

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. 9/16/2016.

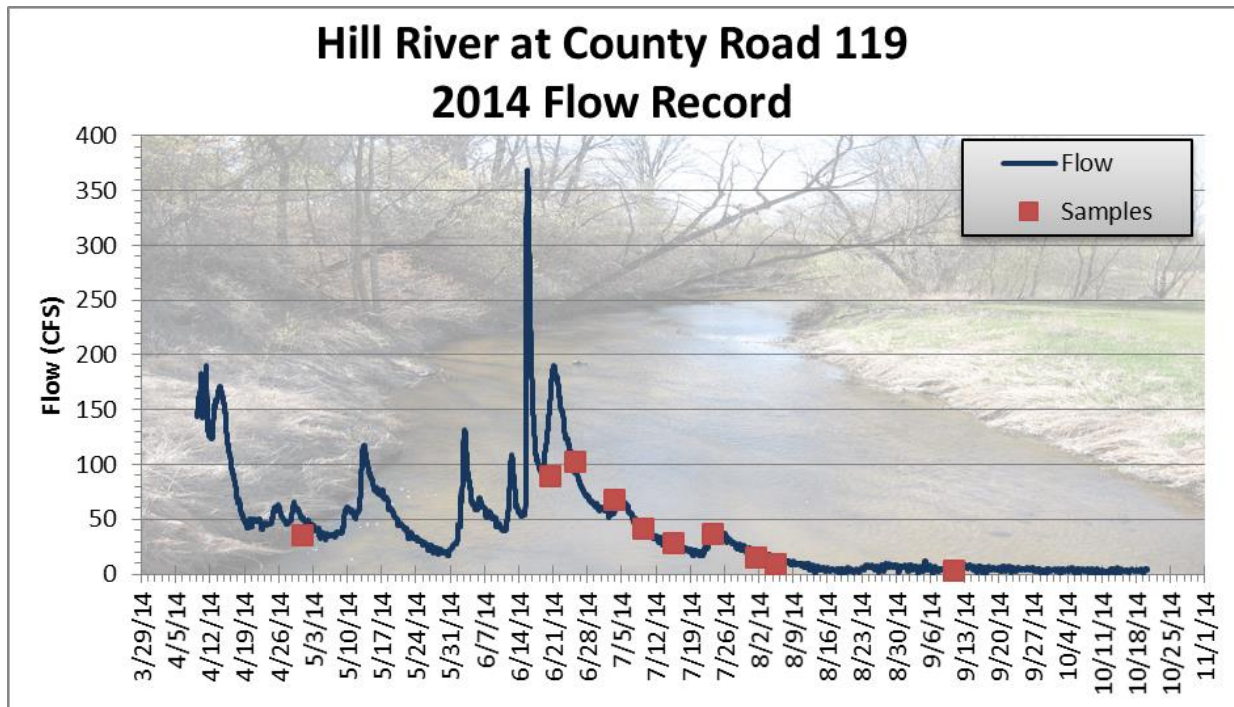
- ✓ Watershed Restoration and Protection project updates



Clearwater River Watershed Restoration and Protection (WRAP) Project

A Phase II work plan for the Clearwater River WRAP project was completed.

- Objective 3 – Flow Monitoring
 - HOBO water level and barometric pressure loggers were deployed at flow monitoring sites throughout the watershed.
 - Hill River flow data was compiled and provided to DNR staff (that had inquired about flow data from that river). The 2014 stage record from the County Road 119 crossing of the Hill River near Brooks was compiled and used to calculate and plot a 2014 flow record for that site. 2015 stage/flow data from MPCA/DNR gauges, like the one in the Hill River at County Road 119, was requested from MPCA staff.



- Objective 8 – Data Analysis
 - MPCA staff provided RLWD staff with an Excel file that contains all of the data from the Clearwater River watershed that is available in the EQUIS database, including stage and time values.
 - The Clearwater River water quality assessment has been delayed.

