

**By: Corey Hanson, Water Quality Coordinator**

For: September 13th, 2007

RLWD Board Mtg.

### Clearwater River Dissolved Oxygen and Fecal Coliform TMDL

- Five sets of samples were collected at all six E. coli monitoring sites.
- The Eureka Midge dissolved oxygen loggers were cleaned and calibrated twice this month.
- Stage data was collected at the beginning of the month.
- A semi-annual report for the project was completed and submitted to the MPCA.
- The Clearwater River and Lost River monitoring sites were OK this month (geometric means that are less than 126 CFU/100 ml)
- Silver Creek was still impaired at the monitoring site (#157) that is west of Clearbrook.
- The first check from the MPCA for \$2,127.39 was received. We will be submitting another invoice to the MCPA soon.
- Eureka Midge dissolved oxygen loggers (that are working properly) and Onset HOBO water level loggers that were purchased for the Clearwater River Trout Stressor Study will be used to collect data at the Clearwater River sites from which the wate damaged In-Situ TROLL 9000 probes were removed.
- Longitudinal water quality surveys were completed for the Poplar and Clearwater Rivers. These consist of field measurements with the Eureka Manta multiprobe (dissolved oxygen, temperature, pH, conductivity, and turbidity at every stream crossing within the impaired reaches. August is a good time to look for low dissolved oxygen levels because of the high water temperatures and lower, often stagnant, flows. Dissolved oxygen levels were satisfactory all along the Clearwater River. Dissolved oxygen levels dropped below the 5 mg/L standard at 9 of the 27 crossings tested along the Poplar River. Several others sites had levels that were above the standard at the time of measurement, but were low enough that they may not have met the standard earlier in the AM when daily minimums normally occur. I talked to a landowner at one of the Poplar River sites that remembers being able to swim in the river, has reported fish kills (3-4 years ago), and believes that the City of Fosston is releasing insufficiently treated wastewater after hours and on weekends. The continuous monitoring equipment downstream of Fosston should record any increases in flow that can't be explained by rainfall as well as any sudden decreases in dissolved oxygen.



**Thief River Watershed Sediment Investigation**

Equipment was retrieved, cleaned, calibrated, and replaced twice in August. A Eureka Manta multiprobe that was damaged during high flows in June was repaired by Eureka (replaced turbidity and optical dissolved oxygen probes) and redeployed. A round of sample collection at the 11 monitoring sites was completed.

The RLWD received the first payment from the MPCA (\$24,125), which was due after signing and execution of the grant agreement. The next payment (\$33,775) will come after approval of the project work plan, which was completed in August. A semi-annual progress report was completed and submitted for this project. Revision 1 of the project work plan was completed and submitted for MPCA approval on August 28<sup>th</sup>.

**Red River Basin Buffer Initiative (End of 319 Grant Project)**

A round of monitoring at this project's monitoring sites was completed in August, even though sampling wasn't possible at all sites due to a lack of water. I submitted the following final report to Ruth Lewis for inclusion in the overall final report for the 319 Grant. Monitoring will need to continue for this project to properly assess any impacts from the buffer implementation.

*As an in-kind match contribution to the Red River Basin Buffer Initiative project, the Red Lake Watershed District (RLWD) has been monitoring water quality conditions in the Silver Creek watershed. Monthly samples have been collected since the fall of 2002. Monitoring will continue in upcoming years in order to reliably assess the impact of the buffer strip implementation project. Future trend analysis results will be included in a future semi-biennial RLWD Comprehensive Water Quality Report.*

*Field measurements for dissolved oxygen, temperature, specific conductivity, pH, and turbidity are collected during site visits. Samples are analyzed for total phosphorus, orthophosphorus, total suspended solids, fecal coliform, and E. coli (recently added to prepare for MPCA water quality standards rule change). The samples are shipped overnight to, and analyzed by RMB Environmental Laboratories, Inc. of Detroit Lakes, Minnesota. This is a Minnesota Department of Health certified laboratory. Data collected for this project is submitted yearly along with other data collected by the RLWD to the MPCA for entry into the STORET database.*

*The water quality data collected for this project, combined with the RLWD long-term monitoring program data, have identified a fecal coliform impairment on Silver Creek. A TMDL Study is currently underway to verify this impairment and determine its source.*

*The RLWD has spent a total of \$5,901.47 on the project, which includes:*

- *\$3,813.06 for salaries, overhead, and expenses*
- *\$281.91 for shipping samples*
- *\$1,806.50 for sample analysis*

### **Project 60E**

I completed a round of cleaning and calibration in August. Flow had ceased at both monitoring sites, but equipment will remain in place to capture data from any rain/runoff events that may occur.

