

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

- Task 7 – Stressor Identification
  - Longitudinal E. coli samples were collected along the Mud River after hearing about high concentrations of E. coli near the Grygla lagoons. The results didn't reveal high E. coli concentrations downstream of the lagoons. Rather, the highest concentration was at the CSAH 54 crossing on the east (upstream) side of town. There were a lot of northern pike in a pool downstream of the outlet of the South Pool of the Moose River Impoundment.
- Task 8 – Water Quality Model Development
  - RLWD staff met with RESPEC staff to discuss the Thief River HSPF model. RLWD staff provided the modelers with culvert inventory data, a hydro-corrected LIDAR surface of the Thief River watershed, SWAT model results, continuous flow data, and continuous water quality data.
- 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. A team of people including the videographer, RMB Environmental Labs, RLWD staff, and MPCA staff worked on planning the scripts for the videos and thinking of places where we could capture some video footage that could be used in the videos. RLWD staff recruited people to appear in the videos.

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- Task 3 – Continuous Water Quality Monitoring
  - Eureka Midge, In-Situ TROLL 9500, HOB0 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.
  - In-Situ TROLL 50281 needed service to replace a faulty temperature probe. The optical dissolved oxygen probe was also replaced under warranty.

- Task 5 – Stage and Flow Monitoring
  - Flow was measured in the Red Lake River at the CSAH 27 monitoring site.
- Task 6 – Stream Channel Stability Assessment (Geomorphology)
  - Follow-up geomorphology work was conducted at the geomorphology station that was established at the Old Crossing Treaty Park near Huot. This work involved surveyed cross-sections, longitudinal surveys, bank profiles, Pfankuch assessments, and Bank Erosion Hazard Index assessments. These repeated measurements will be used to determine how much erosion has occurred in the last year. The results will be extrapolated to similar reaches of the river. There was some gullying within a field ditch near the site and bank failure at the end of that ditch that could be possibly be addressed with BMPs through an incentive program.



- Follow-up geomorphology measurements were also completed at a site near the lower end of the dredged portion of the upper reach of the river (east of Thief River Falls). Stations were also visited at the Smiley Bridge and St. Hilaire City Park.



- Task 11 – ID Sources and Solutions
  - Progress was made in the process of hydro-correcting (“burning-in” flow paths where there are culverts and bridges) the Red Lake River LIDAR surface and development of a Stream Power Index for the Red Lake River. RLWD staff are completing a township-by-township search for culverts that will help with the hydro-correction process.

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

- Project partners (Marshall County, Red Lake SWCD, and International Water Institute) continued to conduct water quality sampling at sites that needed “make-up” samples this year because they were dry during the sampling visits that were scheduled for last September.
- High E. coli concentrations (greater than the 126 CFU/100 ml chronic water quality standard) were found in Water in the upper Red Lake River (Red Lake River east of Thief River Falls) was relatively clean in August.

### **Red Lake Watershed District Long-Term Monitoring Program**

- A few sites were sampled in the Thief River watershed to finish the third round of sampling this year.
- A high E. coli concentration was found in the Moose River at CSAH 54, but not at the site further downstream at Highway 89.

### **Grand Marais Creek Watershed Restoration and Protection Project**

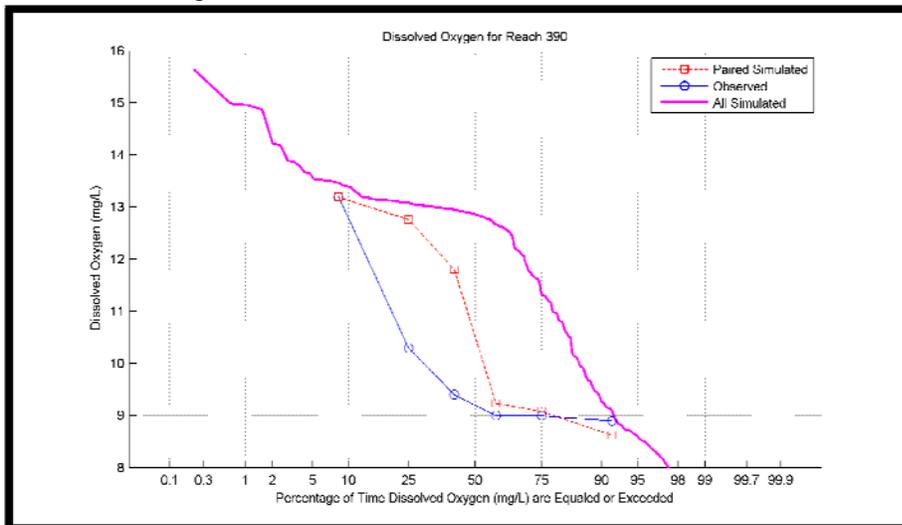
- Water level measurements were made at sites that have water level loggers deployed. Flows are down to zero in JD1 and JD75.



