were conducted. The loggers were cleaned and data was downloaded to make sure they were working properly.

- Task 6 – Stream Channel Stability Assessment
 - MN DNR staff completed a draft geomorphology report for the Thief River watershed.
 - The RLWD Water Quality Coordinator read and provided feedback on a draft version of the Thief River watershed Fluvial Geomorphology Report.
- Task 8 – HSPF Water Quality Modeling
 - MPCA modeling staff provided RLWD staff with some more modeling results.
 - Best Management Practice scenarios will be simulated with the Thief River Watershed HSPF Model in order to predict their effectiveness for making water quality improvements. An essential best management practice to model will be the improvement of riparian buffers, especially now that the buffers will be required by law. MPCA modeling staff will be conducting the modeling.
- Task 10 – Data Analysis
 - Mann-Kendall Trend analysis (annual and seasonal) was conducted for total suspended solids, E. coli, dissolved oxygen, and total phosphorus levels at long-term monitoring sites.
- Task 13 – Reports
 - A semi-annual progress report for the Thief River WRAP project was completed and submitted to the MPCA Project Manager.
 - RLWD staff worked on writing the Watershed Restoration and Protection Strategies report, particularly on the section dealing with water quality trends and the creation of maps for use in the report.

Grand Marais Creek Watershed Restoration and Protection Project

- Check-ups of HOBO water level loggers were conducted. The loggers were cleaned and data was downloaded to make sure they were working properly.
- A semi-annual progress report for the Grand Marais Creek WRAP project was completed and submitted to the MPCA Project Manager.
- RLWD staff requested 2014 continuous dissolved oxygen data from MPCA staff. This data was collected in 2014 as part of a stressor identification process. The results are summarized in the Grand Marais Creek Watershed biotic Stressor Identification Project Report, but the data will also be useful when analyzing data for the TMDL reports. Emmons and Olivier Resources, Inc. staff spent some time reviewing the data.

Clearwater River Watershed Restoration and Protection (WRAP) Project

- Objective 2 – Water Quality Sampling
 - Pre-9am dissolved oxygen readings were collected at the Terrebonne Bridge crossing of the Clearwater River and the Lost River north of Brooks.
 - Mid-deployment samples were collected at dissolved oxygen logger deployment sites. This data will not only provide more information for the assessment process, but will help identify pollutants of concern at sites that end up needing TMDLs written for dissolved oxygen impairments.

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- High E. coli was found in:
 - Lost River at CSAH 28
 - Terrebonne Creek (twice)
 - Judicial Ditch 73 by Rydell NWR (a total of five high levels recorded in July)
- High total phosphorus concentrations (relative to the State's proposed 0.05 mg/l and 0.10 mg/l standards) were found in:
 - Clearwater River at CR 127
 - Hill River at 335th Avenue SE (twice)
 - Lost River at CR 119, north of Brooks
 - Clearwater River at CSAH 2
- Objective 3 – Flow Monitoring
 - Check-ups of HOBO water level loggers were conducted. The loggers were cleaned and data was downloaded to make sure they were working properly.
 - 6.26 CFS of flow was measured in the Poplar River at CSAH 30 near Fosston.
 - 2.59 CFS of flow was measured in JD73 near Rydell NWR..
- Objective 4 – Continuous Dissolved Oxygen Monitoring
 - Dissolved oxygen loggers were deployed at 9 sites from the beginning of May through the middle of July. This report includes some observations of raw (not yet corrected for fouling and calibration drift) dissolved oxygen records from July 2nd through July 29th.
 - Lower Badger Creek at CR114
 - Dissolved oxygen levels fell below 5 mg/l on a total of 5 days during the two deployments that were completed during the month of July.
 - Terrebonne Creek at Hwy 92
 - There were a few days during each of the two July deployments in which dissolved oxygen levels fell below 5 mg/l.
 - Judicial Ditch 73 by Rydell National Wildlife Refuge
 - Dissolved oxygen levels regularly dipped below 5 mg/l throughout the month of July.
 - Hill River at 335th Ave
 - The last two days of the first deployment had low dissolved oxygen readings. The second deployment in May had very low dissolved oxygen readings.
 - Clearwater River at CSAH 2
 - There were just a few days in which dissolved oxygen levels dropped below 5 mg/l.
 - Lost River at CSAH 28
 - Dissolved oxygen levels frequently dropped below 5 mg/l at this site throughout the month of July.
 - Clearwater River at County Road 127
 - Only one day during each July deployment dropped below 5 mg/l.

