

Grand Marais Creek Watershed Restoration and Protection Project

A public meeting was held on April 18th, 2013 at 1:00 p.m. at the conference room in the East Grand Forks Cabela's store. A technical advisory committee (TAC) meeting was held in the morning before the public meeting.

The TAC members agreed that more flow monitoring is needed at sites within the Grand Marais Creek Hydrologic Unit, including Judicial Ditch 1 and Judicial Ditch 75. Those ditches are actually located north of the Grand Marais Creek drainage area and within the Middle Snake Tamarac Rivers Watershed District. An amendment to the contract will be pursued so that additional funding can be allocated toward this flow monitoring and MSTRWD staff time.

A geomorphic survey will be conducted during the summer of 2013. Minnesota Department of Natural Resources staff are willing to help with that effort.

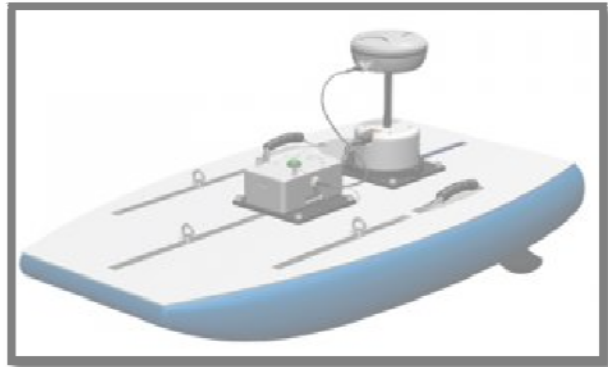
Red Lake Watershed District and Emmons and Oliver Resources staff toured the watershed and planned flow monitoring. HOBO Water Level Loggers will be deployed in Grand Marais Creek at CSAH 19, Polk County Ditch 2, Judicial Ditch 1, and Judicial Ditch 75 to supplement the flow data that is being collected in Grand Marais Creek at the County Road 64 crossing by the Minnesota Department of Natural Resources.

Grand Marais Creek at CR64, looking upstream (east) on 4/17/13.



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

- Task 5 – Flow Monitoring
 - Planned 2013 flow monitoring in the Thief River. A contract was developed with the Red Lake Department of Natural Resources to conduct flow measurements during the 2013 spring runoff. The Red Lake Nation owns a SonTek River Surveyor acoustic Doppler flow measurement instrument. This raft is pulled across the stream and provides a cross section of flow velocities within the channel. This allows for much safer and faster flow measurements than those collected with wading rods and bridge cranes. This will be especially helpful for getting high flow measurements at culvert stream crossings where bridge cranes cannot be used to measure the flow and flows are too high and/or dangerous for wading.
 - A change order was approved and signed to allow the RLWD to use a subcontractor for flow monitoring.
 - HOBO Water Level Loggers were deployed.