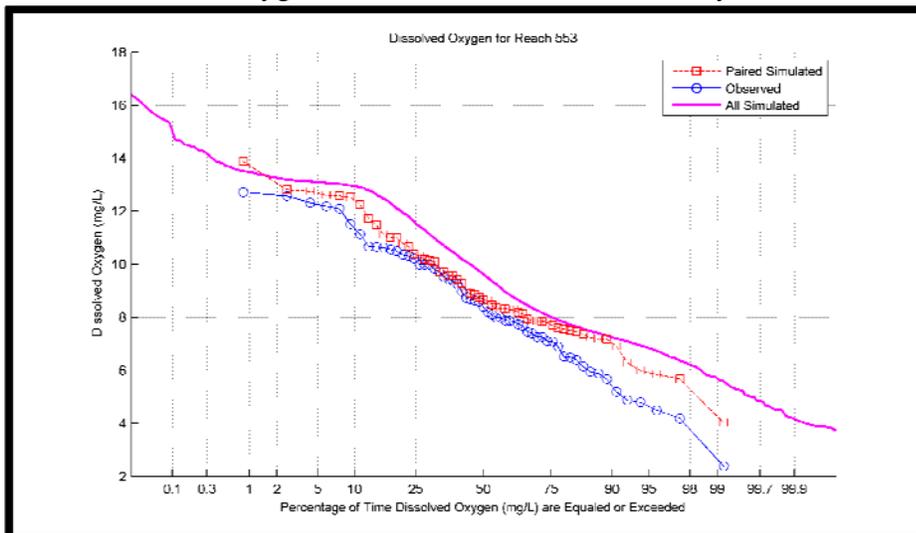
- The contract for this project was officially amended to add additional money for civic engagement and flow monitoring. The total budget was increased from \$123,400 to \$148,569.65.
- Emmons and Oliver Resources created a webpage for the project: [www.prairiebasin.com](http://www.prairiebasin.com)

**HSPF Water Quality Model Development by RESPEC**

- RLWD staff met with staff from RESPEC that are working on HSPF water quantity/quality models for the Red Lake River, Clearwater River, and Thief River watersheds. RLWD staff provided them with data that can aid with the calibration of the models.
- A review of Clearwater River HSPF modeling results began. The consulting firm, RESPEC, is looking for input on why there is a significant divergence between observed and simulated dissolved oxygen values at some locations. For example, there is a divergence at the Clearwater River monitoring site near Plummer. Observed values were lower than simulated values. At this site (a.k.a. Reach 390, below), the model may not be accounting for the influence of wild rice paddies (pumping water from the river, discharge into the river).



- At some points in the watershed, like this one along the Poplar River, modeled/simulated dissolved oxygen values match the observed very well.



### Stream Gauging

- The MPCA installed a flow monitoring station on the Lost River, north of Brooks at CR118. It will be moved upstream to CR119 (which will be a better monitoring site anyway) due to a hostile landowner at the CR118 site.

