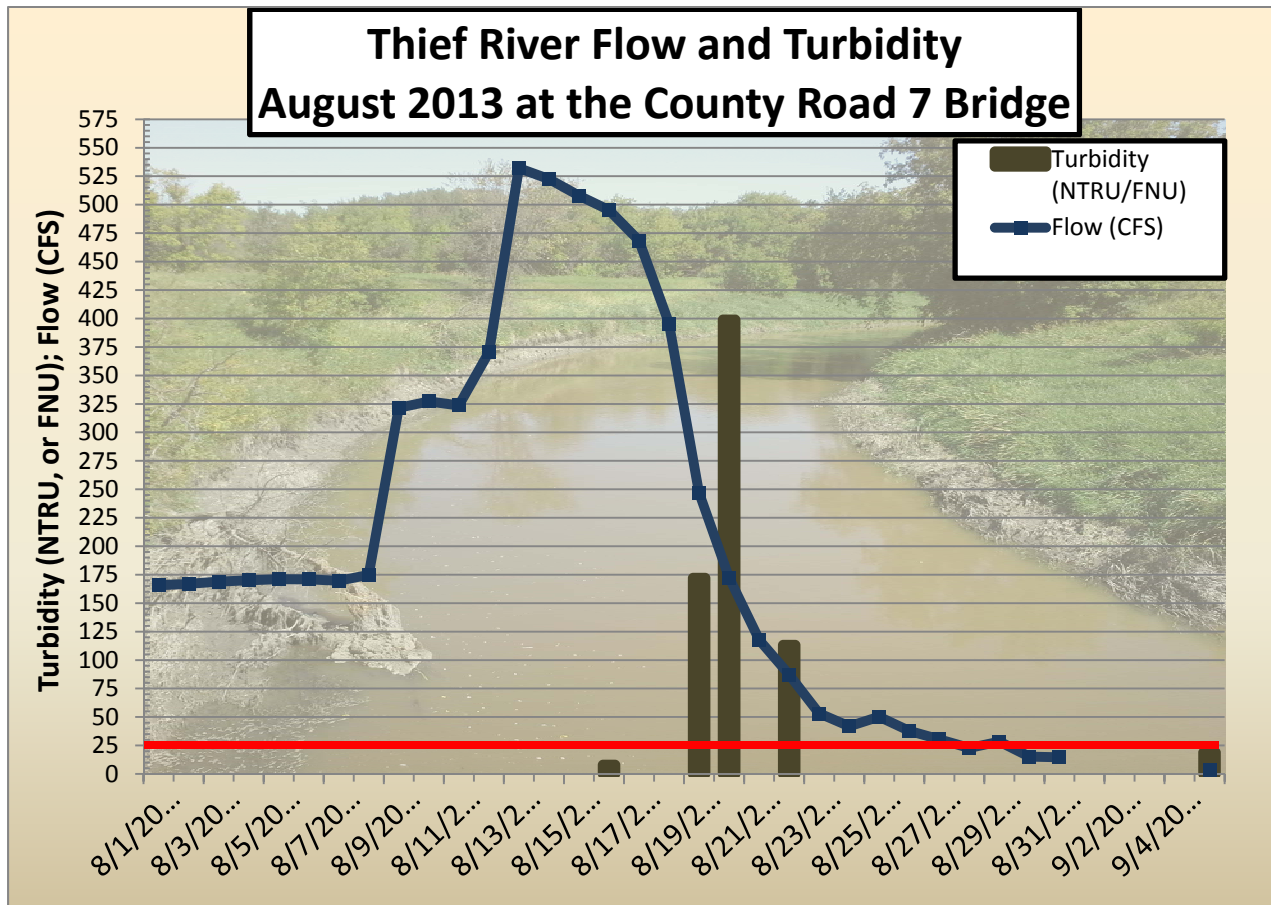
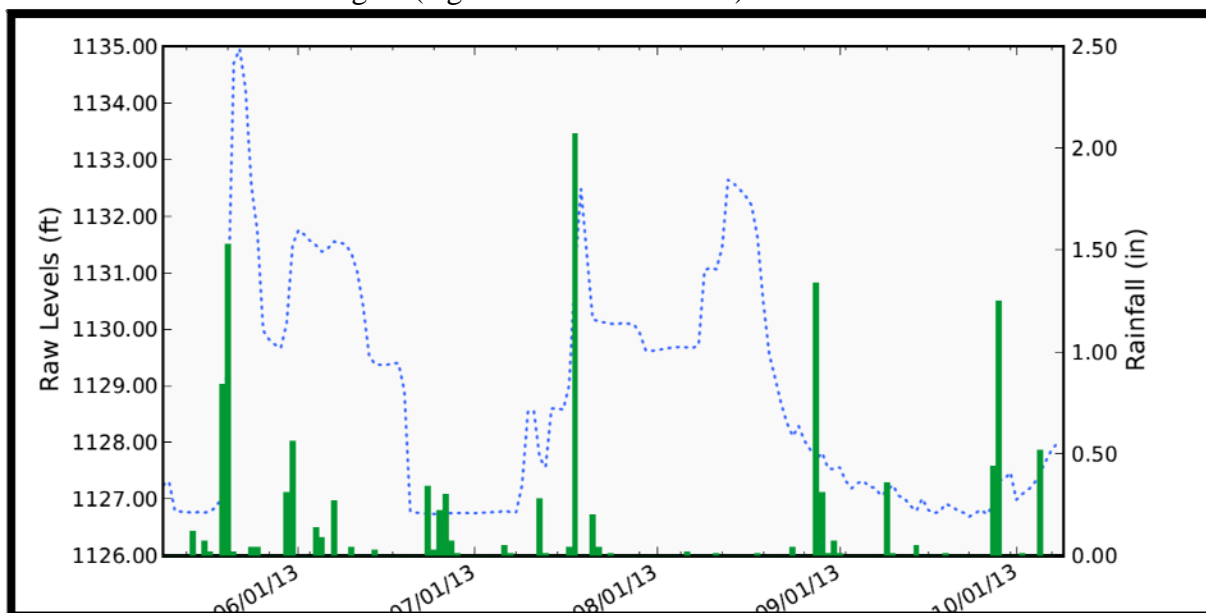


