

RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

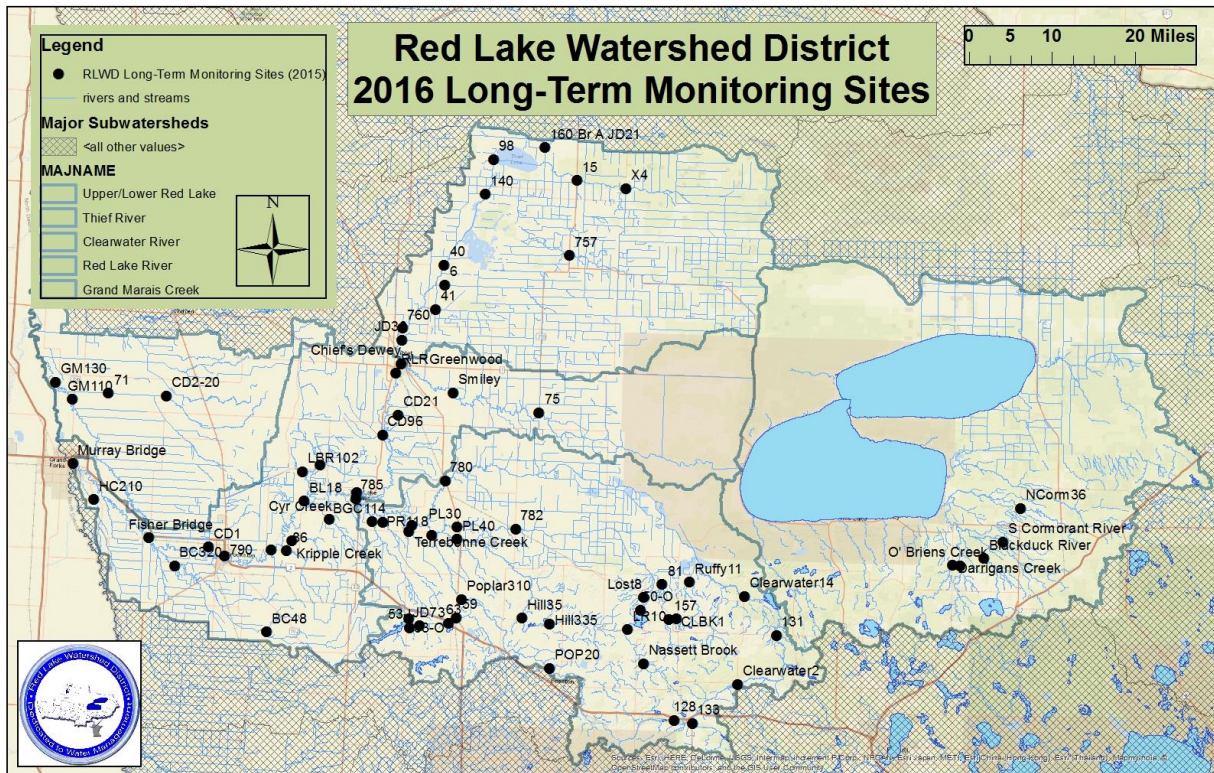
April 2016

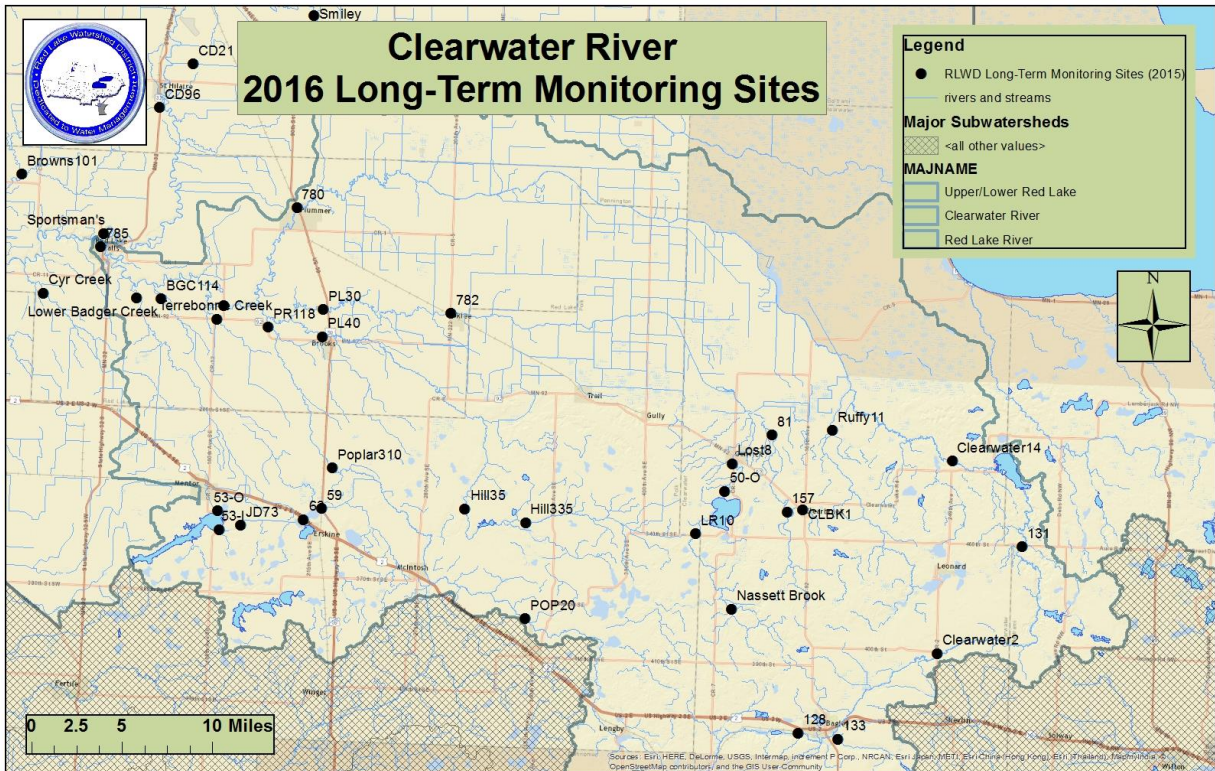
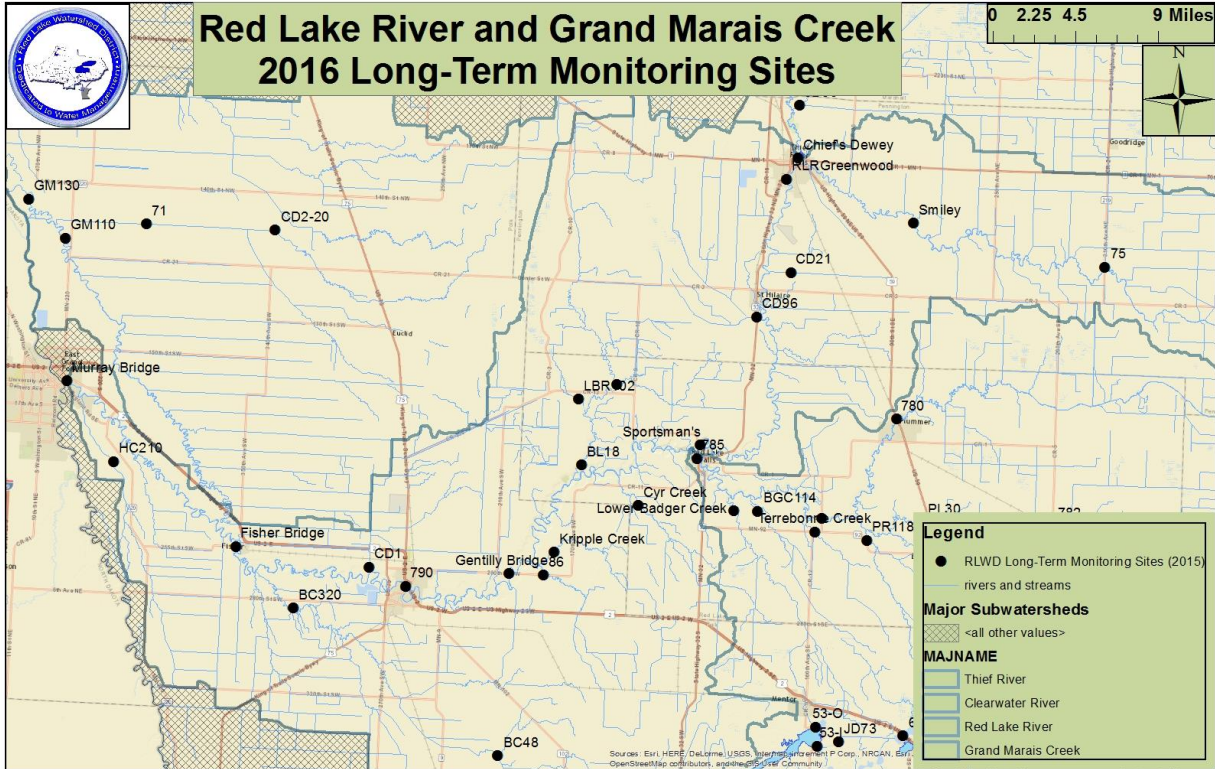
By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 11/15/2016.