### Other Notes

- Planning and work plan development for the Clearwater River Watershed Restoration and Protection Project is underway. Meetings were held to plan geomorphology work that will be conducted next year and for the development of the work plan.
- Continued helping the MPCA develop a list of 10X monitoring sites for the 2014-15 Surface Water Assessment Grant for the Clearwater River.
- Some district monitoring samples were collected to make sure that each site has been monitored at least three times so far this year.
- University of Minnesota Crookston staff are borrowing our old Kemmerer sampler for use in an Endocrine Disruptor study.
- RLWD water quality staff helped with the Northwest Minnesota Water Festival events for 4<sup>th</sup> graders that were held in Fertile and Warren at the Water Quality and Watersheds stations.
- Continuous dissolved oxygen data from the Poplar River near Fosston (POP20, S003-127) was summarized (daily minimum, daily maximum and daily average) and submitted to the MPCA for entry into EQUIS and/or HYDSTRA.
- The Clearwater Soil and Water Conservation District published a Fall 2013 newsletter that is available online at: <http://clearwaterswcd.org/2013.fall.newsletter.pdf>
  - Clean Water Funds were used for a shoreline protection project (rip-rap, native plant buffer) for a property on Pine Lake.
  - The newsletter also includes a full page article about the stormwater pond that the RLWD and Clearwater SWCD worked together to construct in Clearbrook.



**September Meetings/Events**

- **September 9, 2013** – Pennington County Water Resources Advisory Committee meeting.
  - The Halvorson stream bank stabilization project has been completed (stream barbs and rip-rap along the Thief River to protect a home).
  - The Erickson Group erosion control project will be proceeding. One of the properties was for sale, so construction was delayed to minimize disturbance to the property until after it was sold. The property has a new owner now, so construction should be able to proceed.
  - Construction cost estimates for the Ralph Engelstad Arena Rain Garden Project came in 50% higher than the budget. The SWCD will apply for more funding and plan to proceed with construction in the spring.
  - The county is looking for a landowner to fill an open spot on the committee.
  - There was some discussion about “One Watershed, One Plan.”
  - The NRCS has been designing and installing a bunch of side water inlets in Pennington County.
  - The City of Thief River Falls was significantly impacted by high turbidity in the Thief River this summer. Total organic carbon concentrations were high at times.
  - The construction of the roundabout in Thief River Falls ran into a stormwater snag. A lift station was needed.
  - Bird watchers have spotted many species of birds at the City of Thief River Falls’ lagoons.
  - The SWCD used HOBO Water Level Loggers to monitor water levels at a wetland banking site this summer.
  - A Well Water Testing Clinic was held on August 12<sup>th</sup> – 15<sup>th</sup>, with 44 participants.
  - The SWCD collected water quality measurements at 9 sites throughout the county in June, July, and August.
- **September 10, 2013** – Meeting with RESPEC Modeling staff at the RLWD Office
  - RESPEC staff are developing hydrologic and water quality models for the Clearwater and Red Lake River watersheds.
  - The firm is also refining the Thief River watershed’s model by using LIDAR data and other updated data inputs.
  - RLWD staff provided RESPEC with GIS and water quality data that they didn’t have access to before. RLWD staff will also be reviewing modeling results, sending flow rating curves, and sending cross-section information that will help with the calibration of the models.