Thief River Watershed Assessment Project
(Watershed Restoration and Protection - WRAP)

- Task 2 – Water Quality Sampling
 - Semi-weekly pre-9 AM dissolved oxygen readings were recorded at several sites along the Thief River, near Thief River Falls, County Ditch 20, and Judicial Ditch 60.
 - Water quality in the Thief River was monitored during the Agassiz Pool drawdown. Water quality was actually okay when it was tested slightly after the peak flow level during the discharge period. However, it increased to record highs as water levels receded. On August 19th, turbidity levels were recorded at 398.8 FNU and transparency was only 2.5 cm. So far, the cause has not been verified. It may be attributed to increased movement of water within gullies and channels within the pool once water levels get low in the pool. It could also be attributed to excavation within the pool that may have been done to facilitate drainage. United States Fish and Wildlife staff at Agassiz National Wildlife Refuge have not responded to questions regarding this issue.



- Task 5 – Stage and Flow Monitoring
 - The RLWD Water Quality Assistant collected stage measurements at sites where HOBO water level loggers are deployed. These measurements will be used to convert HOBO water level data into continuous stage and flow records.
 - Flow was measured at the Moose River monitoring site at Highway 54.
 - Data was downloaded from HOBO water level loggers.
- Task 9 – Data entry
 - Continuous dissolved oxygen data from the Mud River was summarized (daily min., max., and avg.) and submitted to EQUIS along with QA/QC information.
- Task 11 – Civic Engagement
 - RMB Environmental Laboratories and MPCA staff are working on short videos to help local citizens understand the parameters of concern. Three individual videos will highlight the following: dissolved oxygen, turbidity, and E.coli bacteria.
 - Radio spots will be purchased to broadcast messages on local radio stations that are similar to (or exactly the same as) the “Water Minutes” that are developed by the Red River Basin Commission and broadcast on Fargo radio stations.
- Task 12 – Identification of Sources and Solutions
 - High flows and poor water quality in the Thief River have already caused one instance of high trihalomethanes (a potentially harmful disinfection byproduct) in Thief River Falls drinking water during a July runoff event. Flows in the Thief River reached similar levels in August. The Minnesota Department of Health has been assisting the City of Thief River Falls with an operational evaluation because the disinfection byproducts spiked to a level of imminent concern. High turbidity and high Total Organic Carbon (TOC) in source water after a rainfall event are considered to be significant factors that led to this drinking water quality issue. In the following hydrograph from CR7, near Agassiz National Wildlife Refuge, you can see the spikes in flow in late May (rainfall event), late July (rainfall event), and mid-August (Agassiz Pool drawdown).