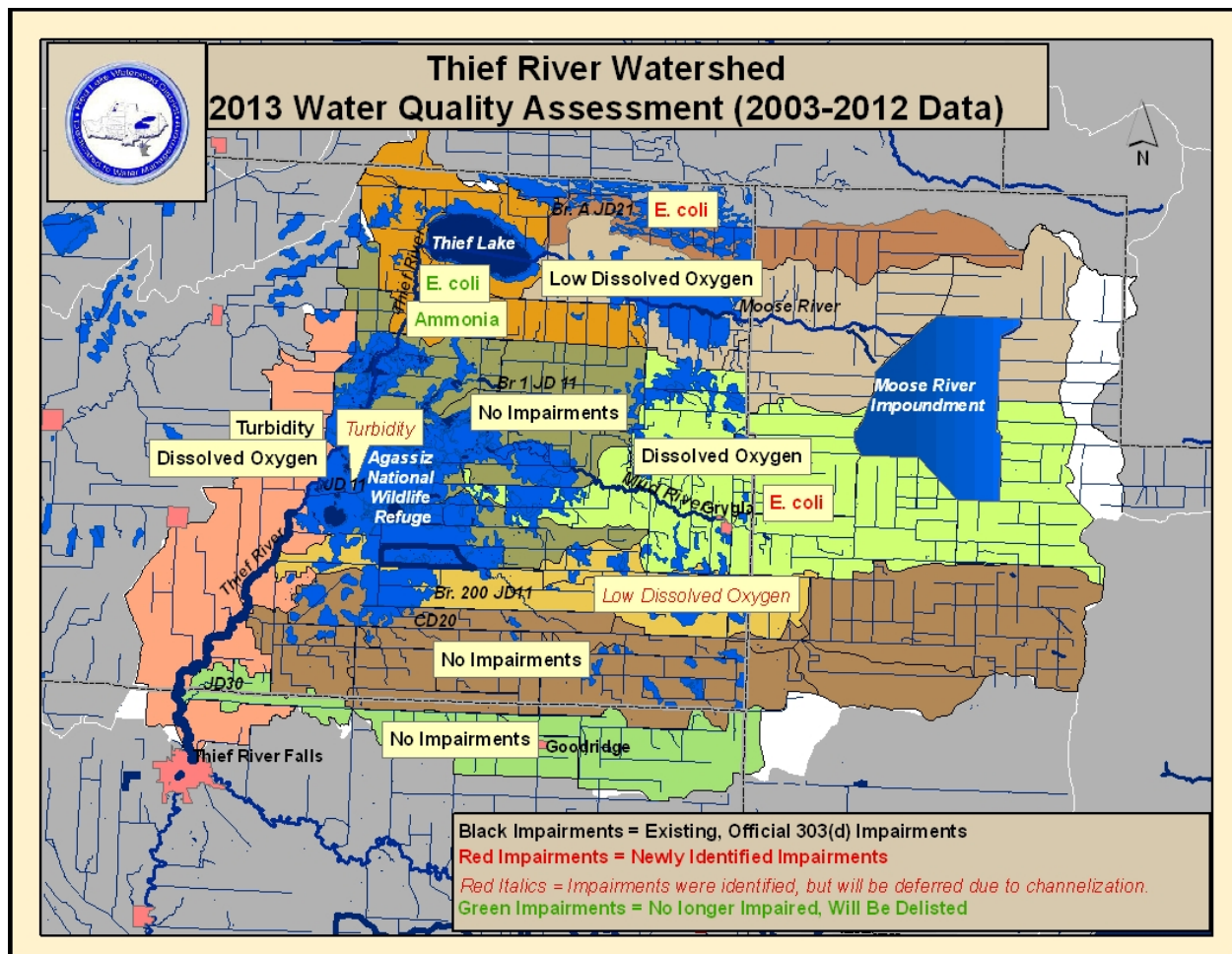


- Pennington County Soil and Water Conservation District staff helped collect manual stage measurements this spring until we were able to install water level loggers.

RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

April 2013

- Task 10 – Data Analysis
 - Compiled and assessed Thief River continuous dissolved oxygen data from the lower reach of the Thief River and Branch A of JD21.
 - The Minnesota pollution Control Agency completed its initial assessment of water quality data from the Thief River watershed. The results of this assessment were reviewed by the RLWD Water Quality Coordinator.
 - A Best Professional Judgment Group meeting was held at the Detroit Lake MPCA Office to review the results of the 2013 water quality assessment of the Thief River watershed.



- There also was resistance from MPCA assessment staff to the correction of stream/ditch names. Some reaches of ditches in the transparency documentation about the assessment results are described as “Unnamed Ditch, from Unnamed Ditch to Unnamed Ditch.” Using the Assessment Unit ID (AUID) numbers, RLWD staff found the real ditch names for many of these “unnamed” ditches using county highway maps, the Minnesota Delorme Atlas and Gazetteer, and plat books. These corrected names were submitted to the MPCA. After some

discussion between MPCA and RLWD staff, the MPCA may be willing to incorporate the corrected names into the AUID descriptions.