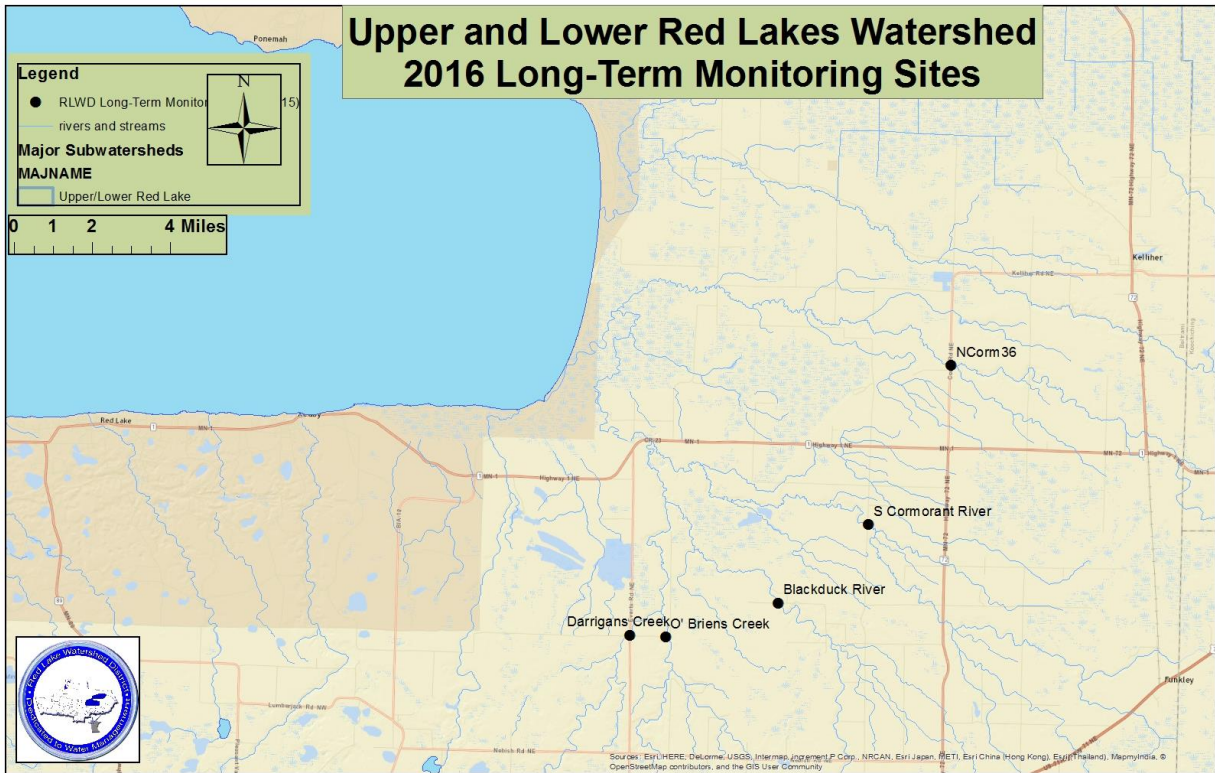
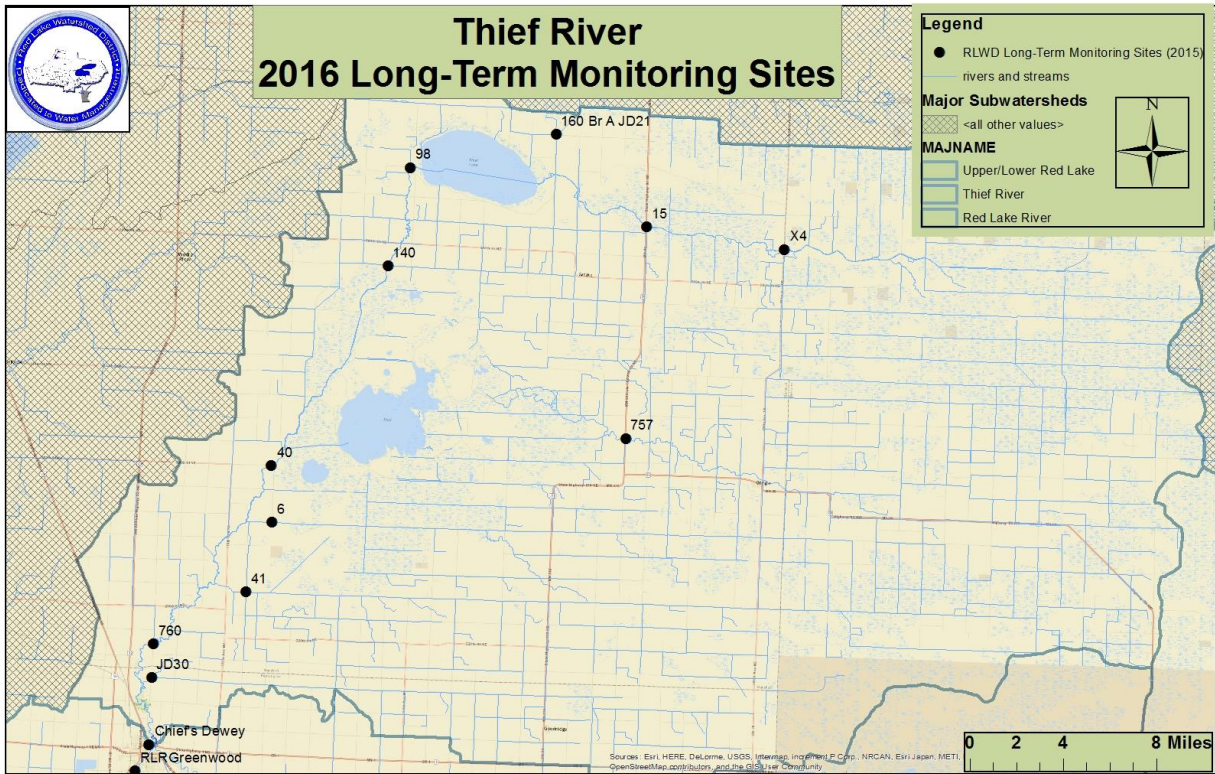
- ✓ Watershed Restoration and Protection project updates
- ✓ Long-Term Monitoring
- ✓ Maps

