

By: Corey Hanson, Water Quality Coordinator
For: April 28th, 2011
Red Lake Watershed District Board Meeting

Grade Stabilization for Sediment Reduction in the Thief River

- Created draft temporary construction easement agreements that the Marshall County SWCD can use to get permission to access the south side of the ditch for the construction of the grade stabilization structures.
- Surveying will be done when the water levels recede (probably in May).

Thief River Watershed Assessment Monitoring Surface Water Assessment Grant

- The SWAG grant agreement was executed by the MPCA on March 8th.
- Ordered the calibration standards and equipment that will be used by Marshall County and Pennington County staff.
- Created sampling schedule checklists for both Marshall County and Pennington County.
- Put together a binder for each county that included field data sheets, sampling plan, maps, and calibration worksheets.

Other Notes

- Completed a new revision of the Standard Operating Procedures for Water Quality Monitoring in the Red River Watershed
- Made some more progress on the creation of stream gage summary sheets and a stream gage shapefile for the RLWD website.
- Completed articles for the RLWD 2010 Annual Report.
- The MPCA is planning to fund the development of a HSPF model of the Thief River Watershed that will coincide with the TMDL project. The SWAT model, which has already been completed, is good at predicting what is coming off of the landscape. The HSPF model is better at simulating in-channel processes. Therefore, it can be more useful in the development of dissolved oxygen TMDLs. Both models can be incorporated into the BASINS modeling that will be completed during the watershed-based TMDL study.
- Developed a basic work plan for additional data collection for the Poplar River Dissolved Oxygen TMDL. The MPCA may be able to pay for sample analysis that will be paired with continuous monitoring data from deployed Eureka dissolved oxygen loggers.
- Began working with Dan Svedarsky and Michael Knudson to plan a stormwater study for the City of Crookston.

March 2011 Meetings and Events

- **March 3, 2011** – Annual Red River Basin Water Quality Training Session
 - Gave a presentation on the use of standard operating procedures in the field.
- **March 4, 2011** – Watershed Based TMDL Workshop, hosted by Houston Engineering.
 - Gave a presentation on “Local Experience with Watershed-Wide TMDLs.”
 - Workshop information and slides can be found at:
<http://www.houstoneng.com/archives/2411>
- **March 8, 2011** – Aquarius software webinar
- **March 8, 2011** – Red Lake River Corridor Enhancement Project conference call.
 - Scott Kleven is retiring
 - The RLRCE Joint Powers Group needs a leader that can dedicate the necessary time.
 - Castle Park in Crookston
 - City received a Clean Water, Land, and Legacy funding
 - Fenced-in dog park
 - Enhance existing trails
 - Campground to replace the Central Park campground.
 - The RLRCE website is a great resource. It is “housed” on the University’s servers, so it should be okay.
 - Keep the email listserv going
 - Hold semi-annual to keep each other updated on projects and project ideas.
 - Contact members to gauge interest in meeting.
- **March 17, 2011** - STC Meeting in St. Paul
 - Presenting an overview of the Thief River Watershed, its water quality problems, and potential solutions.
- **March 18, 2011** – USFWS Regional Office meeting in St. Paul
 - Giving the presentation from the 17th to another audience.
 - Direct link to the “Thief River Sediment, Sources, and Solutions” presentation:
<http://www.redlakewatershed.org/presentations/20110317TRSSS.ppt>
 - A summary at the end of this report.
- **March 23, 2011** – RLWD Overall Advisory Committee Meeting.
 - Gave an update on 2010-11 water quality projects
 - The developing meander cut-off on the Thief River near the Thief River Golf Club is already causing erosion downstream.
 - The RLWD should work on erosion control projects along the Moose River.
 - Side water inlets
 - Riparian buffer strips
 - Sediment bar removal
 - Stream channel restoration
- **March 28, 2011** - Red River Basin Water Quality Team meeting, 1-3 PM
- **March 31, 2011** – Deadline to complete BWSR CWF work plans

Plans for April 2011

- Start working on grant-funded projects
- First round of 2011 District Monitoring.
- Attend Science of Healthy Waters “Ditching Dilemma” class.
- Help Bruce Paakh (MPCA) install an ultrasonic stream gage at the CR7 crossing of the Thief River (RLWD stream gage number 40).
- Work with the MPCA to get the contract finalized for the Thief River Watershed Assessment Project.
- Work with University of Minnesota – Crookston staff develop a 319 Grant Application for a stormwater study for the City of Crookston.