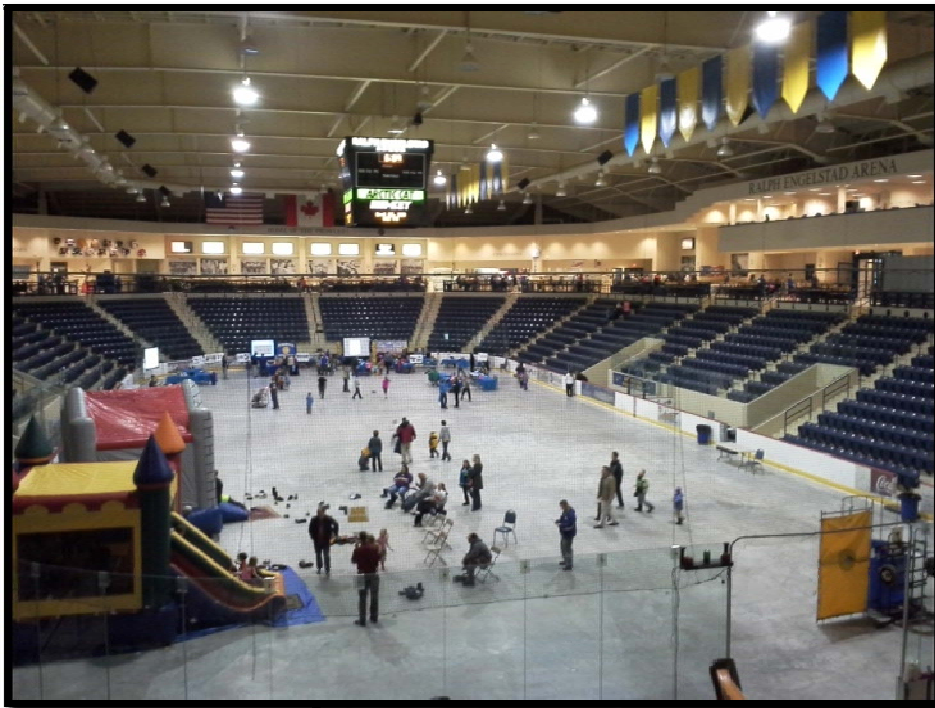
- The lower reach of the Thief River will not be listed as impaired by E. coli despite the fact that at least two of the sites, when assessed on their own, indicate an impairment. The worst site in this reach is actually the CR7 crossing, at the upstream end of the reach near Agassiz National Wildlife Refuge.
- When daily data summarizations (one value for all of the samples collected along the entire reach of the river in one day) are conducted using a geometric mean, the monthly geometric means (for the entire aggregate reach) meet the standard. When data from the whole reach is summarized using daily arithmetic means (simple average), the reach appears to be impaired by E. coli. The daily arithmetic mean method of summarizing daily data along a reach of a river should better match reality than the geometric mean. Let's say a person was going to physically send one sample to a lab that represented water quality at one point in time (e.g. one day) at a combination of all of the sites along a reach of the river. Samples would be collected from all of the sites, dumped into a churn, and mixed together. A composite sample would then be collected from that churn and then sent to the lab. The concentration within that sample, assuming the same volume was contributed from all of the sites, would be equal to the arithmetic mean of the concentrations at each of the sites that were sampled that day, not the geometric mean.
- Through 2011, the Mud River's dissolved oxygen data, including continuous data from deployed sondes, indicated that the river was meeting the dissolved oxygen standard and should be delisted. Unfortunately, the low flows in 2012 resulted in many daily minimum dissolved oxygen levels that dropped below the 5 mg/L threshold. There were enough days with sub-5 mg/L daily minimums to prevent the the Mud River dissolved oxygen impairment from being taken off of the 303(d) List of Impaired Waters during this round of assessment.
- After some initial resistance to the use of continuous water quality data that is being collected in our area, the MPCA developed a method for submitting continuous dissolved oxygen data. From each day that a sonde was deployed, the EQUIS data submittal template can be used to submit daily minimum, daily average, and daily maximum dissolved oxygen concentrations.
- Task 11 – Civic Engagement
 - Civic group presentations, public library presentations, an open house event at the RLWD, coordination with school field trips (if possible), coordination with Chamber of Commerce events, and website development are also in the plans for the first six months of 2013.



RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

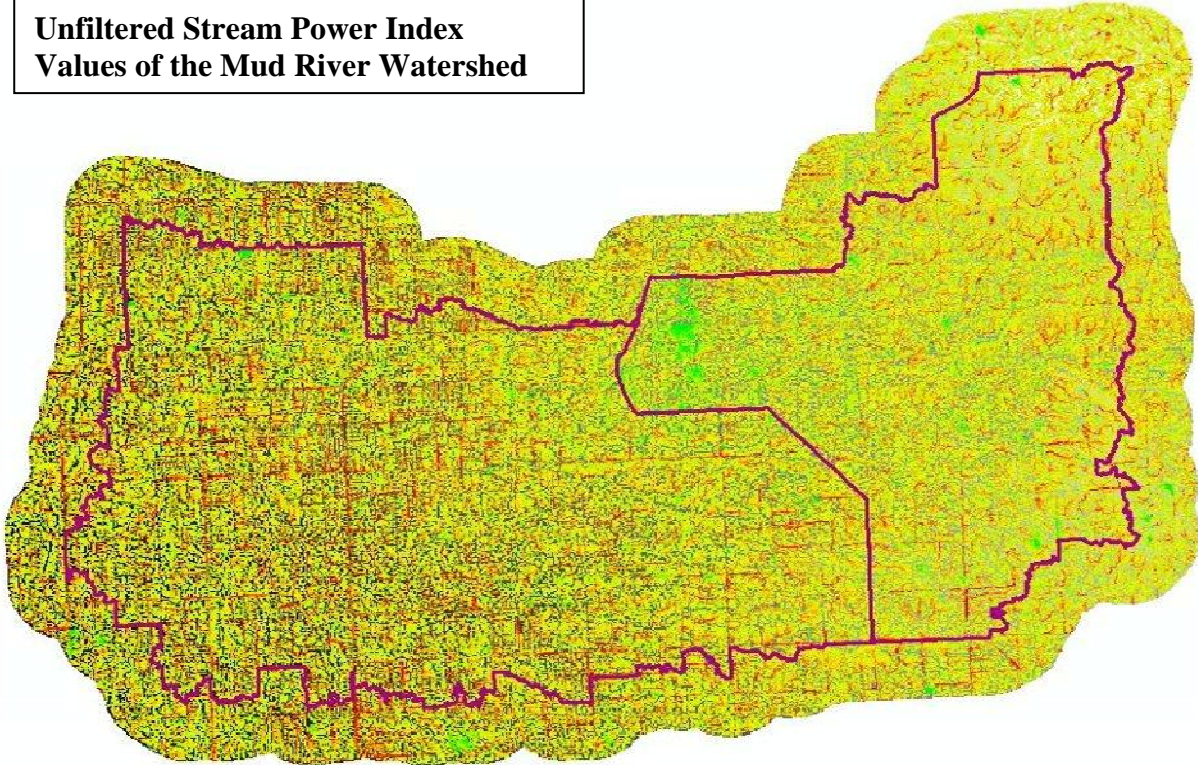
April 2013

- A Technical Advisory Group meeting is being planned for June 12th at the Detroit Lakes MPCA office.
- The Red Lake Watershed District set up a booth at the Thief River Falls Community Expo at the Ralph Engelstad Arena on April 25th in Thief River Falls. Display boards were set up with information about the WRAP projects and local drainage projects like the CD1 project. Visitors to the booth were able to sign up to have their name drawn for a rain gauge the RLWD gave away. RLWD travel mugs were also given away to visitors to the booth who stopped to talk for a while. The event was pretty well attended, especially between 5:30 and 6:00 pm.



- Task 12 – Identification of Sources and Solutions
 - In April 2013, the development of a Stream Power Index for the Thief River watershed was nearing completion.

**Unfiltered Stream Power Index
Values of the Mud River Watershed**



Here's a "zoomed in" view of the Moose River near CSAH 54. The red points on the map represent just the highest Stream Power Index values and the points at which there is a relatively high potential for gully erosion.

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

A work plan for Phase II of this project was developed in February 2013. Phase II is planned to begin on July 1, 2013. The revision to the Phase I budget that added \$9,900 to the \$150,000 budget was completed in February, but hasn't become official yet.

- Task 5 – Flow Monitoring
 - A change order was approved and signed to allow the RLWD to use a subcontractor for flow monitoring.
 - Planned 2013 flow monitoring in the Red Lake River. A contract was developed with the Red Lake Department of Natural Resources to conduct flow measurements during the 2013 spring runoff.
 - Pennington County Soil and Water Conservation District staff helped collect manual stage measurements this spring until we were able to install water level loggers.
 - HOBO Water Level Loggers were deployed.