- Hill River at County Road 119, north of Brooks
 - Dissolved oxygen levels stayed above the 5 mg/l threshold throughout both July deployments.
- Lost River at County Road 119, north of Brooks
 - There were only a few days in which dissolved oxygen levels dropped below 5 mg/l.
- After the mid-point of the monitoring season (after the 5th deployment), the HOBO dissolved oxygen logger deployed in the Lost River at CR 119 north of Brooks was moved to the CR 114 crossing of Beau Gerlot Creek. A logger could either have been moved from a site where an impairment is evident or a site where it has been proven that a site is meeting the dissolved oxygen water quality standard. The decision was made to move a logger from a high quality site because the reaches on which dissolved oxygen impairments have been discovered (like Judicial Ditch 73) will need as much paired dissolved oxygen and sampling data as possible in order to identify a pollutant that is negatively affecting dissolved oxygen.
 - Dissolved oxygen levels in the Lost River near Brooks have been proven to be sufficient to meet the water quality standard. The site is also close enough to the RLWD office to allow for pre-9am dissolved oxygen measurements in 2014 and some additional pre-9am measurements in 2015.
 - Deploying a dissolved oxygen logger in an additional significant tributary of the Clearwater River will improve the completeness of the official water quality assessment that will be conducted in early 2016 using 2006-2015 monitoring data. Dissolved oxygen will be continuously monitored in Beau Gerlot Creek from mid-July through the end of September.
 - All of the dissolved oxygen levels measured during the first deployment (July 17-29) of a dissolved oxygen logger in Beau Gerlot Creek were above 5 mg/l.

Dissolved oxygen logger deployment pipe in Beau Gerlot Creek at CR 114



- - Objective 6 – Stressor and Pollutant Source Identification
 - A reach of the Clearwater River where it transitions from the channelized reach to a natural meandering channel was traveled via kayak to look for erosion and other problems that could be negatively affecting water quality on July 27th. The route began at County Road 127 and ended Cattle along the river, a large beaver dam, some eroding stream banks, log jams, a large rip-rap project, and a stream barb erosion control project were noted along the route.



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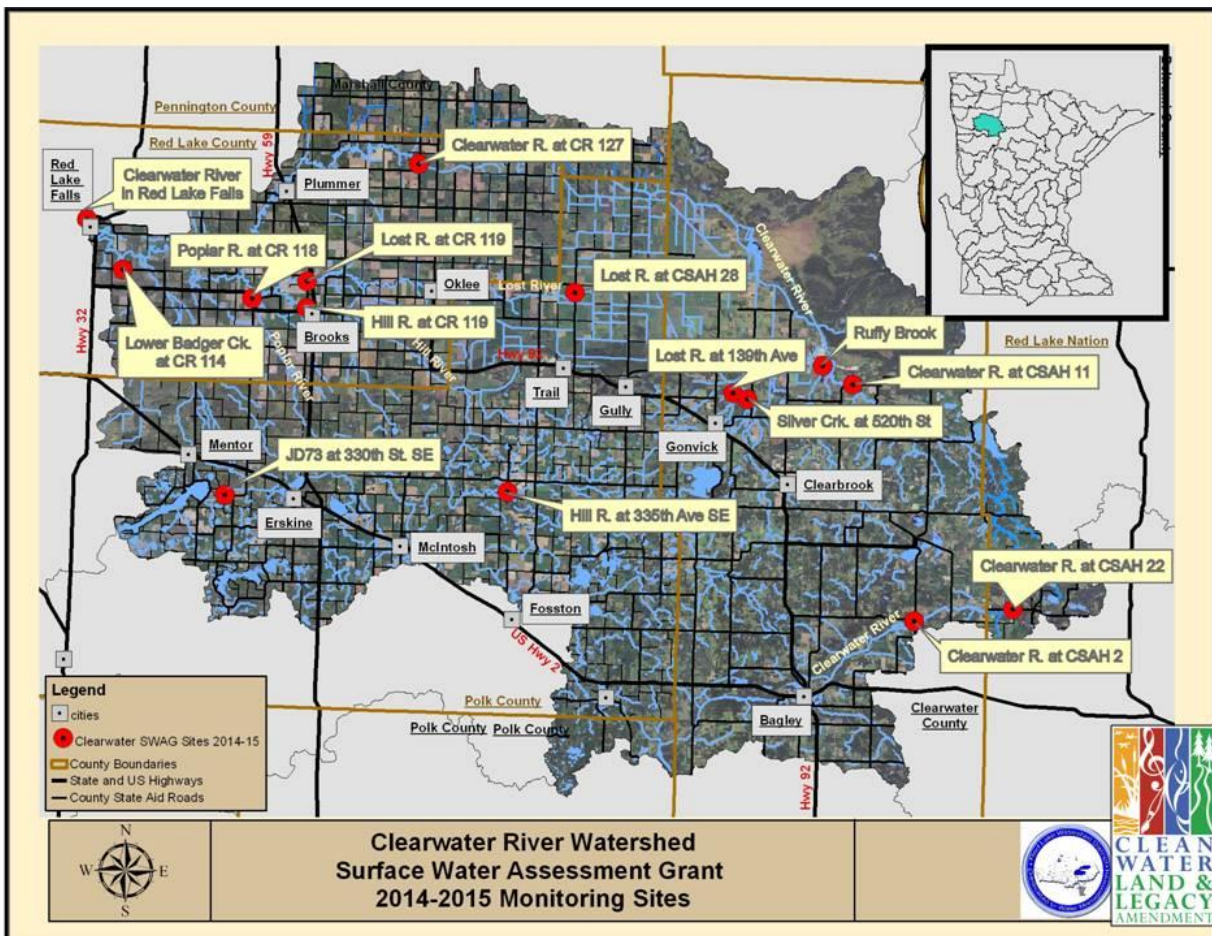
- Objective 9 – Civic Engagement
 - Clearwater River Watershed information can be found at:
<http://www.rlwdwatersheds.org/cw-watershed>
- Objective 10 – Reports
 - A semi-annual progress report for the Clearwater River WRAP project was completed and submitted to the MPCA Project Manager.

