

By: Corey Hanson, Water Quality Coordinator
For: October 13, 2011
Red Lake Watershed District Board Meeting



Thief River Watershed Assessment Monitoring Surface Water Assessment Grant

- The Marshall County Water Planner (Jan Kaspari, 6 sites) and Pennington County (Cassie Jacobson, 3 sites) Water planner each collected two rounds of samples in August.
- Regularly compiled and entered data from Marshall County, Pennington County, and RMB Labs.
- Charges for lab analysis on bills from RMB labs were divided between this project and the Thief River TMDL.
- High E. coli bacteria concentrations were found in the Thief River at the Hillyer Bridge, Thief River at CR7, Judicial Ditch 30, and Marshall County Ditch 20.

Thief River Watershed Assessment Project (Watershed-Based TMDL)

- Sample analysis for stressor/pollutant identification was piggy-backed onto samples collected for the Thief River SWAG monitoring.
- Swapped freshly cleaned and calibrated Eureka Manta multi-parameter logging sondes for the ones that have been deployed for two weeks at the 5 continuous water quality monitoring sites in the Thief River watershed twice this month.
- Cleaned and calibrated Eureka Manta multi-parameter logging sondes that were deployed at 5 of the monitoring sites twice this month. Two of the Mantas malfunctioned this month. I started using Manta 2 sondes to replace the unreliable Mantas.
- Downloaded stage data from the CR10 datalogger for the ultrasonic gage installed at the CR7 crossing of the Thief River (stream gage #40)
- Geomorphology work at:
 - Site #4 on the Mud River near the Petrie Lutheran Church, west of Grygla
 - Site #15 on the Thief River near the upstream end of State Ditch 83 north of Agassiz National Wildlife Refuge
 - Each geomorphology site visit involved a reconnaissance of the reach, pool pebble count, riffle pebble count longitudinal pebble count, surveyed longitudinal profile, surveyed cross section profiles for the riffle and pool, establishment of a bank study site, bank erosion hazard index (BEHI) assessment at the bank study site, vegetation assessment, and monumenting of the cross sections.

Red Lake River Watershed Assessment Project (Watershed-Based TMDL)

- We received the signed contract for this project in August. The date of the final signature was August 19, 2011. The project has officially begun!
- Discussed Intensive Watershed Monitoring Surface Water Assessment Grant sites with Jessica Poegel (MPCA IWM Project Leader) for the Red Lake River and Grand Marais Creek watersheds.
- The Red Lake River civic engagement contract with RMB Environmental Laboratories was signed on September 30, 2011.

District Monitoring

- The fourth round of sampling at RLWD long-term monitoring sites was nearly completed in September. Just the Thief River sites are left.
- High E. coli concentrations were found in the Poplar River at Hwy 92, Hill River in Brooks, Lower Badger Creek, and Kripple Creek.

Public Education

RLWD public education activities have expanded to include participation in science education at Challenger Elementary in Thief River Falls. Four field trips were organized by science teacher Sherry Miller to take the Challenger fourth graders to three sites on the Thief River. Sites were selected for relevance and safety.



The field trips were conducted on October 5th and 6th in four groups. RLWD staffer Jim Blix gave presentations on erosion, general water quality, and watershed concepts. The students seemed particularly fascinated by the transparency tube and the Van Dorn water sampler. Each student kept a journal to record the transparency, dissolved oxygen, and pH of samples drawn from the Thief River. They also were instructed to record their personal observations of the river and surrounding areas, and to make map drawings.

A similar set of field trips is planned for the spring of 2012 to allow students to investigate seasonal differences.

Jim Blix and Corey Hanson both helped run stations at the Pennington County Outdoor Education Day (Minnow Races and “The Incredible Journey”) and the Northwest Minnesota Water Festival days in Warren and Fertile (Watersheds and “Turbidity or not Turbidity”).

River Watch

- A group of five Lincoln High School students will be representing Thief River Falls in the River Watch Program. On Tuesday, September 27th, five students and two teachers attended an orientation session at the Greenwood Street bridge, where Ashton Kingery (IWI), and Jim Blix (RLWD) introduced the standard operating procedures for gathering field data. Another session will be scheduled for October in which the group will begin gathering data for five sites in the Thief River Falls area.
- Students from the Fisher, Minnesota high school are set to restart their River Watch program in October under the guidance of Laura Bell, a research assistant from the University of Minnesota Crookston. UMC will provide monitoring equipment, and the Watershed District will provide the standard reimbursements and technical support.
- August and September River Watch monitoring included Win-E-Mac, Bagley, Oklee, Red Lake Falls, Grygla, and Thief River Falls. The Grygla group is continuing with the gathering and identification of macro invertebrate life forms captured at their sampling sites.