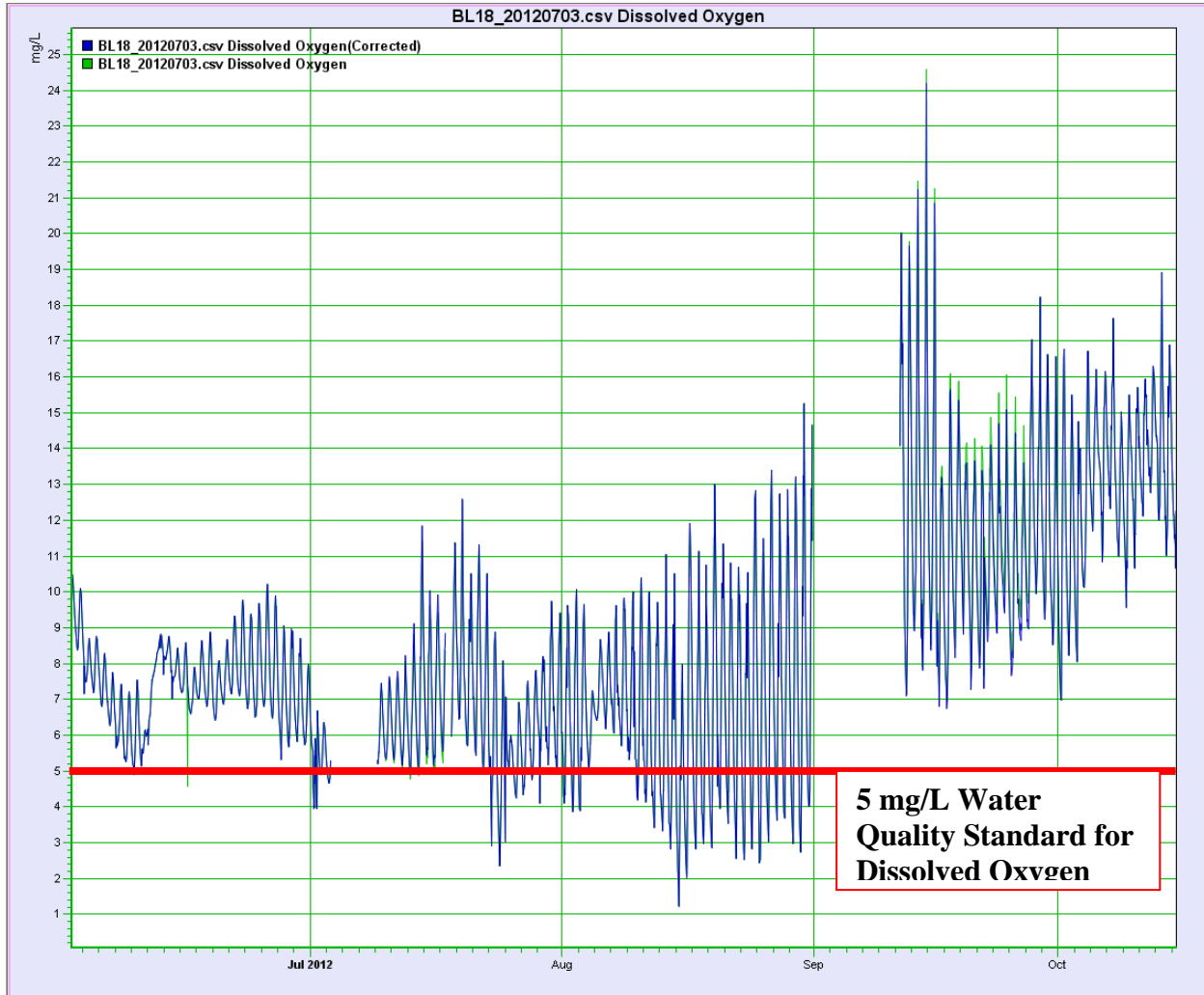


Rapidly flowing runoff in Polk County Ditch 1. There is a lot of bank failure and sloughing occurring along the channel.