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

- Task 2 – Water Quality Sampling
 - Semi-weekly pre-9 AM dissolved oxygen readings are being recorded in the Red Lake River at the Greenwood Street Bridge crossing.
- Task 3 – Continuous Water Quality Monitoring
 - Eureka Midge, In-Situ TROLL 9500, HOBO dissolved oxygen loggers were deployed at 5 monitoring sites to record round-the-clock dissolved oxygen readings and to record the true daily minimum dissolved oxygen concentrations. Cyr Creek went dry, so we stopped deploying dissolved oxygen loggers there.
 1. Red Lake river at CSAH 27
 2. Red lake River at the Highlanding Bridge
 3. Pennington County Ditch 96
 4. Judicial Ditch 60
 5. Kripple Creek
 - Dissolved oxygen loggers are regularly retrieved from their deployment tubes after two weeks of deployment. After retrieval, they are replaced by a clean, freshly calibrated dissolved oxygen logging sonde. The dirty sondes are brought back to the lab where data is downloaded, sondes are cleaned, and sondes are re-calibrated.
- Task 5 – Stage and Flow Monitoring
 - The RLWD Water Quality Assistant collected stage measurements at sites where HOBO water level loggers are deployed. These measurements will be used to convert HOBO water level data into continuous stage and flow records.
 - Flows are approaching zero in ditches and smaller streams that flow into the Red Lake River.
 - Data was downloaded from HOBO water level loggers to make sure they are all working okay.
- Task 8 – Data Entry
 - Continuous dissolved oxygen data from the Black River, Burnham Creek, Kripple Creek, Heartsville Coulee, Polk County Ditch 1, and Gentilly Creek was summarized (daily minimums, maximums, and averages) and submitted to EQuIS along with QA/QC information.
 - New monitoring sites that were part of the longitudinal sampling along Burnham Creek were established in EQuIS.
- Task 11 – ID Sources and Solutions
 - Progress was made in the process of hydro-correcting the Red Lake River LIDAR surface and development of a Stream Power Index for the Red Lake River.
- Task 12 – Reporting
 - A semi-annual report was completed for the project and submitted to the MPCA Project Manager.

Red Lake River and Grand Marais Creek Assessment (Surface Water Assessment Grant)

- Project partners (Pennington SWCD, Red Lake SWCD, and International Water Institute) continued to conduct water quality sampling at eighteen sites throughout the Red Lake River and Grand Marais Creek watersheds.
- Extra samples were collected at sites that were dry last August.
- High E. coli concentrations (greater than the 126 CFU/100 ml chronic water quality standard) were found in JD1 (twice), Grand Marais Creek (twice), Kripple Creek (twice), Gentilly Creek, and CD96 (very high).
- Water in the upper Red Lake River (Red Lake River east of Thief River Falls) was relatively clean in August.
- “Make-up” samples at sites that went dry in 2012 will be collected in September.



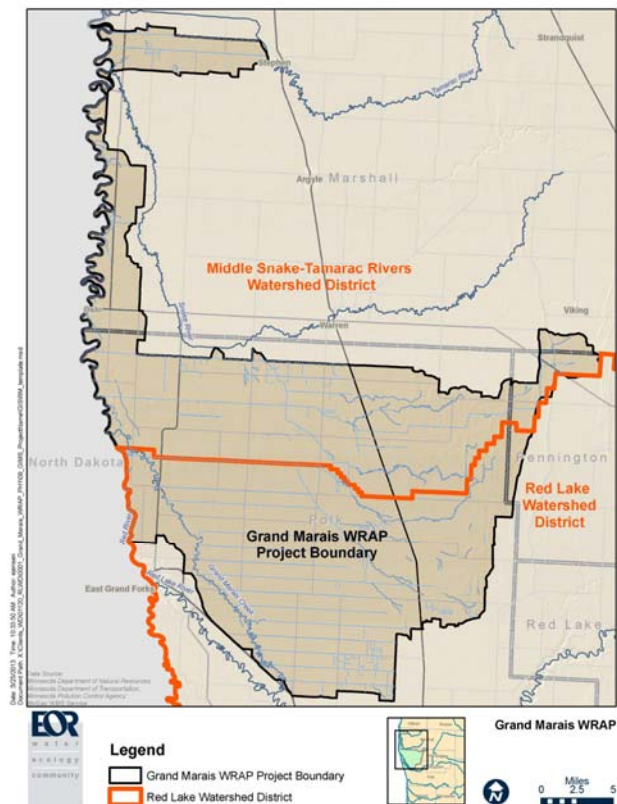
Grand Marais Creek Watershed Restoration and Protection Project