### **District Monitoring**

Samples were collected at long-term district monitoring sites whenever time allowed.

### **Clearwater River Trout Stressor Study**

Tony Kennedy of the DNR had some trouble getting the Eureka Midge, purchased for continuous dissolved oxygen monitoring, to work well in cold water. In early August, I received the 5 Midge, 2 HOBO water level loggers, and batteries from Tony. I will evaluate whether or not the sondes are working properly. Eureka has offered to upgrade all of our Midge dissolved oxygen loggers and repair the ones that aren't working properly. I will have to send these to Eureka on a rotation as most are still needed in the field this year.

### **August Meetings and Events**

- ❖ **August 1<sup>st</sup>** – Semi-annual reports for the Thief River Watershed Sediment Investigation and Clearwater River Dissolved Oxygen and Fecal Coliform TMDL studies are due.
- ❖ **August 8<sup>th</sup>** – Marshall County WRAC
  - Received Thief River Watershed Sediment Investigation monitoring results from Jan Kaspari, Marshall County Water Planner
    - High E.coli concentrations on the Thief River above Agassiz NWR, Mud River, and Moose River
    - Acceptable turbidity and dissolved oxygen levels at all the sites Jan has monitored
  - Reported on the progress of the Thief River study and distributed a map of monitoring sites
  - There is construction along Hwy. 54 near Grygla – may affect water quality
  - There have been efforts to create a wetland and nature education site within Marshall County. The first two sites – Lehman gravel pit and Nelson Park won't work because future gravel mining will likely drain the wetlands at those two locations according to hydrologic analysis performed by Jim Hest. So, they will focus efforts on some wetlands located at Florian Park.
  - The USFWS has completed two new water control structures
    - Outlet from Agassiz Pool to SD83
      - Avoid problems with radial gates
    - Madsen Pool
  - The USFWS has received a 3 year grant to work in cooperation with the USGS to study water quality within the refuge. This study will parallel the Thief River Watershed Sediment Investigation and continue the work that they have started

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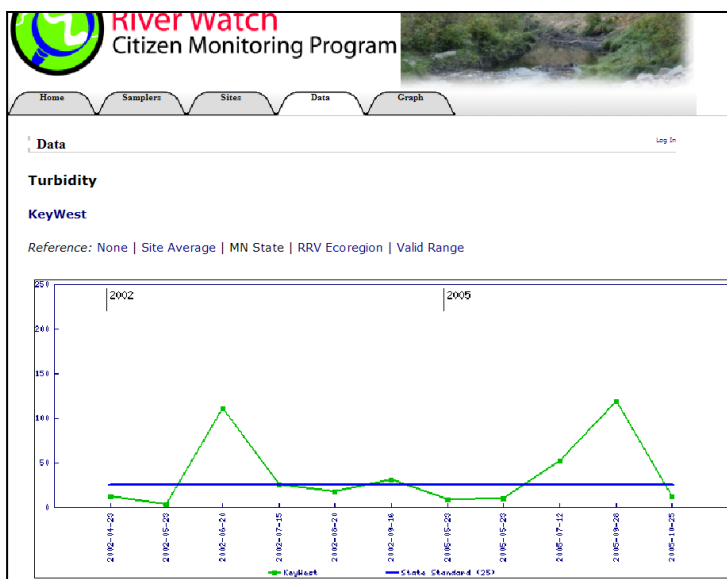
this year. There is still a possibility for even more money from the USFWS for a contaminants study that will include analysis of sediment within Agassiz Pool.