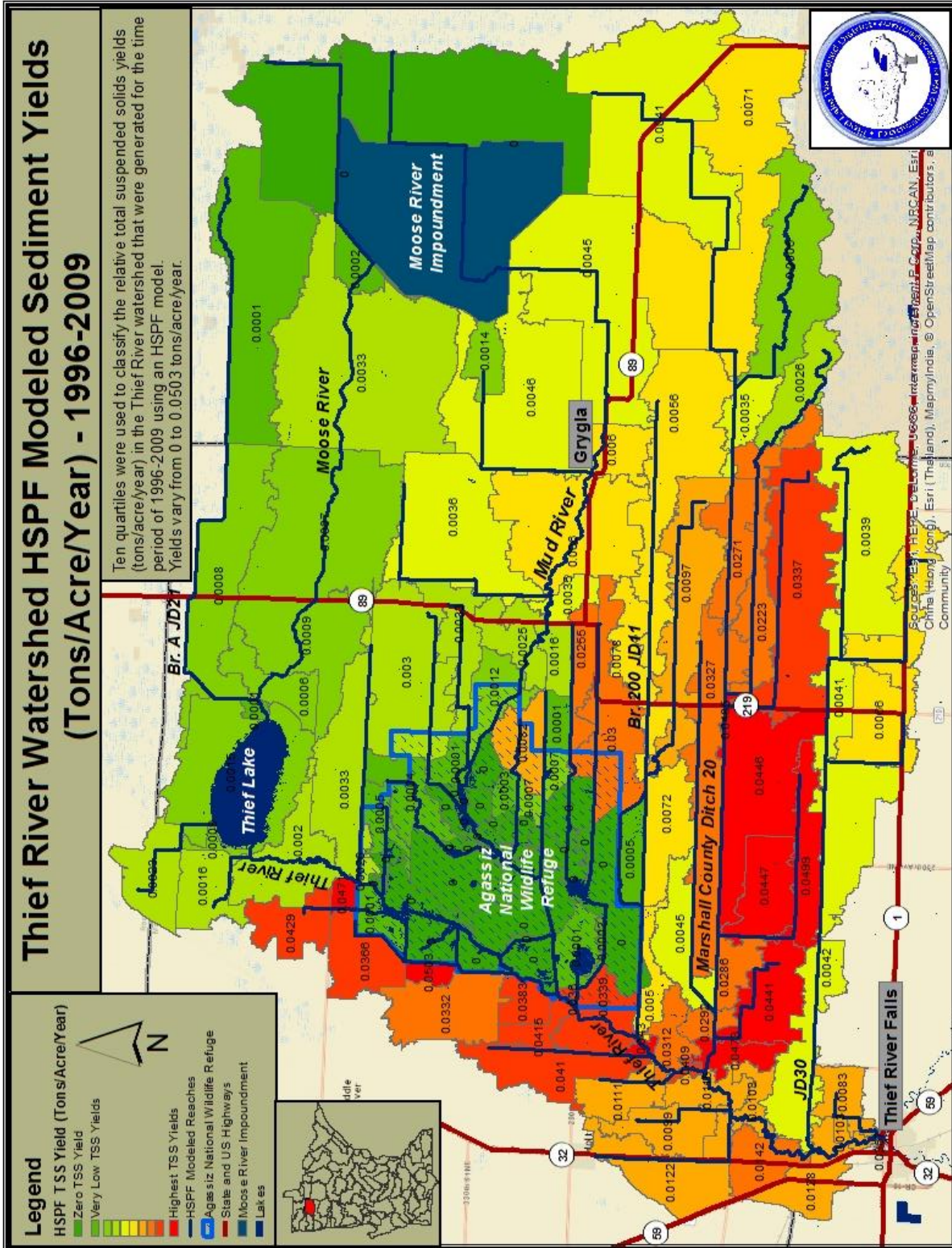
Thief River Watershed Restoration and Protection (WRAP) Project

The Thief River WRAPS contract was officially extended to June 30, 2016.

- Task 13 – Reports
 - District staff worked on the completion of a new draft Thief River Watershed Total Maximum Daily Load and Thief River Watershed Restoration and Protection Strategy documents. Simulated data from the HSPF water quality model was used to create maps that show which sub-basins have the greatest sediment and nutrient yields. A new draft TMDL document was completed by RLWD staff and then reviewed by MPCA staff. A draft Thief River WRAPS report was nearly completed in March (completed on April 1st).