Emmons and Oliver Resources staff worked on the development of a website for the Grand Marais Creek watershed and a report on existing data, reports, and water quality conditions. <http://www.eorinc.com/GrandMaraisWRAP.php>

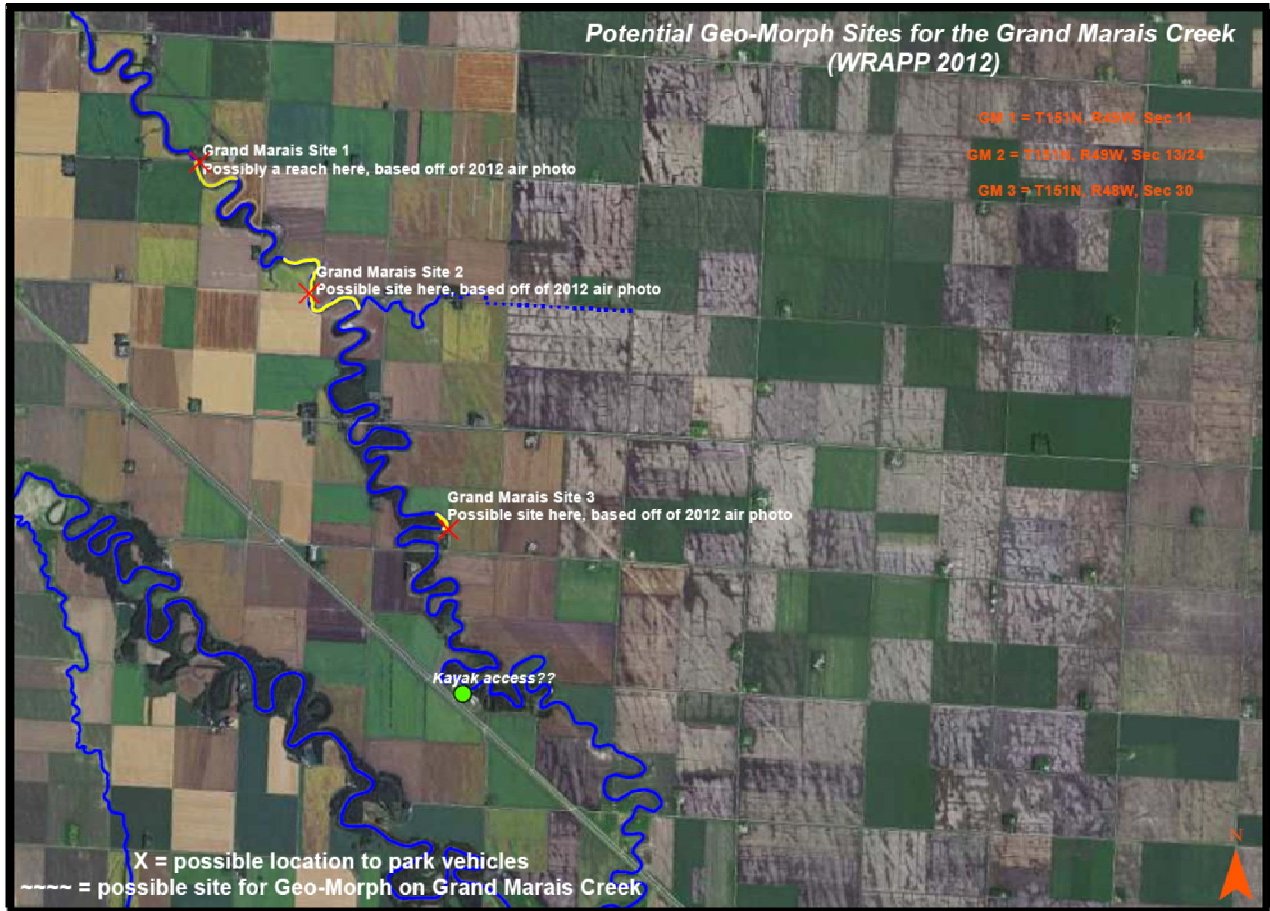
Emmons and Oliver Resources created a draft conditions report for the Grand Marais Creek watershed.