Long-Term Monitoring

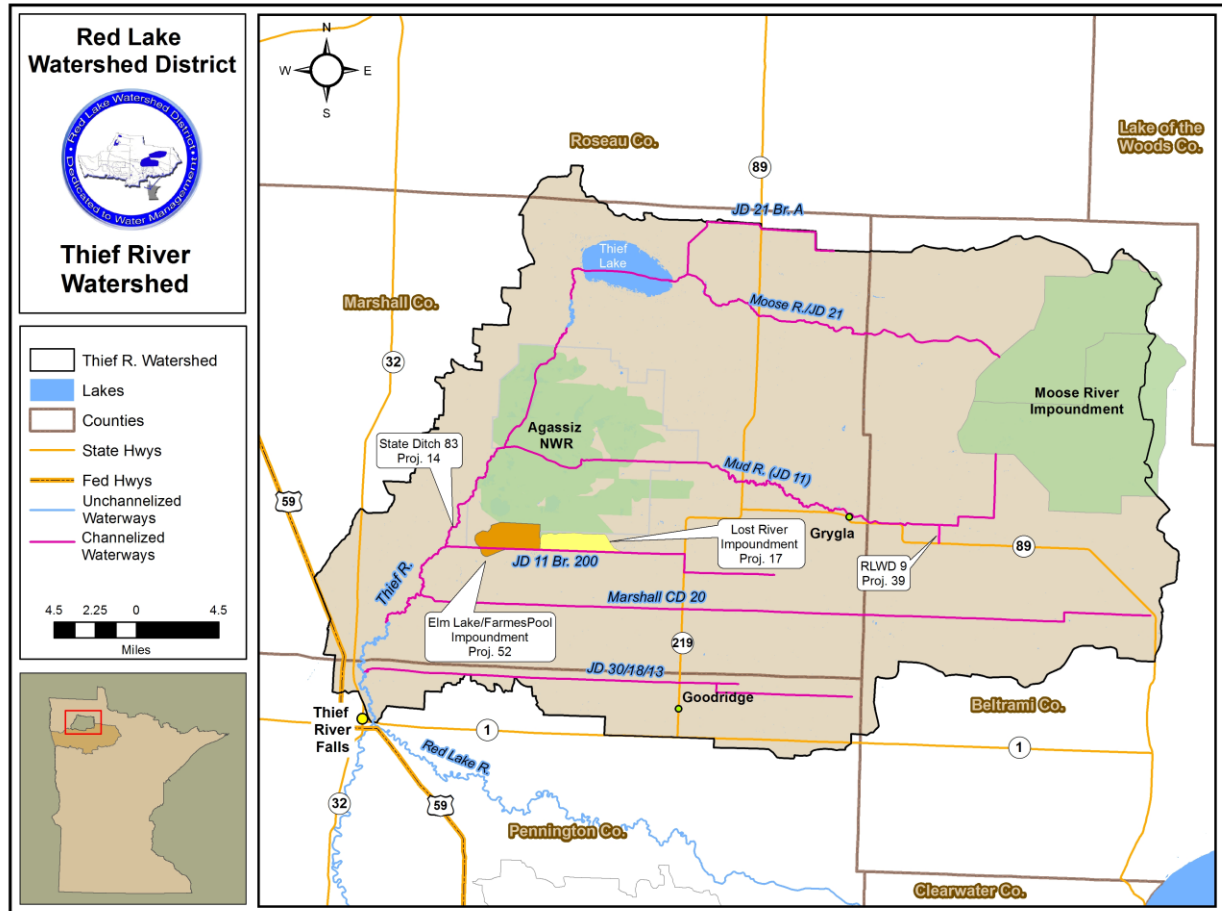
A checklist of monitoring sites and a revised map were created in preparation for the start of the 2016 water quality monitoring season. Sites have been added or moved to more strategically collect data from as many assessment units (reaches of rivers, streams, and ditches – delineated by the MPCA for assessment purposes) as possible. The Minnesota Pollution Control Agency has split reaches so that channelized reaches can be assessed separately from natural reaches (particularly for the assessments of aquatic biology). Generally, monitoring sites are located near the pour points (downstream ends) of rivers, streams, and ditches. There are examples (Clearwater River) in which a reach was well represented by a monitoring site near the downstream end prior to a split, but an additional site may be needed after the split. The upstream reach may not have been as intensively monitored and may have insufficient data. Monitoring sites may be added to the newly split reaches that are lacking data.







