

By: Corey Hanson, Water Quality Coordinator
For: December 11, 2008
Red Lake Watershed District Board Meeting

Thief River Watershed Sediment Investigation

- The MPCA has (finally) officially approved a six-month extension for the Thief River Watershed Sediment Investigation. The project work plan was put together with a one-year extension planned, so the project will be completed six months sooner than expected.
- All of the Eureka Manta continuous water quality monitoring equipment (RLWD and ANWR) was retrieved as the rivers and ditches began to freeze.
- The HOBO water level loggers were also retrieved so they would get frozen into their deployment tubes.

- The flow in the Thief River was still fairly high when the equipment had to be removed. So, I plan to continue to visit the monitoring sites regularly as long as they have open flow. The Thief River is now ice-covered near Thief River Falls as are most of its tributaries (e.g. Mud River, Moose River, CD 20). Through the end of November, the Thief River remained open near Agassiz National Wildlife Refuge and downstream of Thief Lake.



- I was able to take advantage of the high flows and collect a total of seven flow measurements in November for this study.
- Assessment of monitoring data (spot measurements and samples):
 - Low dissolved oxygen problems
 - All of the Moose River
 - Thief River downstream of Thief Lake
 - Branch 200 of JD11 downstream of Farnes Pool
 - pH
 - Moose River near Thief Lake
 - Thief River downstream of Thief Lake
 - Thief River/SD83 downstream of Agassiz NWR
 - E. coli bacteria problems
 - Mud River
 - Thief River from where it enters Agassiz through CSAH 12 and at the USGS gauge site north of Thief River Falls (basically everywhere there is flow velocity).

- Additional samples will need to be collected at most of these sites to verify impairment. Investigative crossing-by-crossing sampling on the Mud River will hopefully reveal the extent of the impairment and narrow down the list of possible sources.
- Un-ionized Ammonia?
 - Thief River from Thief Lake to Agassiz NWR
 - The concentration of the toxic, un-ionized ammonia is a percentage of the concentration of total ammonia calculated using pH and temperature values. There have only been two occurrences of high levels of this toxic form of ammonia recorded on this reach of the Thief River, ever. They occurred in July 2000 and April 2002.

Tile Drainage study

When the weather got cold enough, surface flow eventually subsided at the surface drainage monitoring sites and I was able to retrieve the HOBO water level loggers from them. The tile drainage in the Bachand field continued to flow through the end of November, so that water level logger will remain deployed until there is no more flow through the tile. Keith Winter of HDR engineering has begun working on analysis of the data collected this year.

Project 60E

- Some of the highest flows of the year occurred in October and November at these sites.
- Flow was measured at the Brandt Channel (at Hwy. 75) and CD 2 monitoring sites.
- Because of this late runoff, equipment remained installed until November 18.
- Manually measured water levels until the channels were ice-covered.
- CD2 was still flowing on November 26th.

Other Notes

- Finished calculating metrics for the Clearwater Habitat/Bioassessment

December Goals

- Finish Clearwater River Habitat/Bioassessment data analysis and report
- Writing Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study reports.
- Thief River Watershed Sediment Investigation continuous data compilation and analysis
- Remove continuous monitoring equipment as rivers begin to freeze.
 - Try to capture as much of the recent high flows as possible.

November Meetings and Events

- **November 1, 2008** – STORET data submittal deadline
- **November 5, 2008** - Marshall County Water Resources Advisory Committee, 9:30am
- **November 24, 2008** – Red River Basin Water Quality Team Meeting in Moorhead, 10am
 - MN's Intensive Watershed Monitoring approach