Other Notes

- Photographic monitoring of the Gully 6 erosion control project.
 - Vegetation is filling in around the cross-vane weir and the banks are looking more stable.



September 2011 Meetings and Events

- **September 2011** – Fourth round of RLWD long-term monitoring for 2011.
- **September 6, 2011** - Pennington County Water Resources Advisory Committee, 9 AM
 - The Pennington County SWCD has a handful of projects that could work for the 2012 BWSR Clean Water Fund grant applications.
 - Bank failure on the Thief River near green #5 at the Thief River Golf Club
 - Rotational failure on the Red Lake River in St. Hilaire
 - 225 foot long bank failure on the Red Lake River, upstream of Thief River Falls
 - Scour/bank failure at the new Greenwood Street Bridge over the Red Lake River in Thief River Falls
 - JD30/18 Buffer Initiative
 - There are a lot of existing side water inlets along this ditch. Some are washed out, so those can be replaced. Buffers will be improved by this project. The SWCD will be contacting landowners.
 - Ralph Engelstad Arena Rain Garden Project
 - Sites surveyed
 - Design this winter
 - Replace clay with high-infiltration engineered soil
 - Construct next summer
 - “Erickson Group” Streambank Stabilization Project upstream of the Thief River Golf Club
 - 8 stream barbs to deflect flow from the bank
 - \$85,000
 - Some delay due to the passing of one of the landowners
- **September 14, 2011** – Pennington County Outdoor Education Day
- **September 15th, 2011** – Web-ex teleconference with MPCA staff about the possible Clearwater River Dissolved Oxygen delisting.
- **September 16, 2011** – Meeting at RMB Labs to discuss Thief River Watershed Civic Engagement.
- **September 21, 2011** – Northwest Minnesota Water Festival in Warren
- **September 22, 2011** – Northwest Minnesota Water Festival in Fertile
- **September 22, 2011** – Load monitoring SWAG teleconference with MPCA staff.
- **September 27, 2011** – Grand Marais Creek flood damage reduction project monitoring conference call.



Future Meetings/Events

- **October 12, 2011** – Marshall County Water Resources Advisory Committee meeting.
- **October 19, 2011** – Flood Damage Reduction Work Group meeting – Grand Marais Creek monitoring update.
- **October 25th through 27th** – BWSR Academy – giving a water quality monitoring presentation.
- **November 1, 2011** – Deadline for submitting field and lab data to the MPCA for entry into the EQUIS database.
- **November 2, 2011** - Marshall County Water Resources Advisory Committee
- **January 10, 2012** – Pennington County Water Resources Advisory Committee, 9 AM
- **January 31, 2012** – First progress report for the Thief River SWAG monitoring is due.
- **February 1, 2012** - BWSR CWF Grant semi-annual progress reports are due.
- **February 1, 2012** - MPCA Thief River Watershed Assessment Project semi-annual progress report is due.
- **August 1, 2012** – BWSR CWF Grant semi-annual progress reports are due.
- **August 1, 2012** – MPCA Thief River Watershed Assessment Project semi-annual progress report is due.
- **January 31, 2013** – The second progress report or final report for the Thief River SWAG monitoring is due.
- **February 1, 2013** - BWSR CWF Grant semi-annual progress reports are due.
- **February 1, 2013** - MPCA Thief River Watershed Assessment Project semi-annual progress report is due.
- **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 31, 2013** – Final payment request for the Thief River SWAG is due.

Plans for October 2011

- Finish the fourth round of 2011 District Monitoring.
- Thief River Watershed Assessment Project.
 - Finish continuous water quality monitoring in early October
 - Inventory of existing water quality data
 - Move Manta deployment pipes to next year's continuous monitoring sites (757, Branch A of JD21, Moose River at Hwy 54, JD30). Mantas will be installed at the USGS gauge site again next year, so those pipes will stay where they are.
 - Stream channel stability assessment

- Install high-water deployment pipes for HOBO water level loggers where needed (Mud River, Moose River, CD20, JD30, Branch A of JD21).
- Compile water quality data collected by Pennington and Marshall County water planners for the Thief River Surface Water Assessment Grant monitoring.
- Begin working on the Red Lake River Watershed Assessment Project
 - Install deployment pipes for water level and water quality monitoring equipment.
 - Inventory of existing data
 - Plan/write Surface Water Assessment Grant applications to cover monitoring costs. Coordinate with county and International Water Institute staff to decide who is going to actually collect the samples.

