# RED LAKE WATERSHED DISTRICT
# MONTHLY WATER QUALITY REPORT

**October 2015**

By Corey Hanson, Red Lake Watershed District Water Quality Coordinator. December 22, 2015.

- ✓ Watershed Restoration and Protection project updates
- ✓ Findings from October sampling at long-term monitoring sites
- ✓ Late October is the season for data entry…lots of data entry.

## Red Lake Watershed District Long-Term Monitoring Program

The final round of 2015 sampling and/or field measurements at all of the Red Lake Watershed District's 65 long-term monitoring sites was completed in October. Water quality was relatively good at the Murray Bridge crossing (the furthest downstream crossing) of the Red Lake River in East Grand Forks. Total phosphorus, total suspended solids, and E. coli all met the standards.

Very clear water in the Clearwater River at CSAH 14, downstream of Clearwater Lake

High concentrations of total phosphorus (relative to new eutrophication standards) were found:

- Burnham Creek at 320th Ave, west of Crookston
- Grand Marais Creek at 110th St. NW
- Heartsville Coulee at 210th St., south of East Grand Forks
- Hill River at CSAH 35
- Judicial Ditch 73 at the inlet to Maple Lake and near Rydell National Wildlife Refuge
- Little Black River at County Road 102
- North Cormorant River at CSAH 36
- Pennington County Ditch 21 at Highway 17, south of Thief River Falls
- Polk County Ditch 2 at CR62
- Poplar River at CSAH 118
- Ruffy Brook at CSAH 11
- Silver Creek at County Road 111
- Terrebonne Creek at State Highway 92

Low dissolved oxygen levels were found in:

- Heartsville Coulee at 210th St., south of East Grand Forks
- Judicial Ditch 73 near Rydell National Wildlife Refuge

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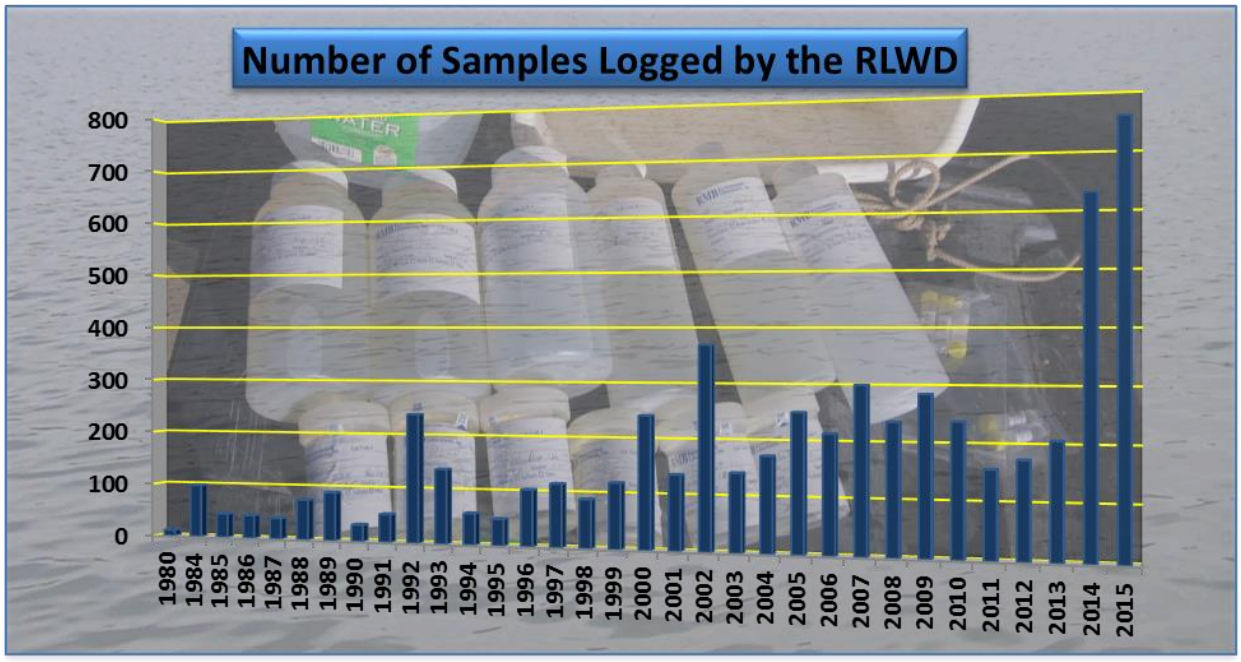
Extremely high concentrations of E. coli bacteria (14,136 MPN/100ml) were found in samples collected at the County State Aid Highway 17 crossing of Pennington County Ditch 21. RLWD staff visited the site to look for possible sources. A large number of pigeons are living under the bridge. It is a wooden bridge and there are flat nooks that provide roosting spots between the horizontal beams. The pool of water under the bridge was covered with feathers and scum. A hazardous materials inspector happened to be visiting the bridge at the same time. This means that the bridge is scheduled to be replaced in the near future. The replacement of this bridge will eliminate the pigeon roosting areas and should reduce the amount of E. coli being "deposited" into the water at that location.