Future Meetings/Events

- **April 2011** – First round of RLWD long-term monitoring for 2011.
- **April 1, 2011** – Anticipated start date for the Thief River Watershed Assessment Monitoring SWAG project. It may start sooner. Actual monitoring will begin in May.
- **April 6, 2011** – Thief River Town Hall landowners’ meeting at the Whiteford Town Hall
 - What are their views on erosion problems?
 - What are their views on incentive programs?
 - Present our buffer initiative idea.
 - Gauge their opinions on what it would take to compete with crop prices and get buffers installed.
- **April 15, 2011** – Meeting with Mike Knutson and Dan Svedarsky – Crookston Stormwater Study planning.
 - The RLWD purchased a dipper sampler that Mike will use for sampling stormwater outlets this summer.
 - Mike will be testing the water with one of the RLWD’s HACH 2100P portable turbidimeters.
- **April 18, 2011** - Meeting with Mike Knutson and Dan Svedarsky – Crookston Stormwater Study planning, 7 AM.
- **April 18 - 20, 2011** – “Ditching Dilemma” Science of Healthy Streams Class, Fergus Falls.
- **April 22, 2011** - Meeting with Mike Knutson and Dan Svedarsky – Crookston Stormwater Study planning, 3 PM.
- **April 25, 2011** – Red River Basin Water Quality Team
- **April 26, 2011** – Pennington County Water Resources Advisory Committee, 9 AM
- **April 27, 2011** – Envirothon at Lake Bronson State Park.
- **April 28, 2011** – On-site meeting at the Spring Gravel dam breach. Loren Sanderson, Corey Hanson, Dave Friedl (DNR), Nate Dalager (HDR Engineering), Garry Bennett and possibly others will meet at the site to discuss restoration strategies.
- **May 2011** – Second round of RLWD long-term monitoring for 2011.
- **June 8, 2011** – Marshall County Water Resources Advisory Committee

- **June 9, 2011** – NCERA 217 – Drainage Design and Management Practices to Improve Water Quality, Fargo, ND
 - I accepted an invitation from Gary Sands to give a presentation on the results of the RLWD tile drainage study.
- **June 16, 17, & 18, 2011** – MAWD Summer Tour, hosted by the RLWD and Middle Snake Tamarac Watershed District.
- **June 23, 2011** – Red Lake River Corridor Enhancement meeting at the Red Lake Falls City Hall, 7 PM
- **July 2011** – Third round of RLWD long-term monitoring for 2011.
- **July 6, 2011** – Marshall County Water Resources Advisory Committee
- **September 2011** – Fourth round of RLWD long-term monitoring for 2011.
- **September 14, 2011** – Pennington County Outdoor Education Day
- **September 20, 2011** – Northwest Minnesota Water Festival in Warren
- **September 21, 2011** – Northwest Minnesota Water Festival in Fertile
- **November 2, 2011** - Marshall County Water Resources Advisory Committee

Thief River Watershed Sediment, Sources, and Solutions Presentation Summary

- The Red Lake Watershed District and the USFWS conducted parallel water quality studies within the Thief River watershed.
- Long-term condition monitoring has identified water quality impairments on the Thief River (Turbidity, DO), Mud River (DO), and Moose River (DO).
- Intensive monitoring conducted for the Thief River Watershed Sediment Investigation found additional E. coli impairments throughout the watershed.
- A Surface Water Assessment Tool (SWAT) Model was developed by Houston Engineering, Inc. for the Thief River Watershed. This model breaks the watershed up into sub-basins. We can use the sediment yield data to create maps that show where the problem areas are located. We can focus our initial efforts on the sub-basins that are in the worst shape. The sub-basins in the northwest part of the watershed (between Thief Lake and Agassiz NWR) appear to be contributing the highest sediment yields.
- We can also use the SWAT modeling data to estimate a sediment budget for the refuge. The SWAT model shows that most of the sediment is coming from the Thief River. Although the Mud River is a relatively clean river through most of the year, it is still a river and still carries sediment. Therefore, a significant portion of the sediment input to Agassiz Pool is still contributed by the Mud River. The model estimates that 57% of the sediment coming into Agassiz Pool is deposited there.
- The Thief River Watershed Sediment Investigation also makes recommendations for water quality improvement projects; some are specific, some are general.
 - Specific erosion sites were photographed and GPS'd. Some projects have already received funding from Clean Water Fund grants.
 - Many places throughout the watershed are in need of buffer strips and SWIs.
 - The SWAT model simulated the effectiveness of 50 foot buffer strips, 100 foot buffer strips, and side water inlets. All three of these scenarios were effective at reducing sediment yields.
- Agassiz NWR USFWS, NRCS, and RLWD staff have been working together to develop a buffer initiative project plan for the watershed. We've chosen several target areas for buffer strip and side-water inlet implementation. We have chosen the reach of the Thief River between Thief Lake and Agassiz NWR, the Mud River, and a reach of Marshall County Ditch 20.
- Our draft plan for our buffer initiative project includes:
 - Identification of target areas for buffers and side water inlets.
 - Intensive assessment of the watershed. Where are buffers and side water inlets needed?
 - Intensified outreach, which will include individualized maps and letters.
 - Promote the existing incentives and accomplish as much as we can with them.
 - We will be competing with high crop prices. So, we anticipate having to look for ways to fund additional incentives or alternative programs.
- If we are successful, this program will have many benefits for both agriculture and natural resource interests. It will improve water quality in the rivers and reduce the sediment coming into Agassiz NWR pools. For the farmers, it will keep sediment out of the ditches, preserve the flow capacity of ditches, reduce soil loss, and provide payments.