- Envirothon
  - 1<sup>st</sup> place: Grygla – 9<sup>th</sup> in State competition
  - 2<sup>nd</sup> place: Lincoln High School (TRF)
  - 3<sup>rd</sup> place: Badger
- Beltrami County will be updating its Comprehensive Local Water Management Plan soon
- ❖ **August 13<sup>th</sup>** – Pennington County Water Resources Advisory Committee
  - Water Plan Update
    - As voted upon and discussed by the committee, the priority concerns of the updated water plan and their associated objectives will be:
      - #1 Priority Concern: Water Quality
        - Thief River, Red Lake River, and Clearwater River water quality issues, monitoring, and TMDL studies
        - Sedimentation
        - Erosion
        - Stormwater
        - Coordination among agencies
      - #2 Priority Concern: Ground Water
        - Failing septic systems
        - Drinking water sources
        - Coordination among agencies
        - Well sealing
      - #3 Priority Concern: Flood Damage Reduction
        - Coordination among agencies
    - The DNR's comments mentioned a desire to see continuous water quality monitoring in the Red Lake River when the Thief River Watershed Sediment Study is completed.
  - There is a 50% cost share available for well testing. Analysis cost ranges from \$30 to \$70, depending upon the extent of testing. The cost is only \$10 during well testing clinics (one was held recently in Thief River Falls).
  - The current shoreland ordinance includes a setback of 100 ft from the top of stream banks. Riparian setback are established to reduce erosion, protect habitat, protect water quality, reduce runoff by increasing infiltration, and protect homeowners from property damage due to erosion and flooding. The Pennington County SWCD believes that there should be a greater setback for steeper banks. Brian Malone discussed one option:
    - To stabilize a steep bank, the bank needs to be sloped back to a 4:1 slope.
    - After resloping, the new "top of the bank" would be further from the river than the original "top of bank." Because of the 4:1 slope, the new "top of Bank" will be 4 feet further from the river than the old "top of bank" for every foot of bank height.
    - Therefore, to provide for the possibility of streambank stabilization and/or further erosion of the stream, an additional setback distance of 4 times the bank height should be added to setbacks along steep banks.

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- This rule would be applied on a case-by-case basis.
- If this rule goes into affect, there will need to be an education effort so that someone doesn't buy a lot along the river and find out later that it can't be developed because of the extra setback that is necessary.
- Gary Bennett is the new Area Hydrologist for the DNR
- The Goose Lake Outlet has been completed. Rochelle Winter has been collecting water quality samples downstream of the outlet and has found very high levels of E.coli at the site (she thinks it is due to a large amount of bird droppings).
- New feedlot ordinances were discussed: <50 animal units does not count as a feedlot unless it is next to the river – then it only takes 10 animal units to be considered a feedlot. There were 82 known feedlots within Pennington County. With the new rules, that number is probably reduced to about 75.
- Jim Courneya reported on the Rapid Geomorphic Assessment that was held last week for a small group of State (MPCA, DNR) employees. There are instruments (probes) available to assess stream stability. Data from the probes is imported into a computer model. The model results can be used to determine which stream banks need protection the best ways to protect them.
- ❖ **August 16th** – Red Lake River Corridor Enhancement Project meeting – changed to a teleconference
- ❖ **August 24<sup>th</sup>** – Red River Basin Monitoring Advisory Committee – Fertile

- Andrew Sheppard, University of Minnesota Graduate Student, gave a demonstration of the new River Watch website. Although improvements are still being made in response to feedback, the website is up and running. River Watch students and other monitoring groups can log-in to the site to upload data, review data, map monitoring sites, and analyze data (see example graph).  
<http://riverwatch.umn.edu/>



- A LCCMR proposal is being developed for the purpose of providing stream stability assessment training
- LIDAR data collection will start in the spring of 2008 and continue through 2010. Watersheds need to be prioritized and more money is needed from Minnesota. The entire Red River Basin will be mapped up to the border with Canada (39,400 mi<sup>2</sup>).
- DNR staff (Tom Groshens and crew) have been conducting stream fish surveys in the Red Lake River to determine the effects of the Crookston dam removal.