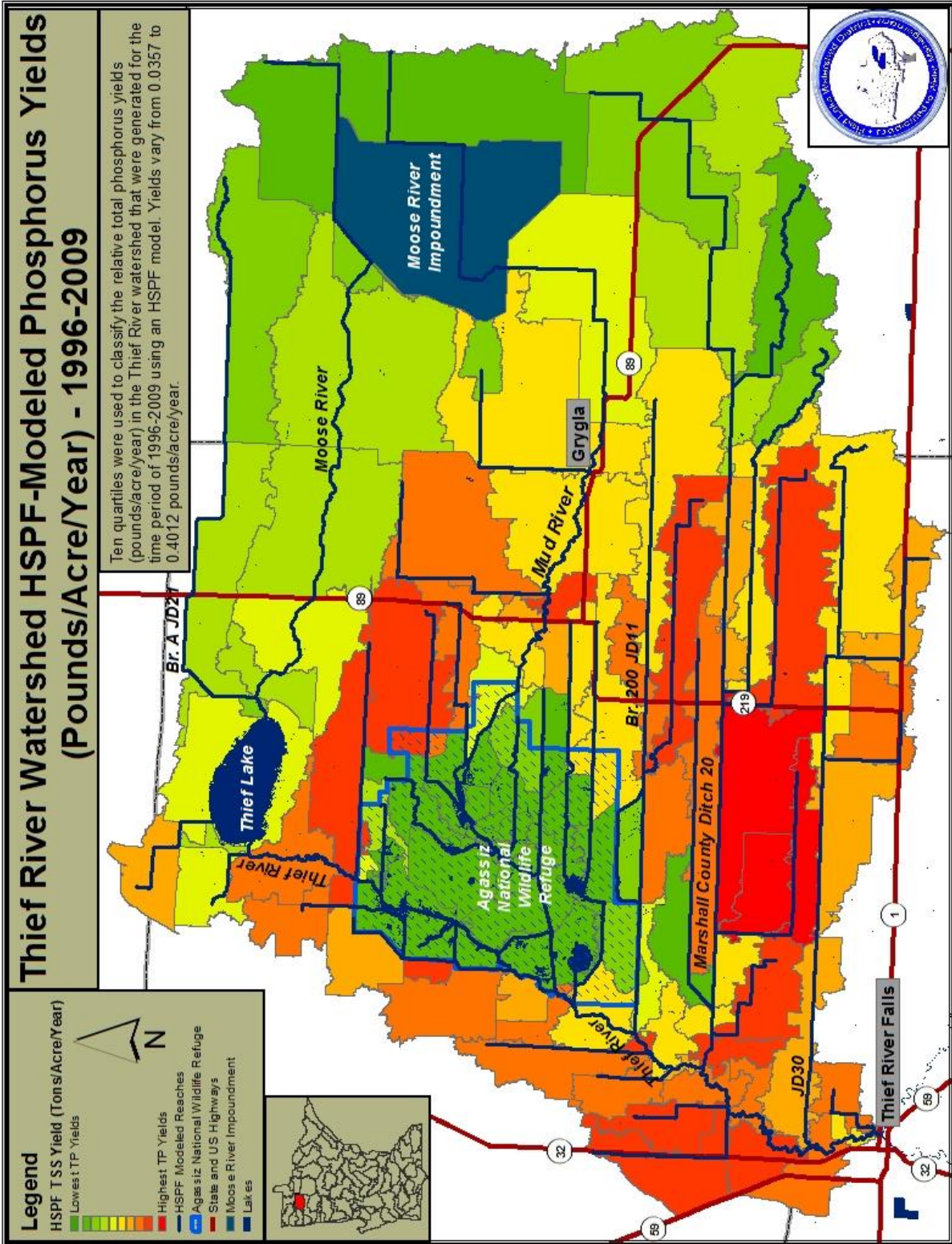
RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

March 2016



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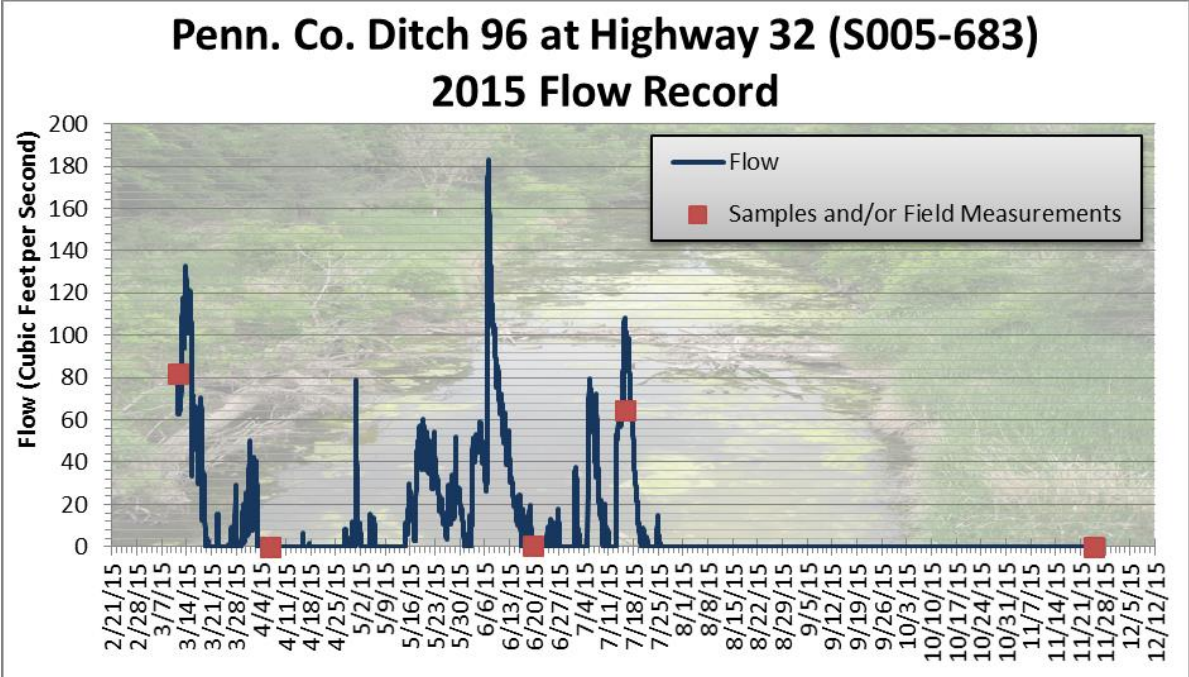