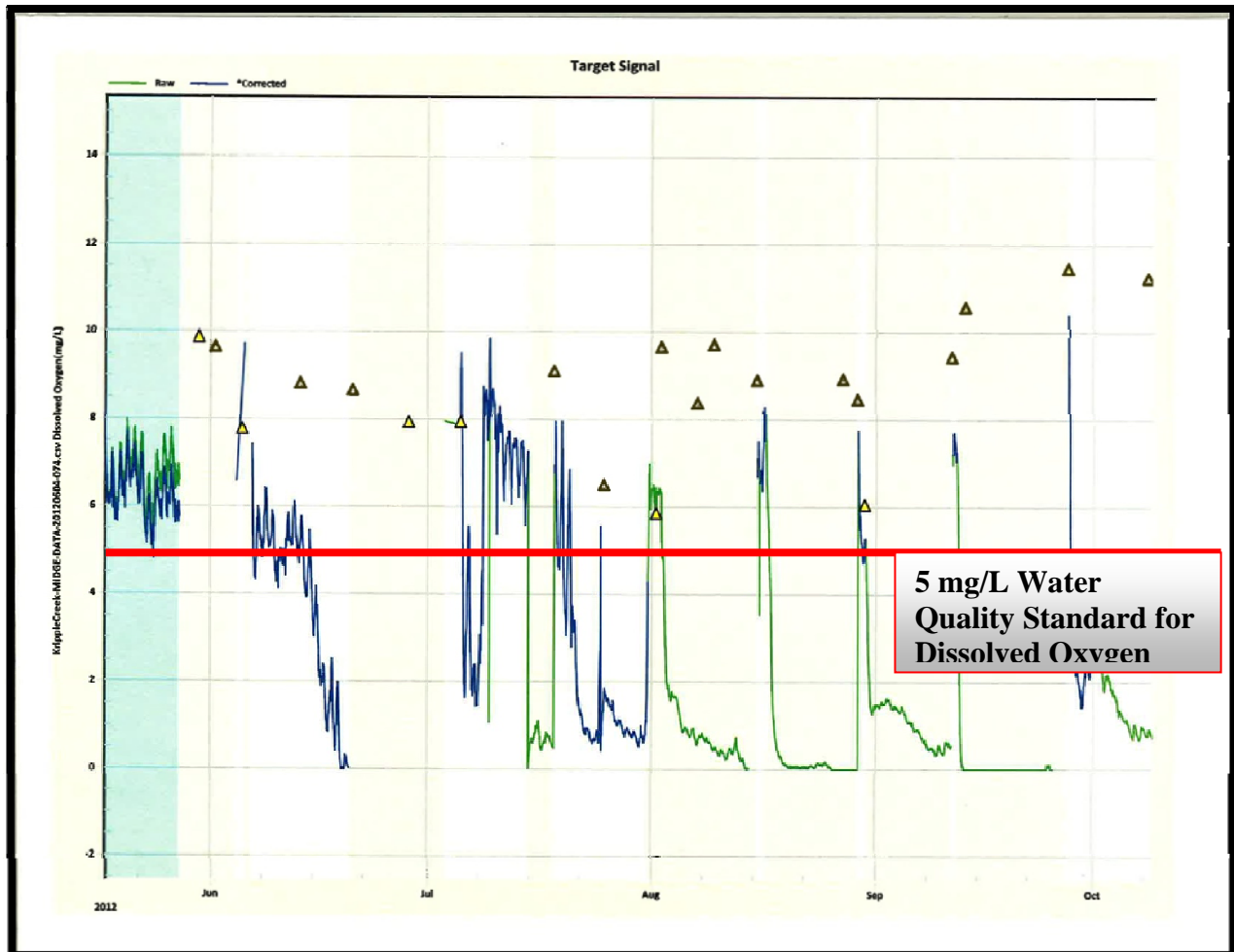
RED LAKE WATERSHED DISTRICT
MONTHLY WATER QUALITY REPORT

April 2013

- Task 9 – Data Analysis
 - Compiled and corrected 2012 continuous dissolved oxygen data from the Black River.