- Pour points of 11-digit HUCs
- 10-year rotation
- The MPCA has the goal of assessing all lakes >500 acres and 30% of lakes that are between 100 and 500 acres in size in a 10-year period.
- Phase II Parameters – More intensive monitoring where problems are found. ID sources and stressors.
 - Bio, water chemistry, E. coli, continuous dissolved oxygen, flow, geomorphology, wetland phosphorus release, bracketing lakes and wetlands
- The Red Lake River and Thief River are scheduled for 2015.
- The Clearwater River is scheduled for 2017.
- Create Tiered Aquatic Life Use (TALU) water quality standards
 - Currently, the same water quality standards are applied to nearly all the waters in the state. Inherent differences in waterbodies, combined with a rigid and inflexible standards and beneficial uses, have led to chemical and biological goals that are often under protective of the highest-quality resources and overprotective of water bodies that, for various reasons, will likely never achieve certain chemical and biological standards.
 - The MPCA is proposing to modify the beneficial use framework for aquatic life protection. TALU will apply a framework that recognizes tiers, or levels of aquatic life-use based on stream's type and potential.
 - Index of Biotic Integrity
 - Developing statewide index
 - There will be regional calibrations of the index
 - MPCA staff are still working on the selection of metrics for the statewide index of biotic integrity.
 - They have completed the establishment of a classification system for macroinvertebrates.
 - In the future, there will be a numerical IBI impairment threshold.
 - Chemical variables, flow, biotic factors, energy source, and habitat structure.
 - “Legacy impact” = impact (e.g. channelization) that predated the Clean Water Act
 - Restoration of channels (2-stage ditch and buffer design) would “bump-up” the reference condition for the reach that is used to establish the thresholds.
- Buffalo River watershed action planning
 - Stacked hydrograph – when are streams contributing relative to peak flows?
 - It is better to distribute storage throughout a watershed than to have a lot of storage in just one part of the watershed.
 - Since the Buffalo River Watershed District is not part of the RRWMB, it will have to use alternative funding sources for water quality projects.
 - Ad Valorem
 - Erosion potential (tax)
 - Runoff Potential
 - They feel they will be able to raise more money with these methods.
- Reference Yield Sediment Study
 - Intended to help managers set a target level of sediment that reflects conditions of each basin

- Rapid Geomorphic Assessments at current and historic USGS gauging stations that have suspended sediment concentration data.
- Calculated suspended sediment transport yields.
- Determined whether a site was stable or unstable.
- Obtained reference suspended sediment transport yield rates.
- The Clean Water, Land and Legacy Amendment
 - The amendment passed at a Yes percentage of 56.09%
 - As for RLWD counties, the percentage of Yes votes was sub-50% in Marshall, Pennington, Clearwater, Mahanomen, Koochiching, and Red Lake Counties. Polk and Beltrami counties had 50% and 58% Yes votes, respectively.
 - The current general sales and use tax rate is 6.5%. The amendment will increase the general sales and use tax rate by three-eighths of one percentage point (0.375%) to 6.875% and dedicate the additional proceeds as follows.
 - 33% will go to a newly created Outdoor Heritage Fund to be spent only to restore, protect, and enhance wetlands, prairies, forests, and habitat for game, fish, and wildlife. (approx. \$80 million in FY 2010 and \$91 million in 2011)
 - 33% will go to a newly-created Clean Water Fund to be spent only to protect, enhance, and restore water quality in lakes, rivers, streams, and groundwater, with at least 5% of the fund spent to protect drinking water sources. (approx. \$80 million in FY 2010 and \$91 million in FY 2011)
 - 14.25% to a newly created Parks and Trails Fund to be spent only to support parks and trails of regional or statewide significance.
 - 19.75% to a newly created Arts and Cultural Heritage Fund
 - The actual amount of money that goes to each of these funds will depend upon the amount of sales tax revenue and, therefore, can be greatly influenced by economic conditions.

Future Meetings/Events

- **December 12, 2008** – Red River basin Monitoring Advisory Committee, Sand Hill WD in Fertile at 9:30 am.
 - Training needs
 - Data management, analysis, and reporting
 - Geomorphology assessment
 - I will be giving a presentation on the Red Lake River erosion site inventory.
 - Equipment
 - Funding
- **December 15, 2008** - Red River Basin Water Quality Team Meeting at the RLWD
 - Thief River Watershed Sediment Investigation
 - Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study
- **December 22, 2008** – Pennington County Water Resources Advisory Committee meeting. 9 am.
- **January 7, 2009** – Clearwater County Water Resources Advisory Committee meeting
- **January 14, 2009** – Red River Basin water Quality Team meeting in Detroit Lakes
- **January 15, 2009** – Science Fair Judging at Franklin Middle School
- **April 28, 2009** – Best Professional Judgment Group meeting for the Red River Basin for the 2009 State water quality assessment, St. Paul MPCA office.