Thief River Watershed Restoration and Protection (WRAP) Project

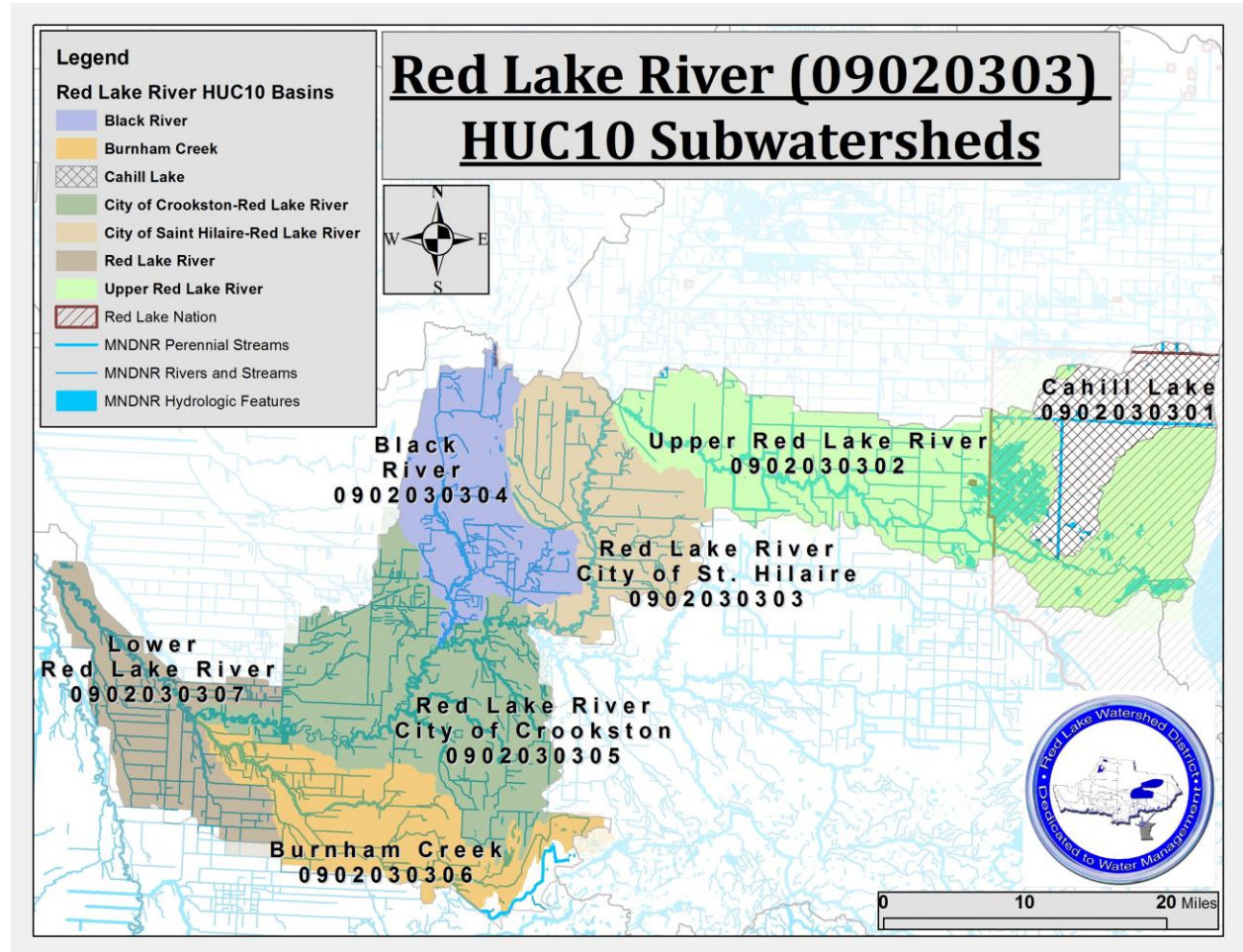


- Task 13 – Reports
 - A draft of the Thief River Watershed Restoration and Protection Strategy Report was completed.
 - Edits were made to the draft Thief River Watershed Total Maximum Daily Load report.

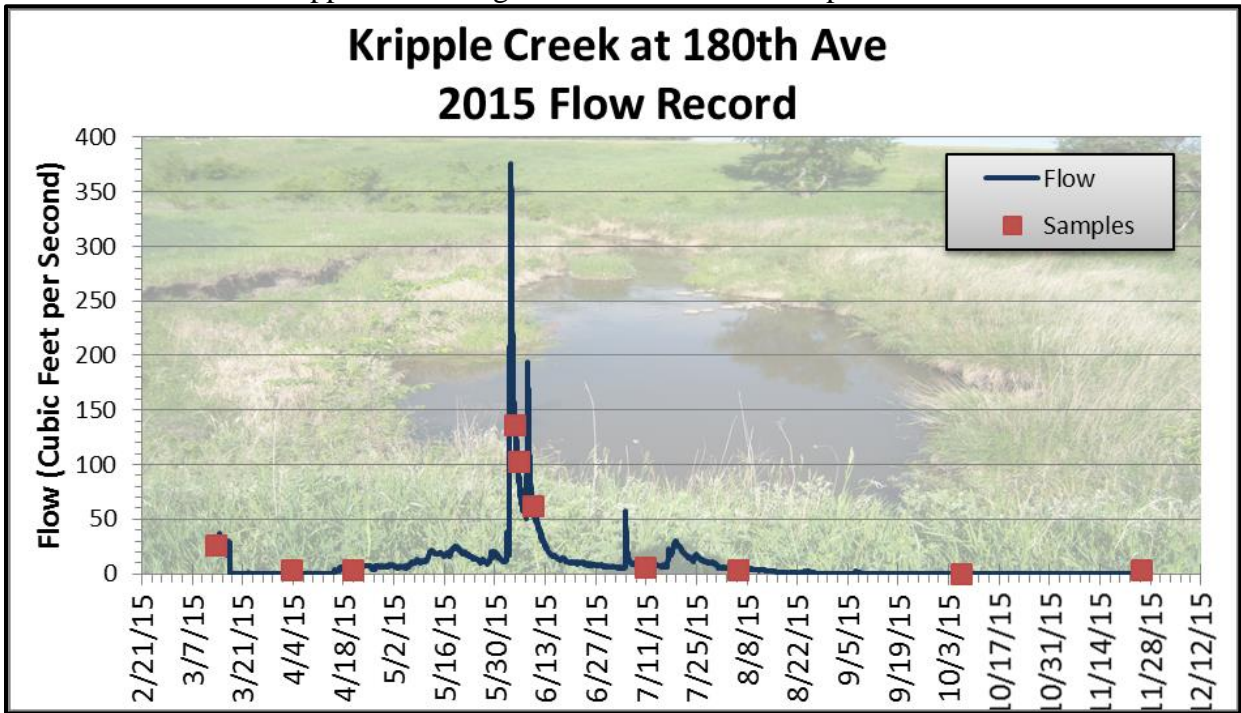
Clearwater River Watershed Restoration and Protection (WRAP) Project

- Phase II of the Clearwater River WRAP officially began on April 18, 2016.

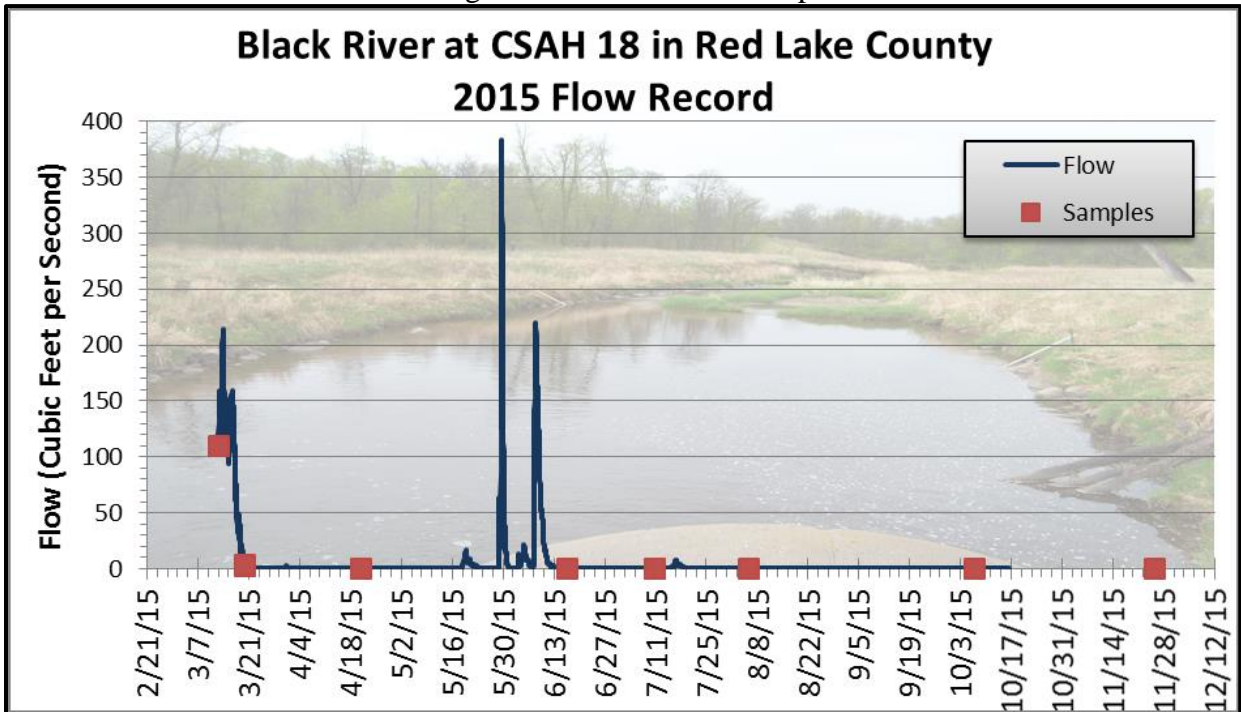
Red Lake River Watershed Assessment Project (Watershed Restoration and Protection - WRAP)



- Task 5 – Flow Monitoring
 - 2015 Kripple Creek stage and flow data was compiled.