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

- Grand Marais Creek at 110th St. NW
- Clearwater River at CSAH 24, upstream of Clearwater Lake
- Pennington County Ditch 21 at Highway 17, south of Thief River Falls (extremely high at 14,136 MPN/100ml)
- Branch A of Judicial Ditch 21 (tributary of the Moose River near Thief Lake)
- Mud River in Grygla
- Gentilly Creek at CSAH 11
- Darrigan's Creek
- North Cormorant River at CSAH 36
- Thief River at 140th Ave NE

A relatively high concentration of ammonia (2.28 mg/l) was found in Pennington County Ditch 21 at Highway 17, south of Thief River Falls. This likely has something to do with the bird droppings at the site.

Site establishment forms were completed and submitted for sites in the Polk County Ditch 2 watershed at which water quality data was collected for the first time in 2015. 2015 monitoring data entry for the District's long-term monitoring program began in October and was completed during the first week of November. Among all of the 2015 water quality sampling projects managed/conducted by the District (long-term monitoring, Thief River WRAP, Red Lake River WRAP, Clearwater River WRAP), a new record high number of samples were collected and logged in the District's sample log book.



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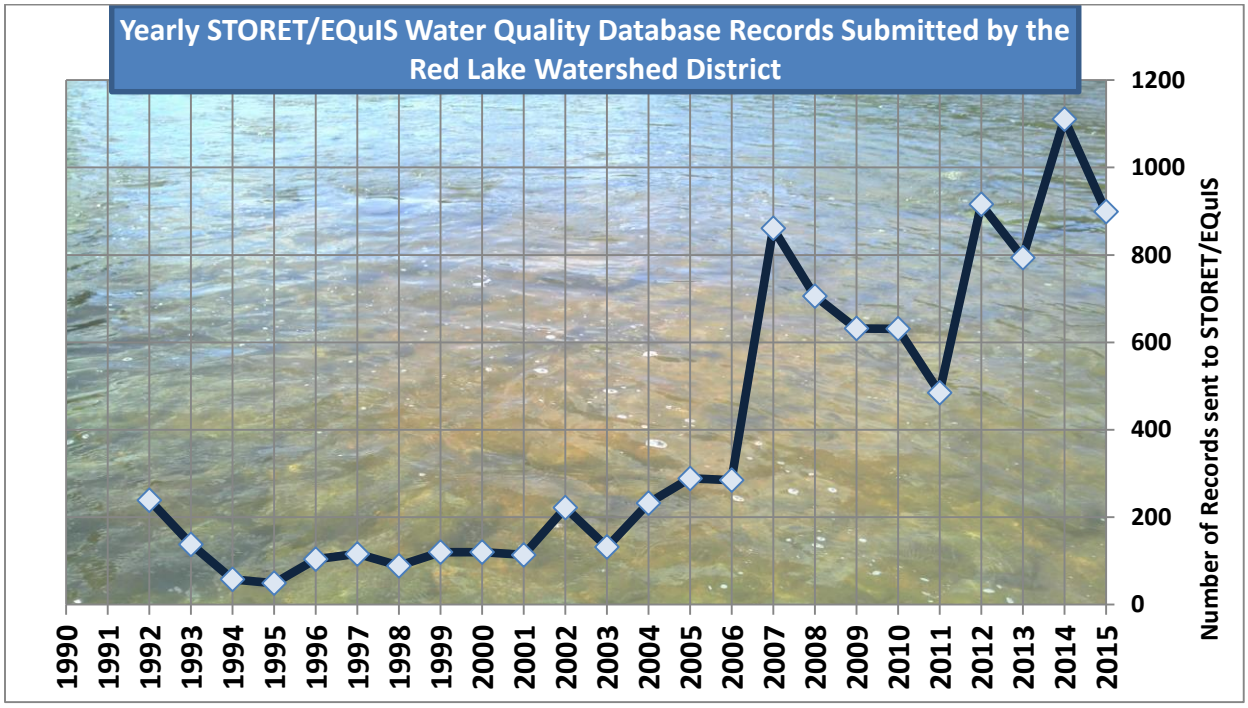
The total number of measurements submitted to the Minnesota Pollution Control Agency (MPCA) for entry into the state's EQuIS water quality database was relatively high, to, although not a new record.