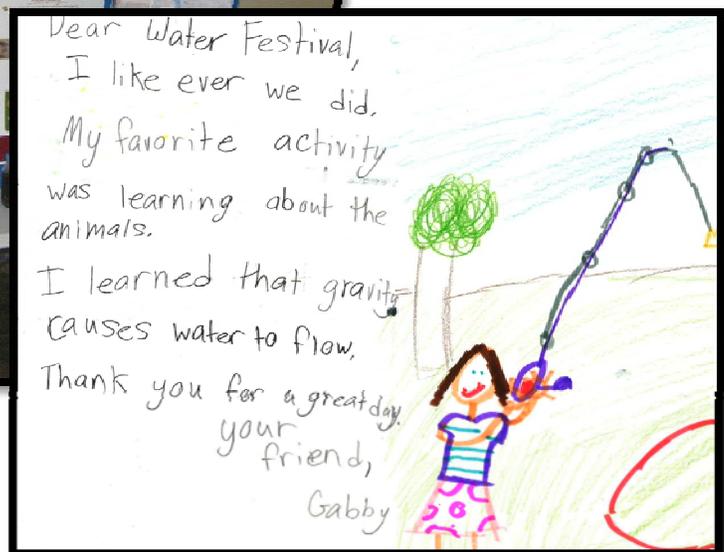
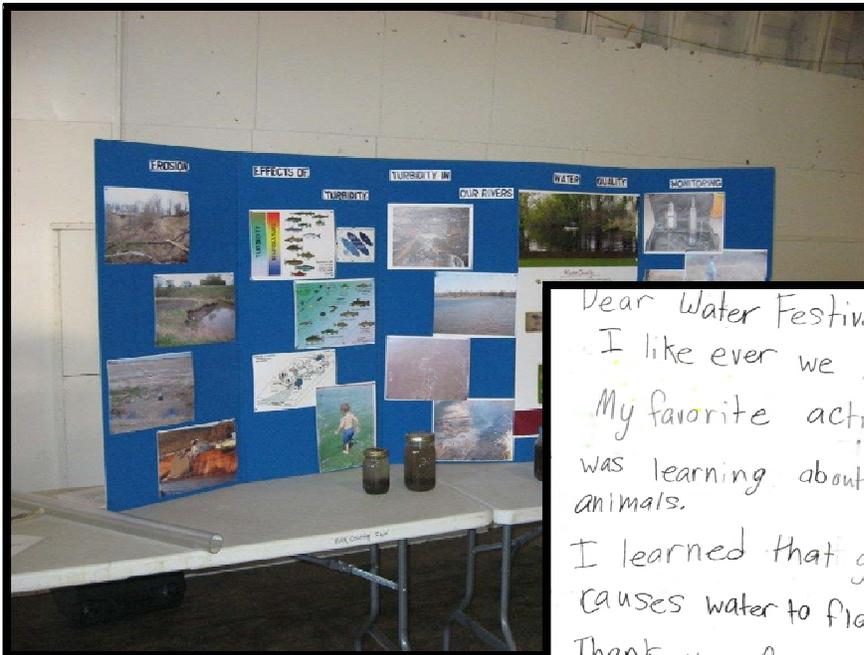
- **September 11, 2013** – Pennington County Outdoor Education Day at Oakland Park in Thief River Falls.



- **September 13, 20113** – Clearwater River WRAP Work Plan Meeting – RLWD Office
- **September 24<sup>th</sup>, 2013** – Northwest Minnesota Water Festival in Warren



- **September 25<sup>th</sup>, 2013** – Northwest Minnesota Water Festival in Fertile



### Plans for October and November 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.
  - Flow characterization
  - Shoot video footage for water quality videos. Promote the videos once they are finished.
- 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.
  - Submit a summarization of continuous dissolved oxygen data to MPCA EQuIS staff.
  - Flow characterization
- District monitoring in October to finish the 4<sup>th</sup> round of district monitoring.
- Clearwater WRAP work plan
- Data entry and submittal to EQuIS
- Data reviews.
- Data and other information for RESPEC for the Thief, Red Lake, and Clearwater River modeling.
- Retrieve, clean, and download data from all HOBO Water Level Loggers.
- Compile 2013 stage and flow data.

### Future Meetings/Events

- **October 4th, 2013** – Red River Basin Monitoring Advisory Committee Mtg, Fertile
- **October 16, 2013** - Marshall County Water Resources Advisory Committee
- **December 3<sup>rd</sup>, 2013** – Marshall County Water Resources Advisory Committee
- **December 16, 2013** - Pennington County Water Resources Advisory Committee

**Quotes of the Month:**

“Most things in life require effort even if, years later, they seem easy.”

– Anonymous

“If a window of opportunity opens, don’t pull down the shade.”

– Tom Peters

“Aim for success, not perfection. Never give up your right to be wrong because then you will lose the ability to learn new things and move forward with your life.”

– David Rockefeller

“The pessimist sees difficulty in every opportunity. The optimist sees the opportunity in every difficulty.”

– Winston Churchill

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

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