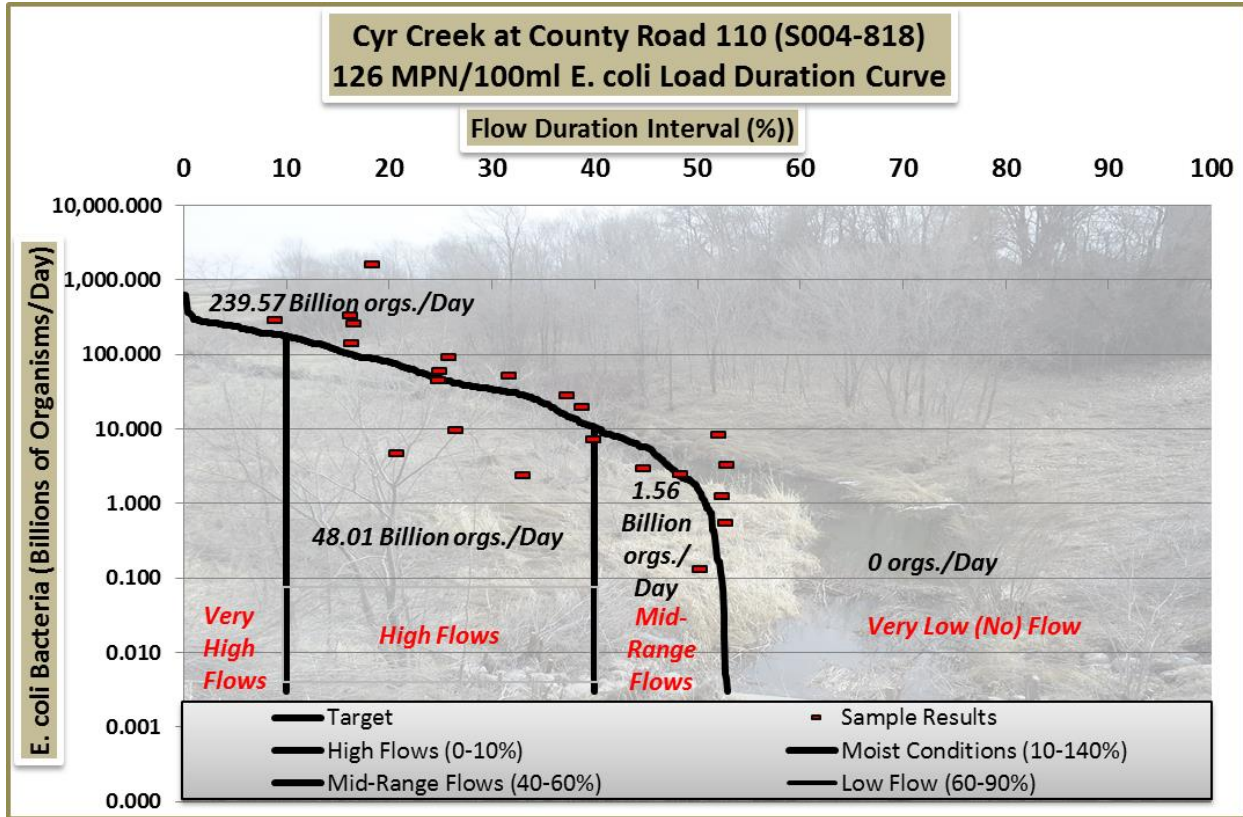


- 2015 Black River stage and flow data was compiled.



- Task 9 – Data Analysis
 - MPCA staff provided the RLWD with water quality data that was simulated by the Red Lake River HSPF Model for the years 1996-2009.

- TMDL loading capacity and load allocations were calculated for the E. coli impairment of lower reach of Cyr Creek (09020303-556). Reductions of E. coli pollution are primarily needed during mid-range flows (94.4% reduction), but also during high flows (16.5% reduction).