## Clearwater River Watershed Restoration and Protection (WRAP) Project

- Objective 4 – Continuous Dissolved Oxygen monitoring
  - The final cleaning, calibration, and recording of pre/post cleaning and calibration measurements were completed for the dissolved oxygen loggers that were deployed throughout the Clearwater River watershed.
  - Dissolved oxygen logger deployment pipes were removed.
- Objective 7 – Data Entry
  - Site establishment forms were completed and submitted for sites in the Pine Lake watershed at which water quality data was collected for the first time in 2015.
  - 2015 Clearwater River WRAP monitoring data was entered, compiled in the EQuIS data submittal spreadsheet template, reviewed, and submitted to the MPCA (on 10/29/15) for entry into the state's EQuIS water quality database.

## Clearwater River Watershed Surface Water Assessment Grant (SWAG) Project

Monitoring data, calibration logs, field data sheets, and monitoring site photos were gathered from the project partners. The photos and calibration logs were sent to the MPCA Project Manager. Field data was compiled and sample analysis results were entered. The data was then reviewed and submitted to the MPCA for entry into the EQuIS water quality database on October 26, 2015.

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

- Task 5 – Flow Monitoring
  - Flow has remained high in the Red Lake River upstream of Thief River Falls. It has been too high to reach the HOBO deployment pipe or to measure flow with a wading rod.
- Task 8 – Data Entry
  - Site establishment forms were completed and submitted for sites in the Pennington County Ditch 21 at which water quality data was collected for the first time in 2015.
  - 2015 Red Lake River WRAP monitoring data was entered, compiled in the EQuIS data submittal spreadsheet template, reviewed, and submitted to the MPCA for entry into the state's EQuIS water quality database.
- MPCA staff are working on a Watershed Monitoring and Assessment Report for the Red Lake River watershed.

## Thief River Watershed Restoration and Protection (WRAP) Project

- Task 9 – Data Entry
  - 2015 Thief River WRAP monitoring data was entered.
- Task 13 – Reports
  - Progress continued on the Thief River Watershed Restoration and Protection Strategy (WRAPS) and Total Maximum Daily Load reports.
  - The majority of the report writing work focused upon the Restoration and Protection Strategy section of the WRAPS report. A table of strategies for each HUC10 subwatershed and for the watershed as a whole. Each strategy will have an overall timeline for completion and a 10-year interim goal. Comments from the project's technical advisory committee were incorporated into the Restoration and Protection Strategy section of the Thief River WRAPS report.

## Grand Marais Creek Watershed Restoration and Protection Project

Turbidity impairments in the Grand Marais Creek watershed will most likely be delisted. A new total suspended solids (TSS) standard that has been adopted by the State of Minnesota. Grand Marais Creek and its tributaries meet the new TSS standard of 65 mg/l. The new standard is less stringent than the turbidity standard of 25 NTU. For context, the equivalent TSS concentration to the 25 NTU turbidity standard in this area is somewhere around 25-30 mg/l. So, the new TSS standard moves the impairment threshold up to a level of cloudiness/muddiness that is approximately twice as high as it was under the past turbidity standard.

**Other Notes**

- Zebra Mussels have, unfortunately, been found in the Red River of the North in Grand Forks.
    - Grand Forks Herald article: http://www.grandforksherald.com/news/local/3860217-more-zebra-mussels-found-red-river-along-grand-forks
    - North Dakota Game and Fish Department article: http://gf.nd.gov/news/zebra-mussel-veligers-found-several-red-river-locations
    - INFORUM article: http://www.inforum.com/news/3870896-discovery-red-river-some-push-more-action-zebra-mussels
- District staff provided the East Grand Forks Water and Light Department with total organic carbon data from the Red Lake River.
- Water quality related topics from the October 8, 2015 RLWD Board of Managers meeting minutes:
    - Bryan Malone, Pennington SWCD presented information on the repair along two erosion sites within the banks of the Thief River referred to as: Thief River Cut-Off Project and Thief River Golf Club Green #5. Malone stated the Thief River Cut-Off Project site was identified as a potential project by Dave Friedl, MnDNR, and District staff member Corey Hanson to avoid cutting of the riverbank and creation of an oxbow. Malone stated that the site is currently blocked with debris; installation of a dike will prevent the cutting of the riverbank. Malone stated that a contractor has been secured for a total construction cost of $11,345, which is the funding amount requested from the District. Malone stated that the Pennington SWCD applied for a Clean Water Fund Grant for repair of the river bank near the golf course and has referred to that project as Thief River Golf Club Green #5 site. Approximately 150 feet of streambank needs to be stabilized at this location with possible retaining wall or reslope of the channel. Cost of the project is $30,000, with a request from the District of $12,500 and the remaining balance to be paid for by Pennington SWCD and Thief River Golf Club. Motion by Torgerson, seconded by Knott, to approve funding of the Thief River Cut-Off Project in the amount of $11,345 and the Thief River Golf Club Green #5 site in the amount of $12,500, from the District's Erosion Control Funds, RLWD Project No. 164. Motion carried.
- Water quality related topics from the October 22, 2015 RLWD Board of Managers meeting minutes:
    - Staff member Nick Olson discussed three sites on the dredged portion of the Clearwater River under the jurisdiction of the District that are in need of having tree and snag removal. Olson stated that Triple D Construction has a backhoe with a thumb that would be able to remove trees and snags from the river. He also noted that clearing of the right of way would also be required to access the site. Motion by Tiedemann, seconded by Ose, to authorize District Staff to hire Triple D Construction at an hourly rate for removal of trees and snags from the dredged