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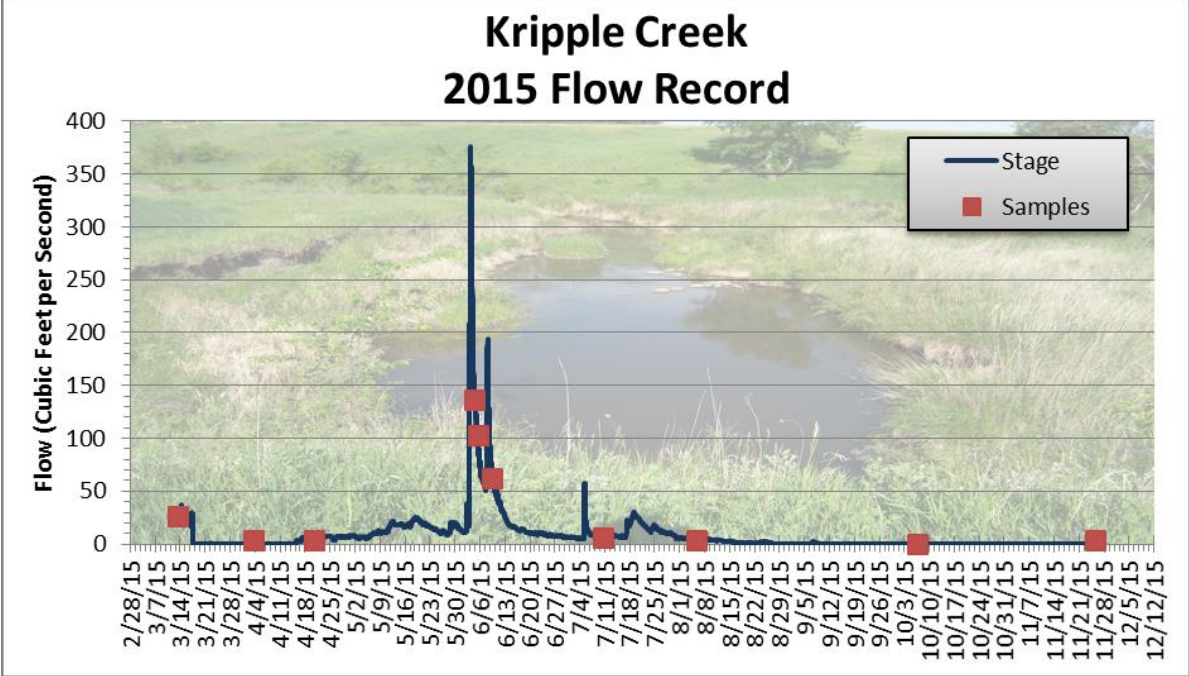
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Red Lake River Watershed Assessment Project (Watershed Restoration and Protection - WRAP)