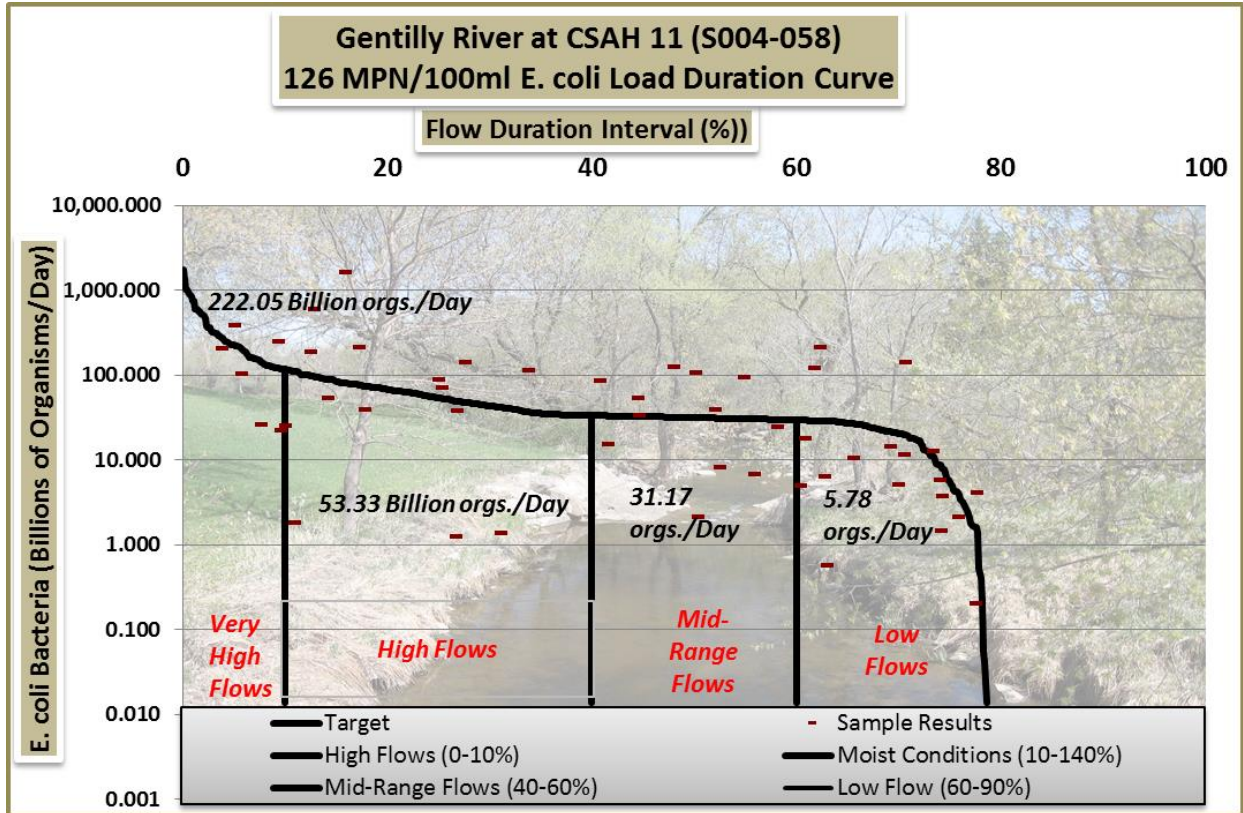


Cyr Creek (09020303-556)	Very High Flows	High Flow	Mid-Range Flows	Low Flows	Very Low (No) Flow	Total
Annual E. coli Load Reductions						
Current Daily Load (Billion Orgs/Day)	83.68	51.74	25.13	-	-	--
Load Allocation (Billion Orgs/Day)	215.61	43.21	1.40	-	-	--
Load reduction (Billion Orgs/Day)	-	8.53	23.73	-	-	--
% of Flows Represented	10%	30%	20%	30%	10%	100%
# of Days Represented	36.50	109.50	73.00	109.50	36.50	365.00
Annual Load Reduction (Billion Orgs./yr.)	-	934.03	1,732.21	-	-	2,666.24
Total Current Load	3054.4283	5665.18654	1834.72288	0	0	10554.3377
Percent Reduction	0.0%	16.5%	0.0%	0.0%	0.0%	25.3%

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- TMDL loading capacity and load allocations were calculated for the E. coli impairment of lower reach of the Gentilly River (09020303-554). E. coli pollution reductions are needed during low, mid-range, and high flow conditions.

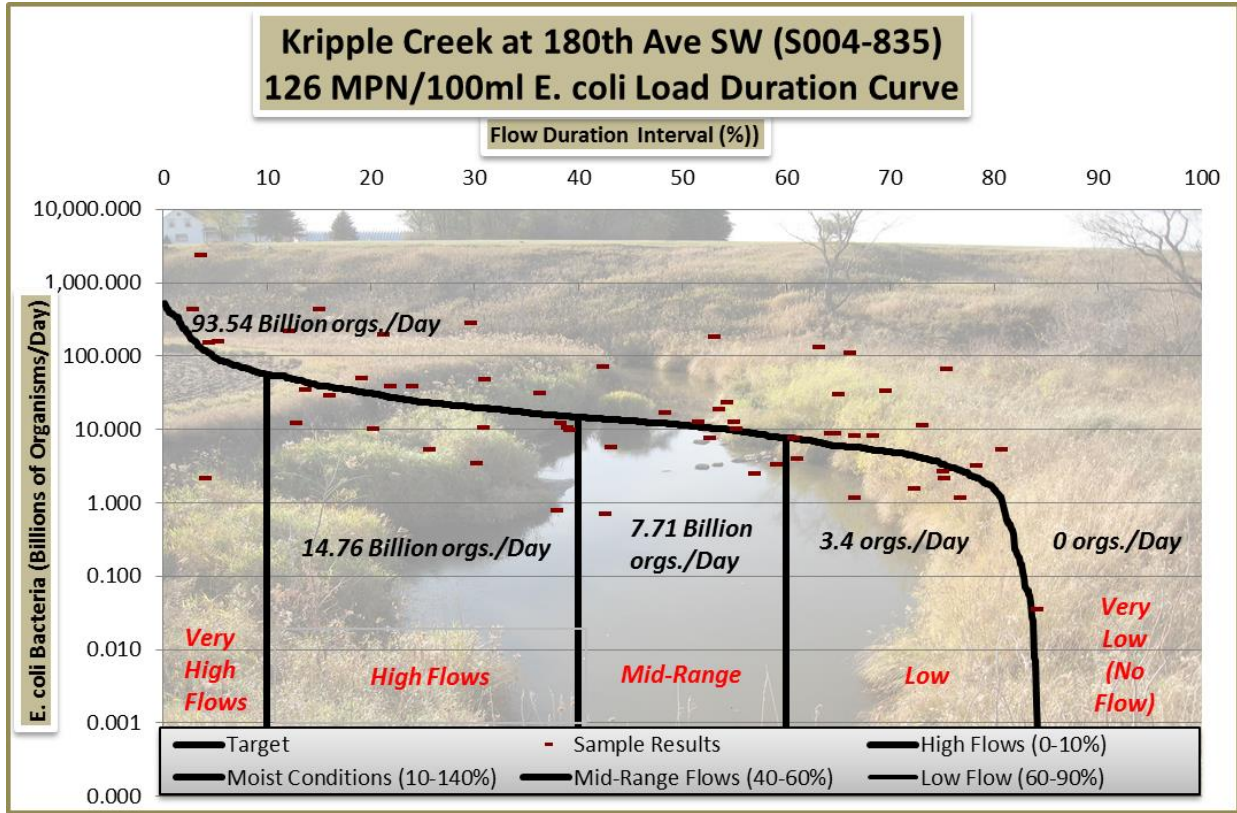


Gentilly River (09020303-554)	Very High Flows	High Flow	Mid-Range Flows	Low Flows	Very Low (No) Flow	Total
Annual E. coli Load Reductions						
Current Daily Load (tons/day)	144.70	225.81	46.07	22.63	-	--
Load Allocation (tons/day)	199.84	48.00	28.05	5.20	-	--
Load reduction (tons/day)	-	177.82	18.01	17.43	-	--
% of Flows Represented	10%	30%	20%	19%	21%	100%
# of Days Represented	36.50	109.50	73.00	68.33	0.21	287.54
Annual Load Reduction (tons/year)	-	19,470.86	1,315.04	1,190.91	-	21,976.80
Total Current Load	5,281.69	24,726.72	3,362.85	1,546.13	0	34,917.39
Percent Reduction	0.0%	78.7%	39.1%	77.0%	0.0%	62.9%

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- TMDL loading capacity and load allocations were calculated for the E. coli impairment of lower reach of Kripple Creek (09020303-525). Reduction of E. coli pollution is needed throughout the range of flows that have been recorded in Kripple Creek.