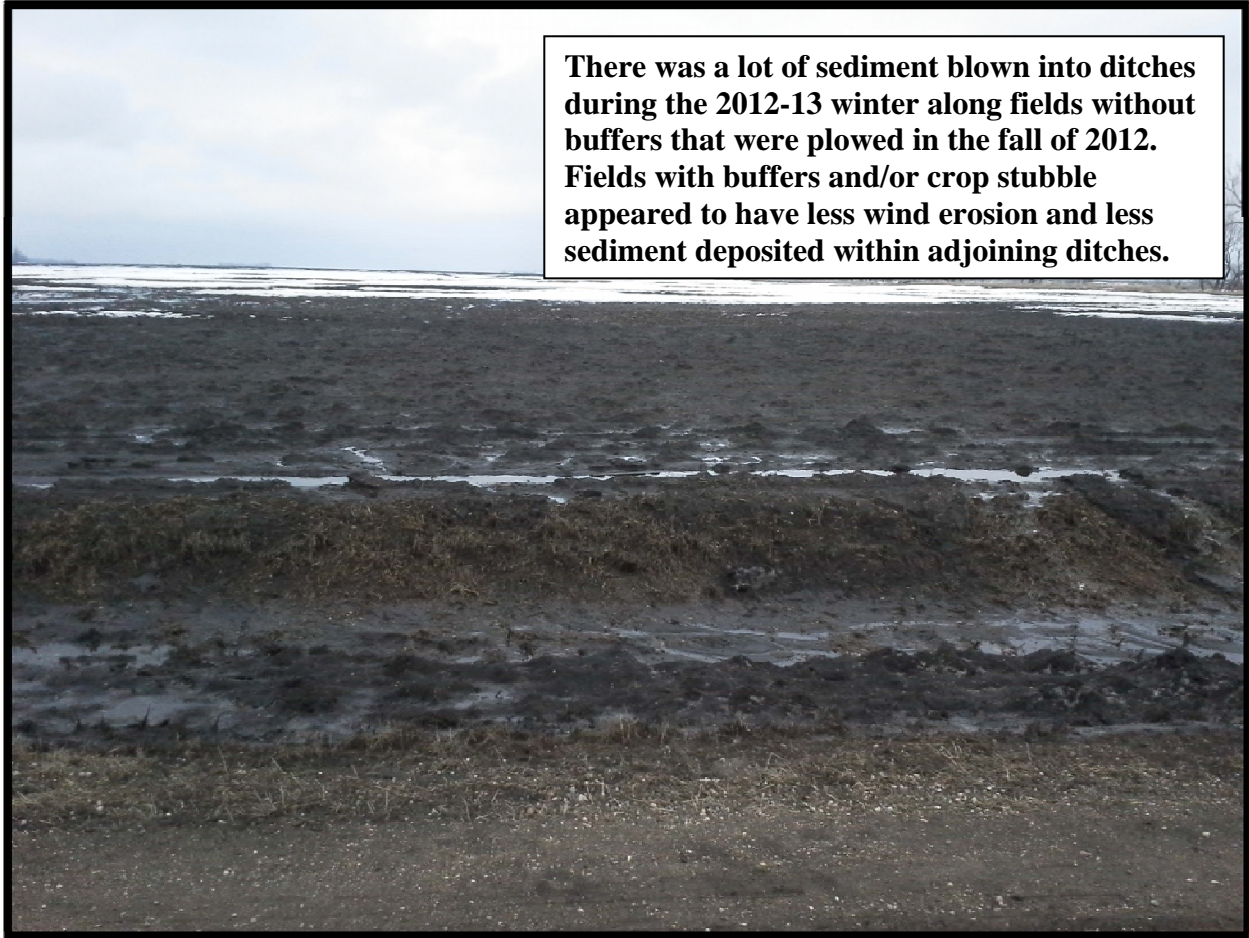
- 2012 continuous dissolved oxygen data from Kripple Creek was compiled and corrected. The dissolved oxygen loggers used at the site didn't do an acceptable job of maintaining their calibrations throughout the calibration periods. Therefore, Kripple Creek should be one of the sites where (different) continuous monitoring equipment is deployed in 2013.



- Task 10 – Civic Engagement
 - Two public stakeholders' update meetings were held in April. We held two public information meetings for this project because of the length of this watershed. A meeting was held in Grand Forks for people that live and/or work in the lower part of the Red Lake River watershed. People who live and/or work in the upper part of the watershed were able to go to a meeting in Thief River Falls.
 - On April 9th a Red Lake River Watershed Restoration and Protection Project Stakeholders' Update Meeting was held at the Guesthouse Inn in Grand Forks from 10 am until noon. The attendance at this meeting was lower than what was expected.



- On April 10th, a Red Lake River Watershed Restoration and Protection Project Stakeholders' Meeting was held at the Red Lake Watershed District Office (1000 Pennington Ave S) in Thief River Falls from 10 am until noon. This meeting was well-attended, filling up the RLWD meeting room.
- Presentations from the meetings are available on the Red Lake River blog at <http://redlakeriver.wordpress.com/>.
- Civic group presentations, public library presentations, an open house event at the RLWD, coordination with school field trips, coordination with Chamber of Commerce events, and website development are also in the plans for Phase II of the project, in the latter half of 2013.
- A Technical Advisory Group meeting is being planned for June 12th at the Detroit Lakes MPCA office.
- Task 11 – Identify Sources and Solutions
 - Michael Knudson will be using a RLWD sampler and turbidimeter to sample and analyze stormwater runoff in Crookston again in 2013.