ADDITIONAL INSTRUCTIONS/INFORMATION

PROJECT NAME
Write down project for which data is being collected (examples: Milestones, Suluth Snow Melt Study, River Nutrient Study, etc...)

FIELD CODE OR STREAM NAME
If this is an unestablished site and you want the site established and data entered in STORET, please supply us with GPS reading and station description/location. Note these in the field observation section.

QA
FD = Field Dup, SB = Sampler Blank, TB = Trip Blank, BB = Bottle Blank, RB = Reagent Blank

WATER LEVEL GAGE (W.L.), feet:
Water level, also called "stage," determined by reading a staff gage, recording gage, wire weight gage or by subtracting a tape down measurement to water level from a measuring point elevation. A description of the gage should be noted in "field observations", as well as any unusual conditions that affect the measurement (debris around the staff, wind catching the tape, standing waves, etc.)

W.L. GAGE TYPE	ABBREVIATION	DEFINITION
USGS Staff or Wire Weight	U-R	USGS outside reference gage, such as staff or wire-weight, at an active gage
Tape-down from Elev. Elevation	TD	Tape-down to water level subtracted from established measuring point elevation (describe in comments).
Other staff or Wire Weight	R	Outside reference gage, such as a staff or wire-weight, that is maintained by a non-USGS agency (describe in comments).

TRANSPARENCY READINGS

INSTRUCTIONS:

- Make sure your back is to the sun when taking a measurement.
- Fill your tube until the symbol disappears.
- Release water until you can JUST make out the symbol. Note depth.
- Release a bit more water until the symbol is CLEARLY visible (can make out screw in middle of symbol). Note depth.
- Record the average of the two depths to the nearest centimeter.
- If the symbol is visible when the tube is full, record as "<60cm."

APPEARANCE:

- 1 = Clear – crystal clear transparent water.
- 2 = Milky – not quite clear, cloudy white or gray.
- 3 = Foamy – natural or from pollution.
- 4 = Tea-colored – clear but tea-colored due to wetland or bog influences.
- 5 = Muddy – cloudy brown due to high sediment levels.
- 6 = Green – might indicate excess nutrients released into stream.
- 7 = Green OR Muddy and either extensive floating scum or strong foul odor.

RECREATIONAL SUITABILITY:

- 1 = Beautiful, could not be better.
- 2 = Very minor aesthetic problems: excellent for body-contact recreation.
- 3 = Body-contact recreation and aesthetic enjoyment slightly impaired.
- 4 = Recreation potential and level of enjoyment of the stream substantially reduced.
- 5 = Swimming and aesthetic enjoyment of the stream nearly impossible.

STRM CONDITION
N=Normal, L=Low, H=High / SW = Swift, SL = Slow, MO = Moderate / C = Clear, M = Muddy, O=Other

STREAM FLOW MEAS. (cfs)
Total instantaneous stream flow by direct measure with current meter at the time of sampling, or by dam gate rating, but NOT estimated by state-discharge relationship.

SAMPLING DEVICE

ABBREVIATION	STORET CONFIG ID	NAME
SIM	SIMPLE	Simple Open Plastic Bucket (Not recommended)
ROD	ROD	Telescoping Rod with Bottle
ICE1	ICE1	Ice Conditions Water Sampler (Straight rod with bottle attached to lower through ice).
DI		Depth Integrating (USGS Type)
WB	WEIGHTED	Weighted Bucket with Cover (aka triple sampler, "labline")
Other		Another type of sampler (describe in notes)
None		Sample collected directly into sample bottle
AS		Automatic Sampler

SAMPLE TYPE	ABBREVIATION	DEFINITION
Grab	G	Sampling vessel or bottle filled at one point in water column and cross section
Composite-F	CF	Flow-weighted with auto-sampler
Composite-M	CM	Samples from multiple locations, combined with churn splitter (describe in comments)
Composite-O	CO	Composite – Other (describe in comments)