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Clearwater River Surface Water Assessment Grant (SWAG)

Red Lake County, Clearwater County, and East Polk County Soil and Water Conservation staff continued sampling for the Clearwater River SWAG in the month of July. Two rounds of samples are being collected at sites in each month of June, July, and August in 2015. Most of the sampling collection in the second year of the SWAG will be limited to E. coli bacteria. The Clearwater River in Red Lake Falls is being sampled for chlorophyll-a and nutrients. The SWAG project will pay for staff time, supplies, shipping, and laboratory analysis of samples.



Significant rainfall events on July 5th and 6th of 2015 may have resulted in some higher levels of pollutants in the samples collected during that week.

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

- Judicial Ditch 73 by Rydell National Wildlife Refuge (a total of five high levels recorded in July)
- Hill River at 335th Avenue SE (twice)
- Hill River at CR 119, north of Brooks (four times)
- Poplar River at CR 118 (twice)

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High E. coli concentrations (continued):

- Lower Badger Creek at CR 114
- Lost River at 139th Avenue (twice)
- Silver Creek at 520th Street (twice)
- Ruffy Brook near the Township Road 5 and 189th Avenue intersection (twice)
- Clearwater River at CSAH 22 (this is a site we don't see on this list very often)

High total phosphorus concentrations (relative to the State's proposed 0.05 mg/l and 0.10 mg/l standards) were found in:

- Hill River at CR 119
- Clearwater River at CSAH 2
- Clearwater River at CR 127 (twice)
- Judicial Ditch 73 by Rydell National Wildlife Refuge
- Hill River at 335th Avenue SE (twice)
- Clearwater River in Red Lake Falls (twice)
- Lost River at CSAH 28

Other Notes

- A new Eureka Manta multi-parameter sonde was ordered.
- Bemidji Pioneer newspaper staff wrote an article about waterborne illnesses that included some (only slightly misquoted) interview quotes from RLWD staff:
<http://www.bemidjipioneer.com/news/local/3784020-state-stresses-water-safety-despite-low-amoeba-infection-risk>
- The Moose River Impoundment was discharging water during the week of July 6th – 10th. It was reported again on July 20th that the pools were pretty full and the impoundment will be discharging for a while (to the Moose and Mud Rivers).
- A large beaver dam was discovered at the Spring Gravel Dam stream restoration site. The dam will be removed. Future maintenance will be discussed with project stakeholders.
- The International Water Institute released a July 2015 issue of their River Rendezvous Newsletter: http://www.iwinst.org/wp-content/uploads/2015/07/RWRendez_Issue_July_2015.pdf
- Water quality related topics from the July 9, 2015 RLWD Board of Managers meeting:
 - Manager Coe discussed a potential partnering with Hines Township with the repair of the outlet structure located at the outlet of Blackduck Lake. The outlet structure along with the fish passage has deteriorated and is no longer functioning and the township does not have the funds to repair. Manager Coe will report back at a future board meeting regarding his discussions with potential partners.

July Meetings/Events

- **July 1, 2015** – One Watershed One Plan LGU Planning meeting at the Pennington County SWCD
- **July 8, 2015** – Marshall County Water Resources Advisory Committee Meeting at Florian Park.
 - Josh Johnston, Marshall County Environmental Service, has taken over retired Water Plan Coordinator Jan Kaspari's duties. The Marshall County Water Plan Coordinator, Zoning Administrator, and Marshall County Environmental Services positions are now combined into one.
 - The Governor's Riparian Buffer Bill was discussed.
 - Public waters maps are available.
 - Ditches with perennial flow will likely need buffers.
 - The rule may not apply to fiend ditches and ditches that only flow intermittently.
 - Private ditches may need buffers if they dump directly into a public ditch and have perennial flow
 - Landowners understand the importance of buffers, but are unhappy that they have to pay the same rate of taxes on land that they can't use.
 - A grant application is being written for an educational Marshall Kittson hiking and biking trail that will connect the Old Mill, Florian, and Lake Bronson parks. The Trail will also connect the towns of Viking, Karlstad, and Halma, along the planned route.
 - The Marshall County SWCD has hired Darren Carlson.
- **July 9, 2015** – One Watershed One Plan LGU planning meeting in Red Lake Falls.
- **July 15, 2015** – One Watershed One Plan Technical Advisory Committee and Citizens' Advisory Committee Meetings