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- They have found catfish as far upstream as the lower end of the channelized reach in the Clearwater River. Smallmouth bass were found at the Clearwater Lake Dam.
  - They have found an area of extreme erosion and headcutting near Girard along Burnham Creek. Tom feels the impoundment has had a negative effect upon stream stability in Burnham Creek.
  - DNR stream survey reports will soon be available online
- The National Weather Service is developing a drought forecasting tool similar to the Flood Forecasting Tool featured on the Red River Basin Decision Information Network website ([www.rrbdin.org](http://www.rrbdin.org)).
- ❖ **August 27<sup>th</sup>** – Red River Basin Water Quality Team – Thief River Falls
  - Results of SWAT Modeling in the Red River Basin – Beth Kurz, EERC
  - 2007 – 09 Red River Basin Water Quality Plan and watershed Prioritization – Molly MacGregor
    - Committee to review watershed scoring (for prioritization) methodology.
    - Watersheds are being scored based upon watershed condition, pollution potential, organizational capacity, and presence of surface water drinking sources. Scores are being weighted based on their relative importance (Analytic Hierarchy Process).
  - Red River Basin Water Quality Monitoring and Assessment – Wayne Goeken and Jessica Poegel
    - How should the MPCA go about water quality reporting? How often? How in-depth?
    - Yearly 1-2 page reports to each watershed district
    - Comprehensive reports don't have to be completed as often (one every 2-3 years).
    - Wayne Goeken demonstrated use of the River Watch website.

### Future Meetings/Events

- ❖ **September 12<sup>th</sup>** – Pennington County Outdoor Education Day
- ❖ **September 18<sup>th</sup>** – Northwest Minnesota Water Festival - Warren
- ❖ **September 19<sup>th</sup>** – Northwest Minnesota Water Festival - Fertile
- ❖ **September 20<sup>th</sup>** - Red Lake River Corridor Enhancement Project meeting St Hilaire City Hall, 6:30 PM
- ❖ **September 24<sup>th</sup>** – Red River Basin Water Quality Team – Moorhead
  - Tiered aquatic life standards
- ❖ **October 4<sup>th</sup>** – Public hearing at Detroit Lakes MPCA office for the draft 2008 List of Impaired Waters
- ❖ **October 10<sup>th</sup>** – Marshall County WRAC – Groundwater Speakers
- ❖ **October 18<sup>th</sup>** – Red Lake River Corridor Enhancement Project meeting, Thief River Falls City Hall, 6:30 PM
- ❖ **October 22<sup>nd</sup>** – Red River Basin Water Quality Team – Thief River Falls
  - More SWAT modeling results
- ❖ **October 26<sup>th</sup>** – Red River Basin Monitoring Advisory Committee – 9:30, Fertile

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- ❖ **November 15th** – Red Lake River Corridor Enhancement Project meeting, East Grand Forks – Campbell Library, 6:30 PM
- ❖ **November 26<sup>th</sup>** – Red River Basin Water Quality Team – Moorhead
- ❖ **November 30<sup>th</sup>** – Deadline for submitting data to the MPCA for entry into the EPA's STORET water quality database.
- ❖ **December 12<sup>th</sup>** - Marshall County WRAC
- ❖ **December 12<sup>th</sup>** – Tentatively scheduled RRB Data Interpretation Workshop
- ❖ **December 20th** – Red Lake River Corridor Enhancement Project meeting, Fisher School Library, 6:30 PM
- ❖ **January 17, 2008** – Red Lake River Corridor Enhancement Project meeting, Crookston City Hall, 6:30 PM
- ❖ **January 31, 2008** – Final Report deadline for the Tile Drainage Study
- ❖ **February 21, 2008** – Red Lake River Corridor Enhancement Project meeting, Red Lake Falls City Hall, 6:30 PM
- ❖ **March 20, 2008** – Red Lake River Corridor Enhancement Project meeting, St Hilaire City Hall, 6:30 PM
- ❖ **April 17, 2008** – Red Lake River Corridor Enhancement Project meeting, Thief River Falls City Hall, 6:30 PM
- ❖ **May 15, 2008** – Red Lake River Corridor Enhancement Project meeting, East Grand Forks – Campbell Library, 6:30 PM
- ❖ **June 19, 2008** – Red Lake River Corridor Enhancement Project meeting, Fisher School Library, 6:30 PM