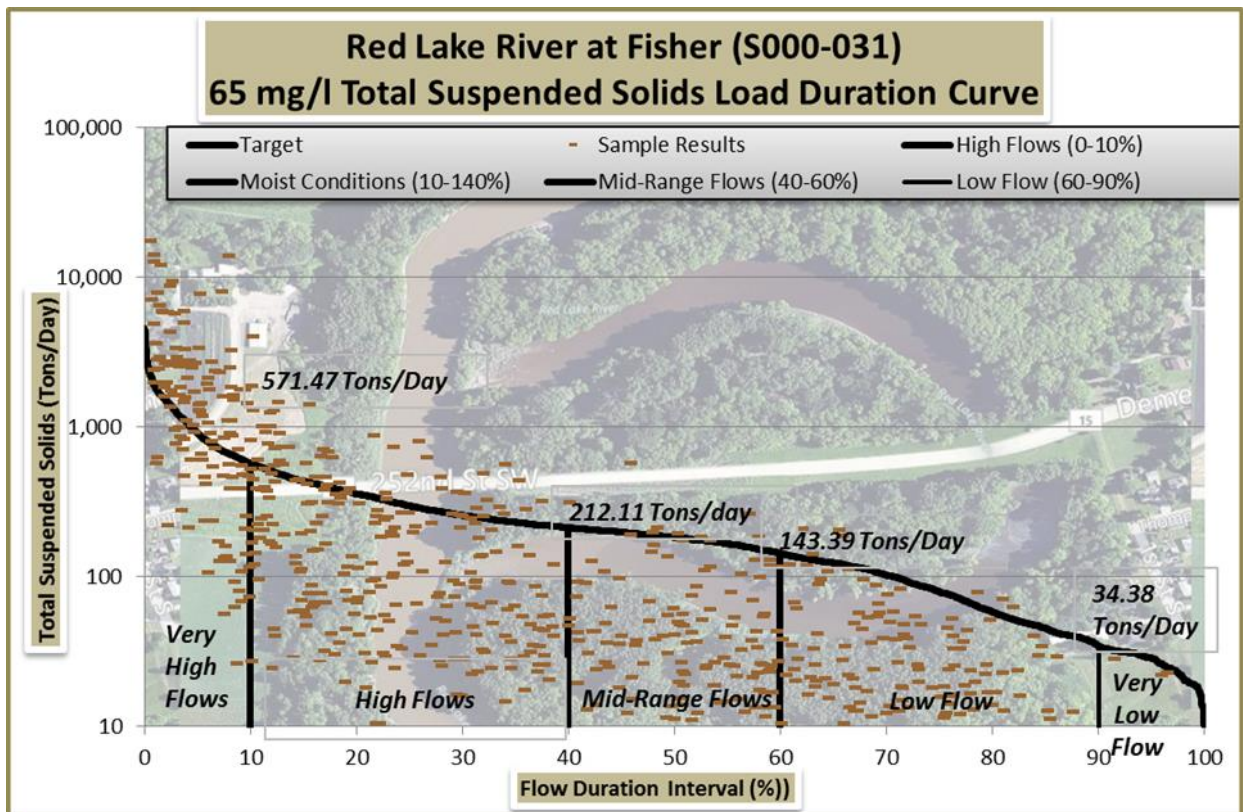
- Task 5 – Flow Monitoring
 - The 2015 flow record for Pennington County Ditch 96 was compiled so that the full flow monitoring record could be used for the calculation of an E. coli TMDL.

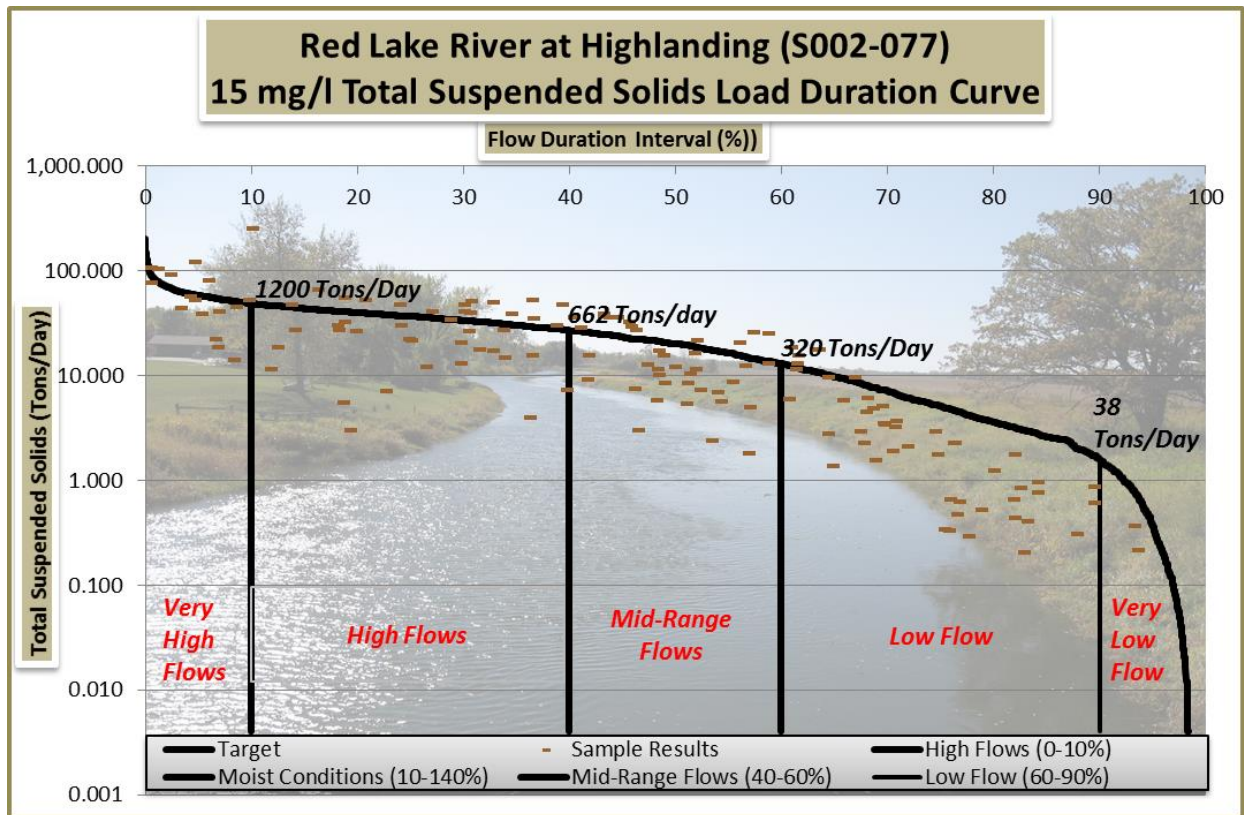


- The 2015 flow record for Kripple Creek (at 180th Ave) was compiled so that the full flow monitoring record could be used for the calculation of an E. coli TMDL.