portion of the Clearwater River, RLWD Project No. 3. Motion carried. District staff will monitor the working hours.

- Staff member Nick Olson stated that four side water inlet culverts were installed on State Ditch 83, RLWD Project No. 14. Lunke Construction is currently working on removing trees from the right of way and sediment from the ditch in Section 32, East Valley Township, Marshall County.
- Nathan Nordlund, Clearwater SWCD, presented a funding request for installation of bio-engineering with core logs for the Aakre Pine Lake Shoreline Protection Project, located in Section 27, Pine Lake Township, Clearwater County. Nordby stated that the total project cost is $7,450.00, with 75% of the cost-share secured through a Clean Water Fund grant and the remaining balance paid by the landowner and a request for funding in the amount of $933.00 through the District's Erosion Control Funds, RLWD Project No. 164. Motion by Ose, seconded by Knott, to approve cost share in the amount of $933.00 for the installation of bio-engineering with core logs for the Aakre Pine Lake Shoreline Protection Project from the 2015 Erosion Control Funds, RLWD 164. Motion carried.
- Manager Coe discussed a Local Governmental Round Table meeting he attended in St. Paul. Coe stated that the MnDNR Public Waters Maps will not be available until July 2016. Counties and Watersheds throughout the State will need to provide information to the MnDNR to be able to complete the mapping. Discussion was held on the potential of the State requiring enforcement of buffers on all wetlands.

- The Red Lake Department of Natural Resources finished up the 2015 sampling season for the Upper and Lower Red Lakes Watershed Restoration and Protection Project. Plans for geomorphology work on some of the watershed's streams was discussed with the Minnesota DNR.

**October Meetings and Events**

- **October 21, 2015** – Red Lake River One Watershed One Plan Teleconference/Webinar.
- **October 22, 2015** – Grand Marais Creek Watershed Restoration and Protection Project WebEx Meeting.
- **October 23, 2015** – Red River Basin Monitoring Advisory Committee Meeting in Fertile (9:30 am at the Sand Hill Watershed District Office)
  - Watershed Pollutant Load Monitoring Network update
  - Update on regional aquatic invasive species and nutrient capture research being conducted by the Red River Basin Commission and Universities in the region.
  - The MPCA is conducting a longitudinal biological monitoring effort along the Red River of the North, including periphyton sampling.

**Upcoming Meetings/Events**

- **November 4, 2015** – Marshall County Water Resources Advisory Committee Meeting

- **December 2015** – Thief River Watershed Restoration and Protection Project Open House Meeting
- **December 16, 2015** – Red Lake River One Watershed One Plan Technical Advisory Committee meeting
- **December 18, 2015 –** Red River Basin Monitoring Advisory Committee Meeting at the Sand Hill Watershed District Office in Fertile
- **December 31, 2015** – Target date for draft Thief River TMDL and WRAPS reports
- **December 31, 2015** – Deadline for the Clearwater River Surface Water Assessment Grant Project's final report
- **January 2016** – a Phase II work plan for the Clearwater River Watershed Restoration and Protection Project will be developed.
- **January 4, 2016** – Pennington County Water Resources Committee Meeting.
- **January 31, 2016** – Target date for draft Red Lake River 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 late 2015**

- Thief River Watershed Restoration and Protection Project.
  - Creating Stream Power Index maps.
  - Maps of HSPF model results
  - Flow characterization and load calculations
  - Complete the Restoration and Protection Strategy Tables
  - Complete a draft Thief River Watershed TMDL Report
  - Edit TMDL and WRAPS reports based on comments during the review process.
- Red Lake River Watershed Assessment Project
  - 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 HOBO water level loggers are deployed.
  - Continuous dissolved oxygen data will be compiled, corrected, summarized, and submitted to the MPCA so that it can be used in the upcoming water quality assessment.
  - Stage and flow data compilation.
- Grand Marais Creek Watershed Restoration and Protection project
  - Technical advisory committee and public open house meetings.

- Emmons and Olivier Resources staff will work on writing the TMDL and WRAPS reports.

**Quote of the Month:**

"Great changes may not happen right away, but with effort even the difficult may become easy."

- Bill Blackman

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

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