RLWD staff checked on the HOBO water level loggers in Grand Marais Creek, JD1, and JD75 and downloaded data from them.

The project area is being adjusted. The Grand Marais HUC-8 (major subwatershed), as defined by the United States Geological Survey, includes the actual drainage of Grand Marais Creek plus some land that drains directly into the Red River. That additional land includes drainage systems within the Middle Snake Tamarac Rivers Watershed District, north of the actual drainage area of Grand Marais Creek. They include JD1, JD75, and some ditches near Stephen (JD9, CD12). The reasoning behind why these ditches were originally added to the Grand Marais Creek HUC and not another, like the Snake River, is unknown. Perhaps, the remnants were added to the Grand Marais' HUC-8 to increase its size compared to other HUC8s. The organization of local water management should have been taken into account when the MPCA was developing its watershed-based approach to monitoring, planning, and assessment, though. For now, it looks like the ditches near Stephen (about 28 miles north of the northern boundary of the true Grand Marais Creek drainage area) will be moved from the Grand Marais Creek WRAP to the Snake River WRAP. According to MPCA staff, JD1 and JD75 will remain part of the Grand Marais Creek WRAP for now.



A geomorphic survey was conducted in late August of 2013. Minnesota Department of Natural Resources, EOR, and RLWD staff worked together to complete the field work. Many thanks to the landowners who allowed us access to Grand Marais Creek and portions of the Brandt channel drainage system. RLWD staff helped with calling landowners for access permission and conducting Bank Erosion hazard Index (BEHI) ratings. The following maps show the proposed geomorphology stations for this project. Some of them were changed, but most were visited.



RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

August 2013

BEHI Ratings were conducted by kayaking a reach of Grand Marais Creek downstream of the Fisher Rest Area.



One of the Grand Marais stations was downstream of 110th St. SW, not far upstream of where the diversion structure will be constructed for the outlet restoration project.



Thankfully, we didn't have to wear waders on these hot days because the channel was dry in the Brandt Channel and parts of Grand Marais Creek.



There are a couple of beaver dams in the Brandt Channel downstream of 270th Ave NW.



Parts of the Brandt channel appeared to have been sprayed with a broadleaf herbicide, killing willows that are important for keeping the banks stable and other broadleaf plants that are beneficial for wildlife habitat.



District Monitoring

- The third round of 2013 sampling at RLWD long-term monitoring sites (a.k.a. district monitoring) was completed in August. A fourth round will be completed in October. The 2013 Water Quality Assistant was able to conduct most of the August sampling.
- Water in the Clearwater River near Bagley, at CSAH 28, was pristine. Even nutrient levels were very low.
- High E. coli concentrations (>126 CFU/100 ml) were found in:
 - Gentilly Creek (three times this month including SWAG sampling)
 - Kripple Creek (three times this month including SWAG sampling)
 - Polk County Ditch 14 at the Maple Lake Outlet (levels were okay at the inlet)
 - Black River
 - Blackduck River (very high)
 - Darrigan's Creek (very high)
 - O' Briens Creek
 - Thief River at County Road 7 (twice)
 - Silver Creek, west of Clearbrook
 - Moose River at CSAH 54
 - Lost River at Oklee (very high)
 - Clearwater River at Plummer
- High turbidity (>25 NTRU/FNU) was found in:
 - Thief River at CR7
 - Grand Marais Creek at CR64 and CSAH 19
 - Red Lake River at the Murray Bridge in East Grand Forks
- Streams with low levels of dissolved oxygen (<5 mg/L) included
 - JD73 at the Maple Lake inlet
 - JD73 at the Badger Lake inlet
 - Poplar River near the Poplar River Diversion structure at 315th St.
 - Walker Brook (only 0.38 mg/L)
 - At the Lost River in Oklee, the dissolved oxygen was only 5.06 mg/L in the afternoon. Since DO levels rise throughout the day, it was almost certainly less than 5 mg/L in the early morning hours at this site.
 - Clear Brook at Highway 92
 - Hartsville Coulee
 - Thief River at County Road 7
 - Thief River north of Thief River Falls at the Hillyer Bridge (140th Ave NE)