- Task 9 – Data Analysis
 - Dissolved oxygen impairments on the Red Lake River upstream of Thief River Falls have been recommended for delisting because of sufficiently high fish and macroinvertebrate index of biological integrity scores.
 - A Red Lake River Watershed HSPF model data request was submitted to MPCA modeling staff.
 - Red Lake River total suspended solids load duration curves were created. Discrete total suspended solids samples were matched with flow values and plotted on the load duration curve graph. Most of the excessive total suspended solids concentration occurred during high and very high flows.

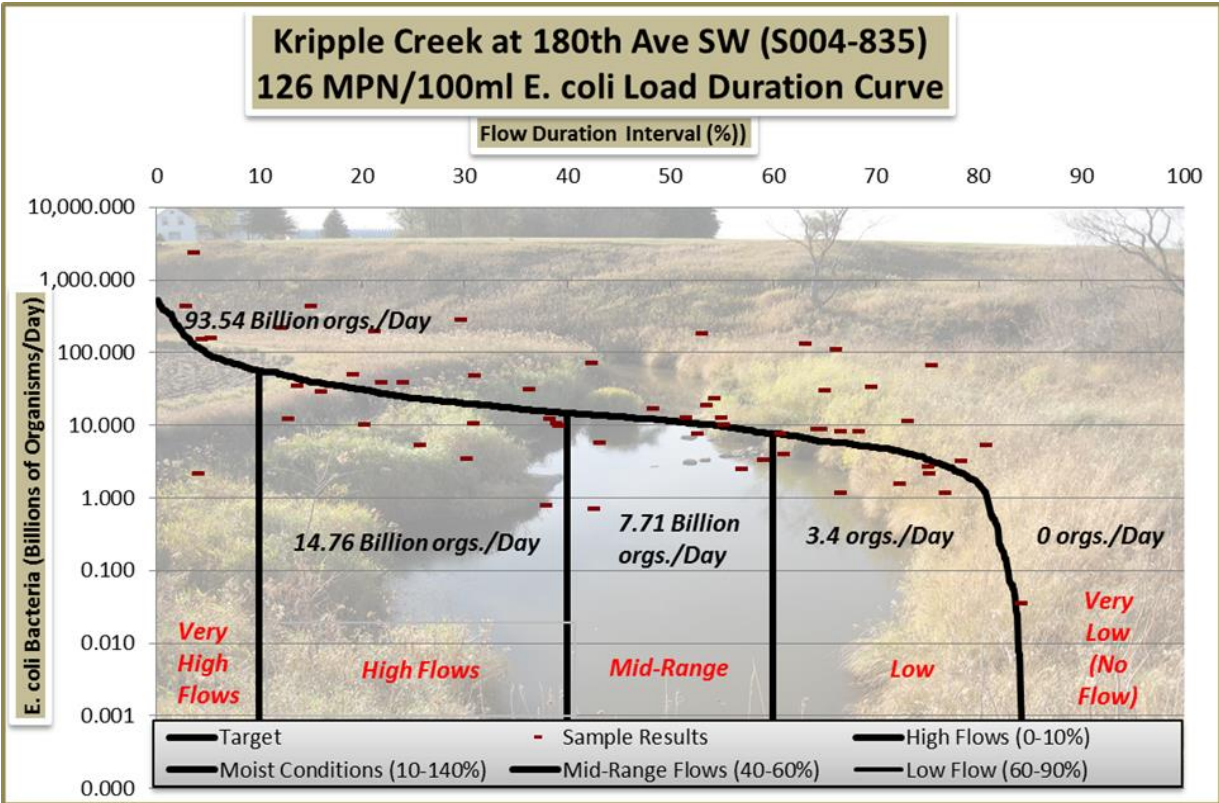
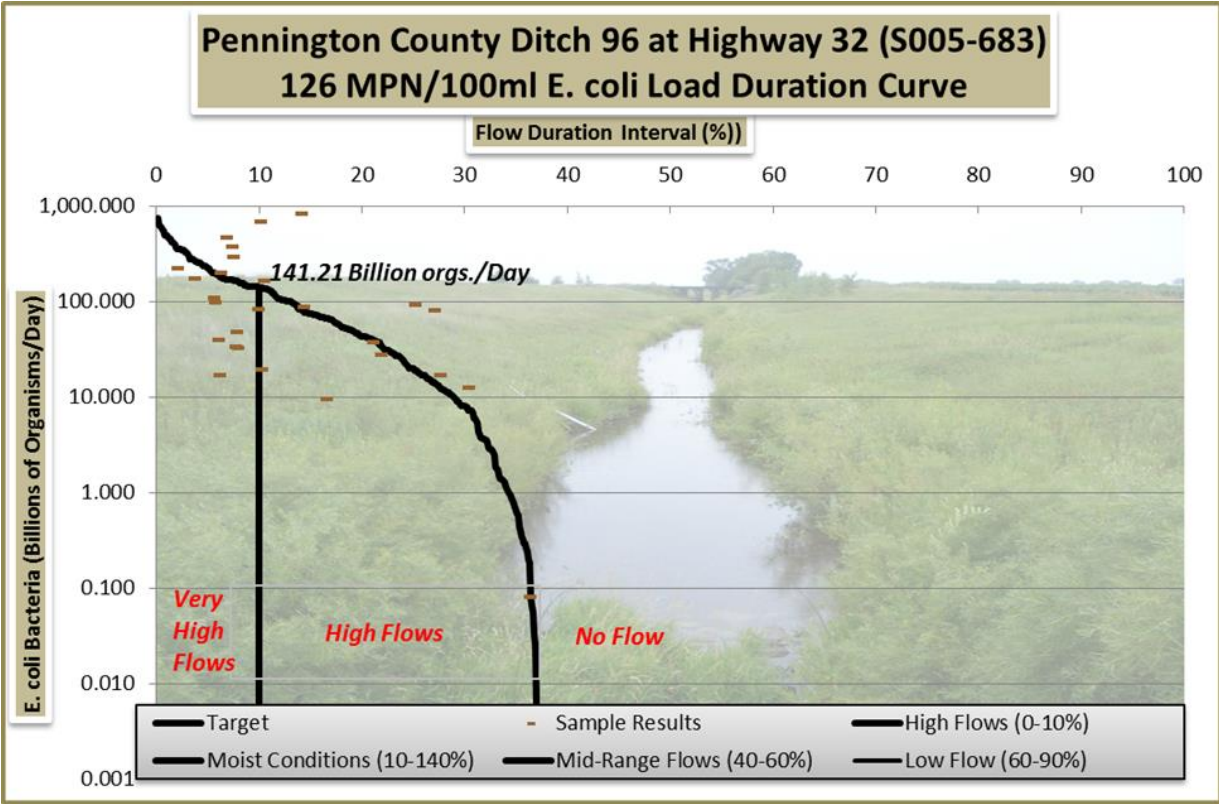