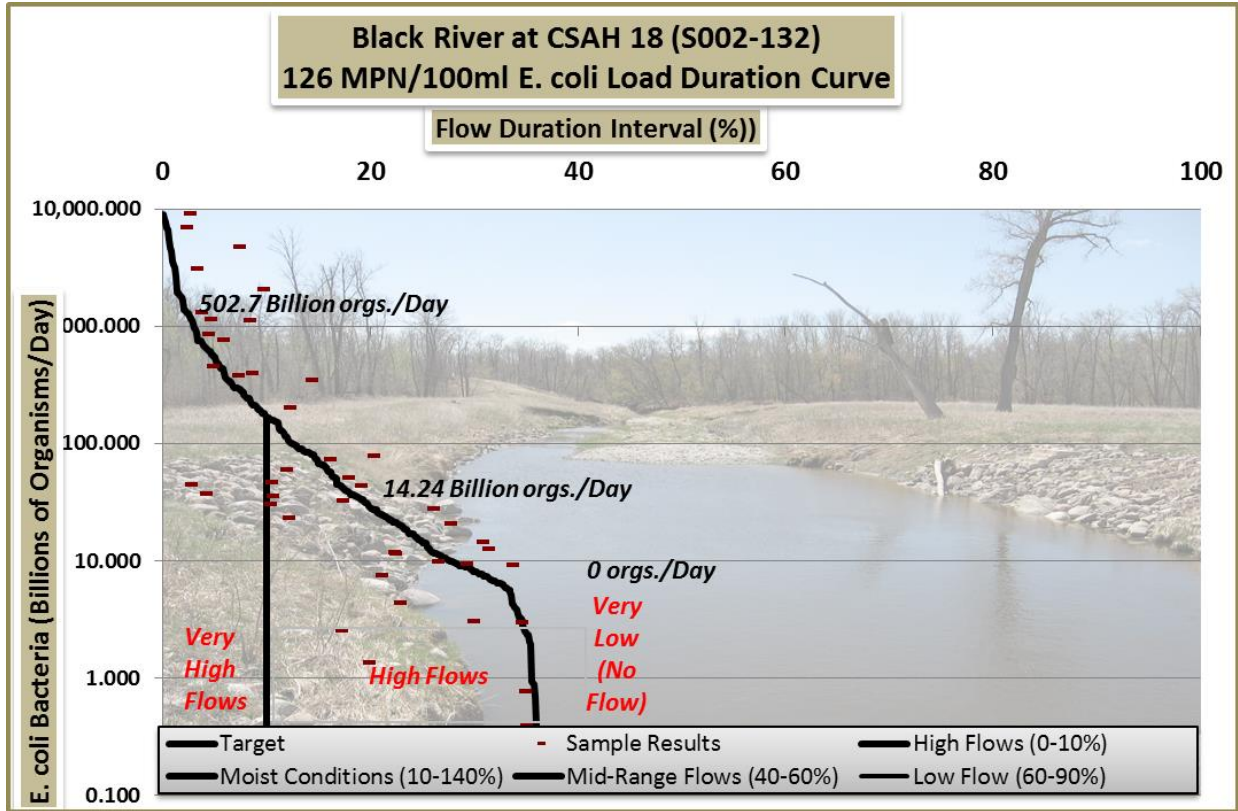


Kripple Creek (09020303-525 at S004-835)		Very High Flows	High Flow	Mid-Range Flows	Low Flows	Very Low (No) Flow	Total
Annual E. coli Load Reductions							
Current Daily Load (tons/day)	626.59	74.22	28.57	22.66	0.00	--	--
Load Allocation (tons/day)	84.18	21.23	10.32	3.06	0.00	--	--
Load reduction (tons/day)	542.41	52.99	18.25	19.60	0.00	--	--
% of Flows Represented	10%	30%	20%	30%	10%	100%	
# of Days Represented	36.5	109.5	73.0	109.5	36.5	365	
Annual Load Reduction (tons/year)	19,797.78	5,802.41	1,332.53	2,146.17	0.0	29,078.90	
Total Current Load	22,870.42	8,126.76	2,085.94	2,480.81	0	35,563.93	
Percent Reduction	86.6%	71.4%	63.9%	86.5%	0.0%	81.8%	

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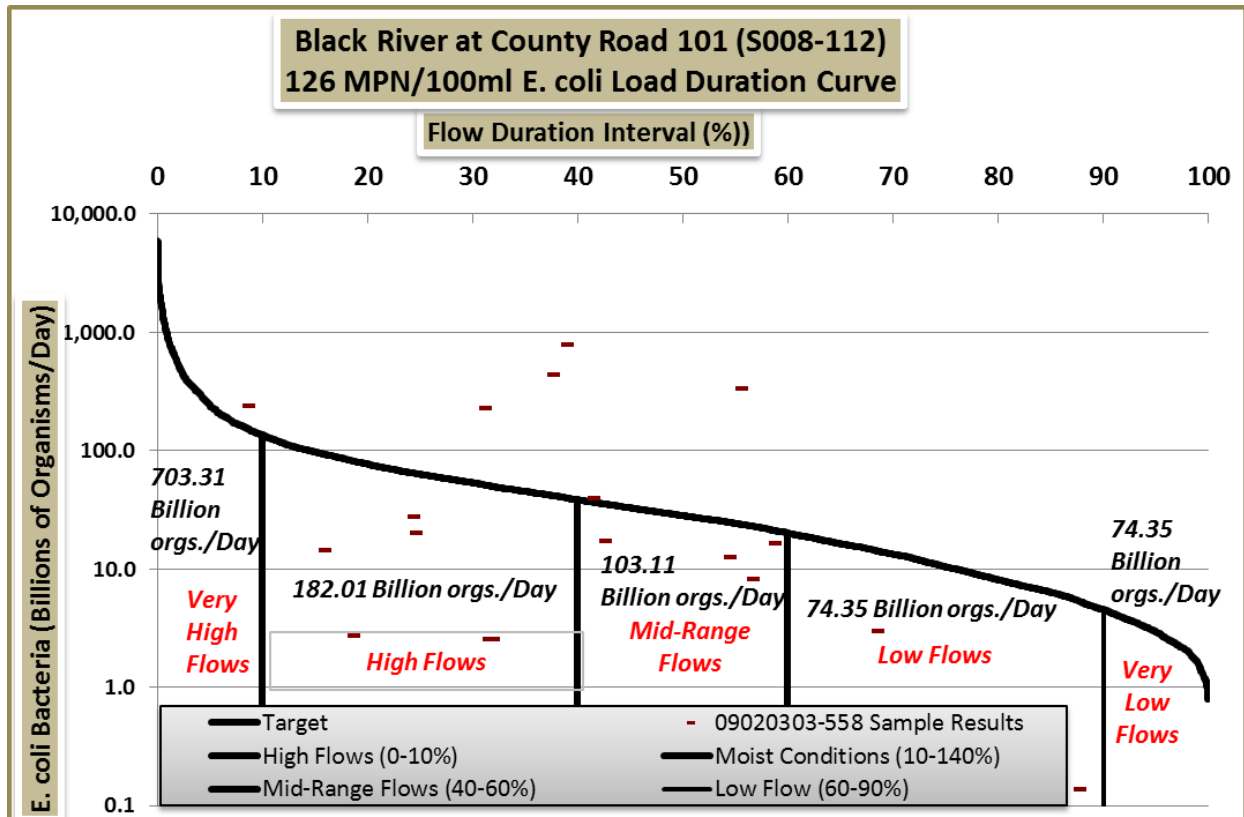
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- TMDL loading capacity and load allocations were calculated for the E. coli impairment of Black River downstream of its confluence with the Little Black River (09020303-529). Load reductions are needed during high and very high flows.