Upcoming Meetings/Events

- **September 2015** – Pennington County Outdoor Education Day
- **September 2015** – Northwest Minnesota Water Festival in Fertile and Warren
- **September 2015** – Thief River Open House Meeting
- **September 9, 2015** – One Watershed One Plan meeting
- **September 14, 2015** - Pennington County Water Resource Advisory Committee Meeting, 9AM at the Pennington County SWCD
- **September 16, 2015** – Pennington County Outdoor Education Day
- **September 22, 2015** – Northwest Minnesota Water Festival in Warren
- **September 23, 2015** – Northwest Minnesota Water Festival in Fertile.
- **September 25, 2015** – Red River Basin Monitoring Advisory Committee Meeting, Sand Hill Watershed District, Fertile, 9:30 AM
- **October 2015** – Creation and distribution of a Red Lake River newsletter.
- **November 4, 2015** – Marshall County Water Resources Advisory Committee Meeting

RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

July 2015

- **December 31, 2015** – End date for the Thief River Watershed Restoration and Protection Project (extended from June 30, 2015).
- **December 31, 2015** – Deadline for Red Lake River Watershed TMDL and WRAPS reports
- **June 30, 2016** – End date for the Red Lake River Watershed Restoration and Protection Project (extended from June 30, 2015)

Plans for the rest of 2015

- Thief River Watershed Restoration and Protection Project.
 - Creating Stream Power Index maps.
 - Maps of HSPF model results
 - Flow characterization and load calculations
 - Pollutant identification for reaches with dissolved oxygen impairments
 - Restoration and Protection Strategies
 - Complete a draft Thief River Watershed TMDL Report
 - Complete a draft Thief River Watershed Restoration and Protection Strategy Report
 - Technical Advisory meeting to review TMDL and WRAPS reports
 - Edit TMDL and WRAPS reports based on comments during the review process.
- Red Lake River Watershed Assessment Project
 - Continuous dissolved oxygen monitoring in the Black River and in Burnham Creek
 - Compile and correct the dissolved oxygen records from those two sites after the end of the monitoring season.
 - Creating Stream Power Index maps.
 - Flow characterization
 - Provide input during the assessment process
 - Complete a draft Red River Watershed TMDL Report
 - Complete a draft Red River Watershed Restoration and Protection Strategy Report
 - Technical Advisory meeting to review TMDL and WRAPS reports
- Clearwater River Watershed Restoration and Protection Project
 - Write a short report on existing data, conditions, and knowledge of the watershed (summarizations of existing reports).
 - Stage and flow measurements at sites where HOB0 water level loggers are deployed.
 - Continuous dissolved oxygen data collection at a minimum of 9 sites. Consider moving sondes to new sites midway through the monitoring season if aquatic life support is verified.
 - Move dissolved oxygen loggers to new sites if aquatic life support is proven during the first half of the monitoring season.
 - Water quality sampling.
 - Dissolved oxygen data compilation after the monitoring season.

**RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT**

July 2015

- Continuous dissolved oxygen data will be summarized and submitted to the MPCA so that it can be used in the upcoming water quality assessment.
 - o Data entry and submittal to EQUIS
 - o Stage and flow data compilation.
- Grand Marais Creek Watershed Restoration and Protection project
 - o Process stage data collected through the middle of the summer.
 - o Technical advisory committee and public open house meetings.
 - o Emmons and Olivier Resources staff will work on writing the TMDL and WRAPS reports.
- Sampling and monitoring dissolved oxygen in the Mud River in Grygla in an attempt to better understand the blue-green algae problem that was discovered last fall. Abraxis blue-green algae testing kits were ordered.
- Continue sampling Chief's Coulee and investigating the high E. coli and diesel range organic levels that have been recorded there.
- The third round of the District's long-term monitoring program will be conducted in August.
- The fourth round of the District's long-term monitoring program will be conducted in October.

Quote of the Month:

“Work is not a man's punishment. It is his reward and his strength and his pleasure.”

– George Sand

Red Lake Watershed District Monthly Water Quality Reports are available online at:
<http://www.redlakewatershed.org/monthwq.html>.

Learn more about your watershed at: <http://www.rlwdwatersheds.org/>

“Like” the Red Lake Watershed District on [Facebook](#) to stay up-to-date on RLWD reports and activities.