- Waste load allocations for permitted discharges of total suspended solids along the Red Lake River were calculated.
- Total maximum load calculations for total suspended solids were completed for long-term flow and water chemistry monitoring stations along the Red Lake River. Most of the required reductions in total suspended solids loading are required during the high and very high flow regimes.
- Total suspended solids (TSS) data was assessed for the Red Lake River upstream of Thief River Falls. The channelized and natural reaches both meet the 30 mg/l TSS standard, but exceed the limits set by the 15 mg/l standard. MPCA River Nutrient Region assignment maps indicate that this portion of the Red Lake River has been assigned to the North River Nutrient Region and will be subject to the 15 mg/l TSS standard. However, the MPCA's assessment of the river did not result in a TSS impairment, which would suggest that either a less stringent standard was used or the high quality indices of biological integrity scores trumped the water quality assessment results.
- *E. coli* load duration curves were created for tributaries of the Red Lake River that are impaired by high *E. coli* levels.

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- Total maximum load calculations for *E. coli* bacteria were completed for tributaries of the Red Lake River that are impaired by excess *E. coli*. Most of the required reductions in total suspended solids loading are required during the high and very high flow regimes.
- Task 11 – Identification of Pollutant Sources and Stressors
 - RLWD staff observed very muddy water entering the Red Lake River from Judicial Ditch 70 in Thief River Falls. The muddy water was traced upstream to its source. The source was parking lot runoff from melting piles of a snow/sand mixture. Snow and sand from a Digikey parking lot had been piled along the ditch throughout the winter.



Grand Marais Creek Watershed Restoration and Protection Project

Emmons and Olivier Resources, Inc. (EOR) staff completed a memorandum about low dissolved oxygen problems in Grand Marais Creek. Their analysis of existing data yielded the conclusion that the low dissolved oxygen problems found within the watershed more greatly influenced by low-to-no flow conditions than they are by any pollutant.

EOR and RLWD staff met to discuss the direction of TMDL and WRAPS development.