Other Notes

- Created a flow monitoring plan for the Clearwater River watershed for the Red Lake DNR. The RLWD Board of Managers approved up to \$5,000 for flow measurements at several sites in the Clearwater River watershed this spring. This will give us a head start toward establishing rating curves at key sites that will be used for calculating TMDLs during the Clearwater River Watershed Restoration and Protection Project.
- Calibration solutions were ordered for the Red Lake River and Grand Marais Creek Surface Water Assessment Grant project.
- A list of potential Surface Water Assessment Grant monitoring sites in the Clearwater River watershed was compiled by MPCA staff and sent to the RLWD for review.
- The late spring thaw in 2013 didn't allow enough of an opportunity for water quality sampling in April. The first round of RLWD district monitoring will occur in May.
- HOBO Water Level Loggers were deployed in the Clearwater River watershed.



April Meetings and Events

- **April 2, 2013** – Thief River Best Professional Judgment Group (official State water quality assessment) meeting at the Detroit Lake MPCA Office.
- **April 9, 2013** – Red Lake River Watershed Restoration and Protection Project Stakeholders' Update Meeting.
 - 10:00 am to 12:00 pm
 - Guesthouse Inn, Grand Forks, ND
 - Watershed overview
 - Description of the project.
 - Water quality conditions
 - Civic Engagement
 - Red Lake County SWCD projects
 - Biological monitoring in the Red Lake River watershed.
- **April 10, 2013** – Red Lake River Watershed Restoration and Protection Project Stakeholders' Update Meeting.
 - 10:00 am to 12:00 pm

- Red Lake Watershed District Office meeting room, Thief River Falls
- Watershed overview
- Description of the project.
- Water quality conditions
- Civic Engagement
- Pennington County SWCD projects
- Stream channel stability assessment within the Red Lake River watershed.
- **April 17, 2013** - Marshall County Water Resources Advisory Committee
- **April 18, 2013** – Grand Marais Watershed Restoration and Protection Project Kick-Off Meeting at Cabela’s in East Grand Forks at 1:00 pm
- **April 22, 2013** – Houston Engineering will be presenting a webinar about “Using LIDAR-based Terrain Analysis Products.”
- **April 25, 2013** – The Red lake Watershed District will set up a booth at the Thief River Falls Community Expo Booth at the Ralph Engelstad Arena in Thief River Falls (4:00 pm to 7:00 pm).

Plans for May and June 2013

- Thief River Watershed Restoration and Protection Project.
 - Stream power index analysis of sub-basins in the Thief River watershed.
 - Create a web page dedicated to the Thief River Watershed
 - Compile and apply corrections to continuous water quality data.
 - Technical Advisory Committee meeting.
 - Grygla Open House.
 - Flow measurements.
 - Stressor identification sampling and windshield surveys.
- Red Lake River Watershed Assessment Project
 - Produce an updated assessment of water quality conditions in the watershed.
 - Create a webpage dedicated to the Red Lake River
 - Compile and apply corrections to continuous dissolved oxygen data.
 - Deploy dissolved oxygen loggers.
 - Flow measurements.
 - Stressor identification sampling and windshield surveys.
 - Technical Advisory Committee meeting.
- Begin stage and flow monitoring
- District Monitoring in May (Originally planned for April, but the melt didn’t start soon enough).
- District monitoring in June.
- Flow measurements during spring runoff (contract with Red Lake Department of Natural Resources)
- HOBO Water Level Logger deployment
- Stressor ID sampling for WRAP projects during spring runoff.

Future Meetings/Events

- **June 10, 2013** – Pennington County Water Resources Advisory Committee – 9 am
- **June 10, 2013** - E-Link Training Session – 12:30 – 3:30 PM
- **June 12, 2013** – Technical Advisory Committee meeting for the red Lake River and Thief River Watershed Restoration and Protection Projects
- **June 17, 2013** – Grygla Open House Event at the Grygla Community Center, 3-6 PM
- **June 30, 2013** – Expiration of the Thief River Watershed Assessment Project Contract.
- **June 30, 2013** – Expiration of the Red Lake River Watershed Assessment Project – Phase I Contract.
- **June 30, 2013** – Final report for the Thief River SWAG grant is due
- **July 30, 2013** – Due date for the final progress report and final invoice for the Thief River Watershed Assessment Project
- **July 1, 2013** – Beginning of Phase II of the Thief River and Red Lake River Watershed Restoration and Protection Projects.
- **July 17, 2013** – Marshall County Water Resources Advisory Committee
- **July 31, 2013** – Final payment request for the Thief River SWAG is due.
- **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.

Quote of the Month:

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