Black River (09020303-529 at S002-132)	Very High Flows	High Flow	No Flow	Total
Annual E. coli Load Reductions				
Current Daily Load (tons/day)	19,686.94	38.00	-	--
Load Allocation (tons/day)	452.43	12.82	-	--
Load reduction (tons/day)	19,234.51	25.18	-	--
% of Flows Represented	10%	26%	64%	100%
# of Days Represented	36.50	96.58	231.92	365.00
Annual Load Reduction (tons/year)	702,059.52	2,432.26	-	704,491.78
Total Current Load	718573.241	3669.99689	0	722243.237
Percent Reduction	97.7%	66.3%	0.0%	97.5%

- TMDL loading capacity and load allocations were calculated for the E. coli impairment of the Black River upstream of the Little Black River confluence (09020303-556). There was insufficient data available to estimate current loads. The E. coli data that is available indicates that high E. coli concentrations are occurring during runoff events.



- Task 12 – Reports
 - RLWD staff worked on producing content for the Red Lake River Watershed Restoration and Protection Strategy and Total Maximum Daily Load Reports.
 - Subwatershed maps for the restoration and protection strategies
 - Text
 - Restoration and protection strategies
 - Impairment map
 - Impairment verification

Grand Marais Creek Watershed Restoration and Protection Project

A Core Team meeting was held on April 13, 2016. Emmons and Olivier Resources, Inc. (EOR) staff made plans to distribute a table in which stakeholders could contribute ideas for restoration and protection projects that should be implemented to restore and protect water quality and

aquatic habitat in the Grand Marais Creek watershed. BMP targeting tools (PTMApp, HSPF model) were discussed. Notable comments from the meeting included:

- There have been times in which water in Grand Marais Creek has smelled like decaying beets. It was coming from fields in which beet tailings were disposed. The fields were supposed to be diked and confined, but pollutants were able to leave the field and flow into the river.
- The vast majority of CRP is in the eastern part of the watershed.
- Incentives should be increased for best management practices and crops that cause less pollution.
- Increasing crop residue and no-till practices may not be popular in the watershed because the residue can plug culverts during spring runoff.
- Cover crops can be difficult to establish in this watershed.
- Provide education and promote technology that will reduce the application of more fertilizer than what is necessary. Anhydrous ammonia, for example, is sometimes applied when the plants (e.g. sunflowers) do not need it.
- Sedimentation is a problem that is limiting habitat. The channel has substrate that could provide good habitat, but it is covered by excess sediment.
- Re-slope ditches and apply the 2-stage ditch design.

RLWD staff reviewed a draft Grand Marais Creek Watershed Total Maximum Daily Load document that was written by EOR staff.

Other Notes

- Red Lake Watershed District and Soil and Water Conservation District (Pennington, Polk, Red Lake) staff spent a significant amount of time reviewing a draft Red Lake River One Watershed One Plan document in April 2016.
- RLWD staff reviewed the 2016 Clearwater County Water Plan, provided comments, and provided a list of project ideas to Nathan Nordlund.
- Water quality related notes from the April 14, 2016 meeting of the RLWD Board of Managers:
 - The Board reviewed correspondence from Superintendent Jim Muckenhirn, South Koochiching Rainy River School District in regard to options for enhancement of a wetland complex on the Northome School Property. Mr. Muckenhirn indicated that he would like to see an educational path around the wetlands for public use and as an education tool.
 - Manager Ose reported on the Marshall County Water Resource Advisory Committee (WRAC) meeting he attended. Marshall County WRAC voted on proceeding with the Thief River 1W1P in the near future. Administrator Jesme stated that the Red Lake River 1W1P will be complete this fall and then the District can proceed with a 1W1P in the Thief River or Clearwater River watershed.

- Water quality related notes from the April 28, 2016 meeting of the RLWD Board of Managers:
 - The Board reviewed a letter of request from the Gully Area Sportsmen's Club for funding assistance to replace a Dissolved Oxygen meter for testing oxygen levels on Pine Lake. Replacement parts are not available for the current meter. Motion by Torgerson, seconded by Coe, to approve the funding assistance with the Gully Area Sportsmen's Club for the purchase of a new Dissolved Oxygen meter in the amount of \$840.00 for testing of oxygen levels in an effort to support water quality on Pine Lake, with the monies coming from the District's Water Quality funds, RLWD Project No. 46. Motion carried.
 - Nathan Nordlund and Nick Phillips, Clearwater SWCD, presented two livestock exclusion projects; one along the Clearwater River and the other along the Lost River. Nordlund stated that landowner Steven Wraa, located in Section 4, Sinclair Township, has completed logging on his property to increase his cattle production. The project would include 1¼ miles of fencing to exclude the cattle from entering the Clearwater River. The total project cost is \$11,698, with a request of \$3,000 from the District's 2016 Erosion Control Funds. The Tom Anderson project, located in Section 25, Pine Lake Township, would exclude cattle along the Lost River, with the installation of fencing and a watering system for an alternative water source. The total project cost is \$9,885.75, with a request of \$3,000 from the District's 2016 Erosion Control Funds. Motion by Tiedemann, seconded by Torgerson, to approve the request of the Clearwater SWCD for funding assistance in the amount of \$3,000 for each of the Steven Wraa Project and the Tom Anderson Project, from the 2016 Erosion Control Funds, RLWD Project No. 164. Motion carried.
- The RLWD Natural Resource Technician created up-to-date maps of the District, showing locations of impoundments and drainage systems (see the end of this report).
- Members of the Red Lake River Corridor Enhancement Joint Powers Board collaborated to submit an application to the Greater Minnesota Regional Parks and Trails Commission to have the Red Lake River Corridor designated as a trail of regional significance.

April 2016 Meetings and Events

- **April 6, 2016** - Marshall County Water Resources Advisory Committee meeting in Newfolden.
 - There was a lot of discussion about a potential One Watershed One Plan process for the Thief River watershed. The group eventually voted to pursue funding for a Thief River One Watershed One Plan project. Members of the committee noted that ditch authorities should be included in the 1W1P process.
 - The Middle-Snake-Tamarac Rivers Watershed District hired two new Technicians: Christina Slowinski and Chris Carlson.
- **April 13, 2016** – Grand Marais Creek Watershed Restoration and Protection Strategy Project Core Team Meeting at the RLWD office.

Plans for 2016

- Thief River Watershed Restoration and Protection Project.
 - Edit TMDL and WRAPS reports based on comments during the review process.
 - Plan a stakeholders' or open house meeting to present findings of the project and the recommendations compiled in the reports.
- Red Lake River Watershed Assessment Project
 - Creating Stream Power Index maps.
 - Complete a draft Red River Watershed TMDL Report
 - Complete a draft Red River WRAPS Report
 - Technical Advisory meeting to review TMDL and WRAPS reports
 - Hold a meeting to discuss restoration and protection strategies for the WRAPS and TMDL 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 data compilation.
 - Participate in the assessment process
 - Identify areas that are in need of stressor identification efforts.
 - Collection of stressor identification data.
 - Begin writing a TMDL report.
- Grand Marais Creek Watershed Restoration and Protection project
 - Technical advisory committee and public open house meetings.
 - Completion of draft TMDL and WRAPS reports.

Quotes of the Month:

“Seeing yourself as you want to be is the key to personal growth.”

- Anonymous

“What we see depends mainly on what we look for.”

- John Lubbock

“Obstacles are those frightful things you see when you take your eyes off of your goals.”

- Anonymous

Red Lake Watershed District Monthly Water Quality Reports are available online at:

<http://www.redlakewatershed.org/monthwq.html>.

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