Other Notes

- The water quality section of the 2015 Red Lake Watershed District Annual Report was completed.
- SWAT model, stream power index, HSPF model, and DNR Stressor ID information for the Clearwater River, Thief River, and Red Lake River watersheds was sent to United States Fish and Wildlife Service staff and Audubon Society staff to help with the planning of projects.
- The Red Lake River Corridor Enhancement Joint Powers Group has been revived. Funding is available for projects through the Greater Minnesota Parks and Trails Commission for trails of regional or statewide significance. The group will apply to get the Red Lake River corridor recognized as a trail of regional or statewide significance. That designation will open up funding opportunities to improve recreational infrastructure (e.g. boat/canoe/kayak accesses) along the Red Lake River.
- Water quality related notes from the March 10, 2016 meeting of the RLWD Board of Managers:
 - The RLWD Board of Managers voted to re-affirm interest in participating in the Red Lake River Corridor Enhancement Joint Powers Agreement. The Board appointed Alan Page as a representative and Gene Tiedemann as an alternate.
- Water quality related notes from the March 25, 2016 meeting of the RLWD Board of Managers:
 - Administrator Jesme stated that the Grand Marais Creek Channel Restoration Project, RLWD Project No. 60F was selected as an award finalist for the Environmental Initiative Awards in the Natural Resources Category.
 - The Board reviewed a Grant Application that was submitted on behalf of the District and the Northland Community and Technical College/Northland Aerospace Foundation to the Environment and Natural Resources Trust Fund for Geospatial Airborne Sensor Survey to Manage Water Resources. The grant would fund the use of “state of the art” geospatial sensors (cameras), Lidar and Bathymetric Lidar in unmanned drones and manned aerial platforms to capture data.
 - The Board reviewed a Resolution in support of the Regional Park or Trail Designation application in Greater Minnesota for the Red Lake River Corridor Enhancement Project, RLWD Project No. 159. Motion by Ose, seconded by Coe, to authorize signature of the Resolution in support of the Regional Park or Trail

- Designation application in Greater Minnesota for the Red Lake River Corridor Enhancement Project, RLWD Project No. 159. Motion carried.
- Pennington SWCD submitted a request for a financial donation for the Area I Envirothon. The Area I Envirothon will be held on April 27, 2016, at Agassiz National Wildlife Refuge. Motion by Tiedemann, seconded by Ose, to donate \$300 to the Area I Envirothon to promote education and awareness of water quality issues. Motion carried.
 - The International Water Institute published a March 2016 edition of their River Rendezvous newsletter. It contains a recap of the 2016 River Watch Forum.
 - http://www.iwinst.org/wp-content/uploads/2016/03/RWRendez_Issue-24-Final-PDF_Forum.pdf
 - HOBO water level and barometric pressure loggers for the Thief River watershed were readied for deployment.
 - RLWD staff reviewed a draft Red Lake River One Watershed One Plan document.

March 2016 Meetings and Events

- **March 2, 2016** – 13th Annual Red River Basin Water Quality Training Session
 - YSI Sonde Maintenance, Care, and Use (Danni Halvorson, International Water Institute)
 - In 2017, YSI will no longer be servicing 600 series sondes, even though they have continued to sell new ones in recent years.
 - If a temperature sensor isn't working correctly, it will affect the accuracy of dissolved oxygen and specific conductivity measurements.
 - QA – Field to Lab (Pat Sherman, RMB Labs)
 - Don't overfill bottles. Just fill sample bottles to the "shoulder" of the bottle.
 - Samples need to be preserved within 15 minutes of collection.
 - Standard Operating Procedures in the Field (Corey Hanson, Red Lake Watershed District)
 - Photo Documentation and Photo Sharing (Asher Kingery, International Water Institute)
 - Biomonitoring Basics (Ben Lundeen, Minnesota Pollution Control Agency)
 - YSI Sonde – Hands On breakout session
 - Sampling Equipment breakout session
 - AIS Sampling Protocols (Andy Ulven, International Water Institute)
 - Practical Situations in the Field (Group Discussion)
 - Certification Written Test
- **March 7, 2016** – Pennington County Water Resource Advisory Committee meeting
 - The Pennington County Soil and Water Conservation District (SWCD) has completed an inventory of 250 miles of ditches within the county. There are 175 miles left to complete during the summer of 2016.

- The SWCD is hiring an inspector to look for failing septic systems in the Chief's Coulee watershed. The RLWD will continue to collect samples from Chief's Coulee until the water quality problems in that drainage system have been fixed.
- The county's aquatic invasive species prevention program has distributed many license holders, rulers, key floats, and bumper stickers (for trailers) in an effort to educate the public.
- 1300 acres has gone into CRP in the last month, which is more than the last year.
- The County Road 55 crossing of the Black River will be replaced.
- March 15, 2016 – River Watch Forum at the University of Minnesota Campus in Crookston, MN.
 - The Clearbrook/Gonvick River Watch students received second place for their poster.
- March 16, 2016 – Red Lake River One Watershed One Plan Policy Committee and Technical Advisory Committee meetings.

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.

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

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Quote of the Month:

“Challenges make you discover things about yourself that you never really knew. They’re what make the instrument stretch – what make you go beyond the norm.”

- Anonymous

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

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

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