

By: Corey Hanson, Water Quality Coordinator
For: February 25, 2010
Red Lake Watershed District Board Meeting

Thief River Watershed Sediment Investigation

- Thief River Watershed Assessment Project
 - Completed a final draft of the work plan
 - Reviewed by the RLWD Administrator
 - Reviewed by the RLWD Attorney
 - Reviewed by MPCA staff
 - Approved by the RLWD Board of Managers.
 - Submitted to the MPCA.
 - Met with MPCA staff to discuss the civic engagement component of the project
- Assessed discrete measurement data.
- Worked on compiling, correcting, and assessing continuous water quality and flow monitoring data.
- Thief River SWAT model progress report from Houston Engineering:
 - Obtained flow and water quality data
 - Began model calibration, consisting of various model components with a general assessment of the reasonableness of model results
 - Estimated that the calibration is about 50% completed
- Held a stakeholders' meeting for the project on January 21st.
- Completed a semi-annual report for the project.

Other Notes

- Helped set up the office's new computers.
- Did some beginning-of-the-year budgeting.
- Completed a data review for the CWPREDLK (RLWD long-term monitoring program) data for final submittal to STORET.
- Downloaded and filed 2009 flow measurement data from the AquaCalc.
- Worked on revising the Silver Creek TMDL Report.
- Received the final report for the Silver Creek SWAT Model
- Red Lake River is being proposed for funding of a watershed-based TMDL beginning in 2011.

January Meetings and Events

- **January 14th, 2010** – Franklin Middle School Science Fair judging, 12 PM – 3 PM.
- **January 15th, 2010** – Completed work plan for the Thief River watershed-based TMDL
- **January 21st, 2010** – Thief River Watershed Sediment Investigation Informational Meeting, 9am, RLWD Meeting Room
 - 22 people attended
 - Introduction to the project

- Project background, watershed description, history
- Discussion of project tasks and methods
- Resource condition
 - Low dissolved oxygen problems
 - The lower (western) part of Moose River. Monitoring sites near the upstream end show full support so far.
 - Branch 200 of JD11 downstream of Farnes Pool
 - pH
 - Moose River near Thief Lake
 - Thief River entering Agassiz NWR from the north
 - Thief River/SD83 downstream of Agassiz NWR
 - Mud River
 - E. coli bacteria problems
 - Mud River
 - Thief River from where it leaves Agassiz NWR, through CSAH 12, and then again 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. This is still true after the 2009 monitoring season. The October 2010 revision of the State Guidelines for water quality assessment eliminates the use of fecal coliform data in aquatic recreation use assessments. This makes the available data set from assessing some of these sites a lot smaller.
 - Marshall County Ditch 20 (August)
 - Turbidity problems
 - Thief River from Agassiz NWR to the Red Lake River.
 - 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.
 - Thief River downstream of Agassiz NWR
 - Only three total instances in the whole watershed.
 - Good News
 - Thief River between Agassiz NWF and TRF appears to be meeting the dissolved oxygen standard (currently listed for low DO).
 - Ditches meet turbidity standards
 - CD20 meets the dissolved oxygen std.

- Low dissolved oxygen problem on the Moose River doesn't extend all the way upstream
 - Lower Thief River has scenic stretches and supports a good fishery
- Agassiz NWR Water Quality Study
 - Main objectives of the study are to quantify water quality characteristics of water entering and leaving Agassiz NWR and to quantify the extent of the ANWR contribution to the impairments in question.
 - 6 monitoring sites
 - Continuous water quality monitoring
 - 8 sets of discharge measurements and samples at each site in 2008-10.
 - Agassiz NWR is in drawdown right now, but it is hard to get the water out.
 - Final report in 2011
- SWAT modeling goals and objectives, processes modeled, limitations, expected output)
 - Described the SWAT model and its purpose.
 - Thief River is divided into 83 sub-basins for the model.
 - Hydrology is in the process of being calibrated and validated.
 - Sediment load s are in the process of being calibrated and validated.
- Scenarios to model
 - Converting perennial cover to permanent crop.
 - Adding filter strips
 - Temporary storage
 - Permanent storage
 - Combinations of these scenarios.
 - They can be random or targeted.
- Future plans related to the study.
 - Pursue funding for grade stabilization in County Ditch 20.
 - Process and compile continuous monitoring data.
 - Begin the Thief River Watershed Assessment Project
 - Complete the SWAT model (near the end of April).
 - Calculate sediment budgets.
 - Hold another stakeholders' meeting before the end of the project (April or May)
 - The final report will be completed by August 31st, 2010.
- **January 21st, 2010** - Trimble training session.
- **January 29, 2010** – Civic Engagement meeting at the Detroit Lakes MPCA office.
 - Met with local MPCA staff and Cynthia Hilmoe, a Civic Engagement Project Manager from the MPCA's St. Paul office.
 - How do we get people interested?
 - Data visualization
 - The audience should lead the discussion.
 - Correct misinformed group-think.
 - Focus on particular things that have strong support as a short term strategy.
 - Signage = constant reminder.

- Use cedar canoes for adult stakeholders too.
- Let people know they can invite their neighbors.
- Document what we are doing.
- A facilitator should be a part of the team from the beginning.
- Civic engagement specialist support from the MPCA could maybe start by mid-summer.
- Make sure that local radio stations carry the Red River Basin Commission's "Ripple Effect" PSAs.

Plans for February 2010

- Work on continuous data records from the Thief River Watershed Sediment Investigation.
- Format continuous data records for HYDSTRA.
- Complete the revision of the Draft Silver Creek E. coli TMDL.
- Begin working on revising the Draft Poplar River Dissolved Oxygen TMDL
- Print 2009 flow records for the stream gauge files
- Finish 2009 Annual Report articles.

Future Meetings/Events

- **February 1, 2010** – The semi-annual report for the Thief River Watershed Sediment Investigation is due.
- **February 4, 2010** - Marshall County Water Resources Advisory Committee, 9:30 AM
- **February 22, 2010** – Red River Basin Water Quality Team
- **First week of March 2010** – Annual Spring Water Quality Monitoring Training Session.
 - I will be presenting on two topics: Planning a Monitoring Effort, and Standard Operating Procedures.
- **April 20, 2010** - Marshall County Water Resources Advisory Committee, 9:30 AM
- **Spring 2010** – There will be a meeting with the MPCA Bio-Monitoring Unit to plan the 2011 monitoring for the Thief River and Sand Hill River watersheds prior to the start of the 2010 field season. We will decide on the number of sites, locations of sites, frequency of monitoring, and which parameters to monitor. So, we will then be able to use this information to apply for Surface Water Assessment Grant Applications that will pay for the monitoring during 2011 and 2012.
- **May 2010** – Reconnaissance of the Thief River Watershed with Dave Friedl of the DNR to prepare for the stream channel stability assessment.
- **August 2010** – Stream channel stability assessment in the Thief River watershed. Two weeks of work will be needed to accomplish this task.
- **August 31, 2010** – Completion of the Thief River Watershed Sediment Investigation study.