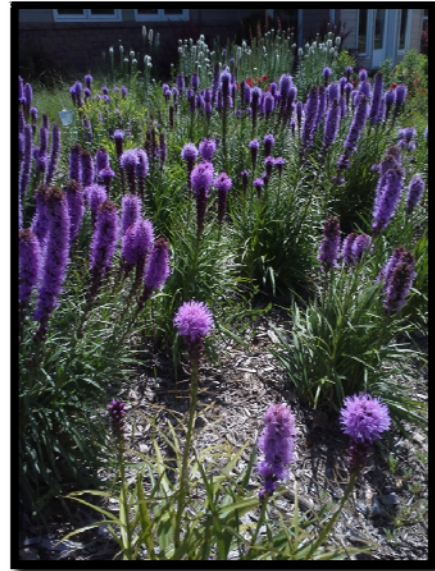


Stage/Flow Monitoring

- A HOBO Water Level Logger was purchased and deployed at the CR119 monitoring site on the Lost River (site PL30/S002-133).

Other Notes

- Work continued on the identification of stream sites that should be monitored for the Clearwater River Surface Water Assessment Grant and Watershed Restoration and Protection projects. The MPCA is also working on a list of lakes that will need to be monitored in 2014 and 2015.
- The Red Lake Department of Natural Resources is planning to start a culvert inventory/assessment for sites both on and off of the reservation in the Red Lakes' watershed.
- The Clearwater County SWCD and Beltrami County SWCD are working together to monitor water quality in Clearwater Lake.
- The DNR conducted a fisheries population assessment on Clearwater Lake in August.
- Planning began for the Clearwater River Watershed Restoration and Protection Project.
- The RLWD purchased a pair of kayaks that will be used for river reconnaissance, inspection, and upcoming geomorphology work.



Quotes of the Month:

“Keep your feet on the ground and your thoughts at lofty heights.”
– Peace Pilgrim

August Meetings/Events

- **August 22, 2013** – One Watershed One Plan (Comprehensive Watershed Management Plans) Informational meeting at the Red Lake Watershed District at 1:00 PM
- **August 23, 2013** - Red River Basin Monitoring Advisory Committee meeting at the Sand Hill Watershed District Office in Fertile.
- **August 26-29, 2013** – Grand Marais Creek Geomorphology work

Plans for September and October 2013

- Thief River Watershed Restoration and Protection Project.
 - Creating Stream Power Index maps.
 - Create a web page dedicated to the Thief River Watershed
 - Compile and apply corrections to continuous water quality data.
 - Stressor identification sampling (investigate sources of impairments).
 - Informational water quality video production.
- Red Lake River Watershed Assessment Project
 - Create a webpage dedicated to the Red Lake River
 - Compile and apply corrections to continuous dissolved oxygen data.
 - Deploy/retrieve dissolved oxygen loggers.
 - Stressor identification sampling and windshield surveys.
 - Follow-up geomorphology work.
- District monitoring in October to finish the 4th round of district monitoring.
- Clearwater WRAP work plan
- Data entry and submittal to EQUIS
- Data and other information for RESPEC for the Thief, Red Lake, and Clearwater River modeling.

Future Meetings/Events

- **September 10, 2013** – Meeting with RESPEC Modeling staff at the RLWD Office
- **September 11, 2013** – Pennington County Outdoor Education Day at Oakland Park in Thief River Falls.
- **September 13, 2013** – Clearwater River WRAP Work Plan Meeting – RLWD Office
- **September 24th, 2013** – Northwest Minnesota Water Festival in Warren
- **September 25th, 2013** – Northwest Minnesota Water Festival in Fertile
- **October 3rd, 2013** – Red River Basin Monitoring Advisory Committee Mtg, Fertile
- **October 16, 2013** - Marshall County Water Resources Advisory Committee

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

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