March 9, 2007 [FEBRUARY 2007 WATER QUALITY PROGRAM PROGRESS SUMMARY]

By: Corey Hanson, Water Quality Coordinator
For: March 22nd, 2007 RLWD Board Mtg.

Tile Drainage Study

- Received an extension on the time period of the grant. The final report for the project will now be due on January 31, 2008. We have money left in the Sample Analysis and Equipment budgets to continue the monitoring. The Marshall-Beltrami County SWCD also has some money left over for monitoring. There are plenty of sample points to characterize the tile drainage water quality, but we need to collect more paired samples of surface and tile drainage.
- Completed (although I could have added more information) a Preliminary Final Report for the project. I will add to this report throughout the year and it will be finalized on January 31st, 2008.
- I gave a presentation about the project at the 2007 Ag Drainage Workshop in Moorhead on February 15th.
- The brochure and preliminary final report are posted on the RLWD website.
- Ordered and received water level loggers for the Hill River and Bachand field tail water stage monitoring.

Clearwater River Dissolved Oxygen and Fecal Coliform TMDL

- The Energy and Environmental Research Center and the Minnesota Pollution Control Agency are reviewing the contract for the SWAT modeling. The calibration of the model may not be completed until after this year's intensive data collection. This will allow for a more accurate calibration of the model.
- I have completed a review of all the existing data from the impaired reaches that are being studied. Data collected by the Red Lake County SWCD, River Watch, Pennington County SWCD, and the RLWD were used for the assessment. It appears that water quality conditions change throughout the watersheds. For example, data at RLWD sites on the Clearwater River don't show impairment, but SWCD sites in the middle of the channelized area do show impairment.
- Current data from the Clearwater River shows that the fecal coliform impairment on the reach that extends from Ruffy Brook to the Lost River should be delisted.
    - There were a lot of high fecal coliform measurements from the Clearwater River during the Clearwater Nonpoint Study. Still, when all the old data from the entire reach was combined, it doesn't qualify the river for impairment using the MPCA's current methods for water quality assessment.
- Based on existing data, dissolved oxygen problems on the Poplar River appear to begin downstream of the town of McIntosh and end prior to where the end of the listed reach (Headwaters to Hwy 59).

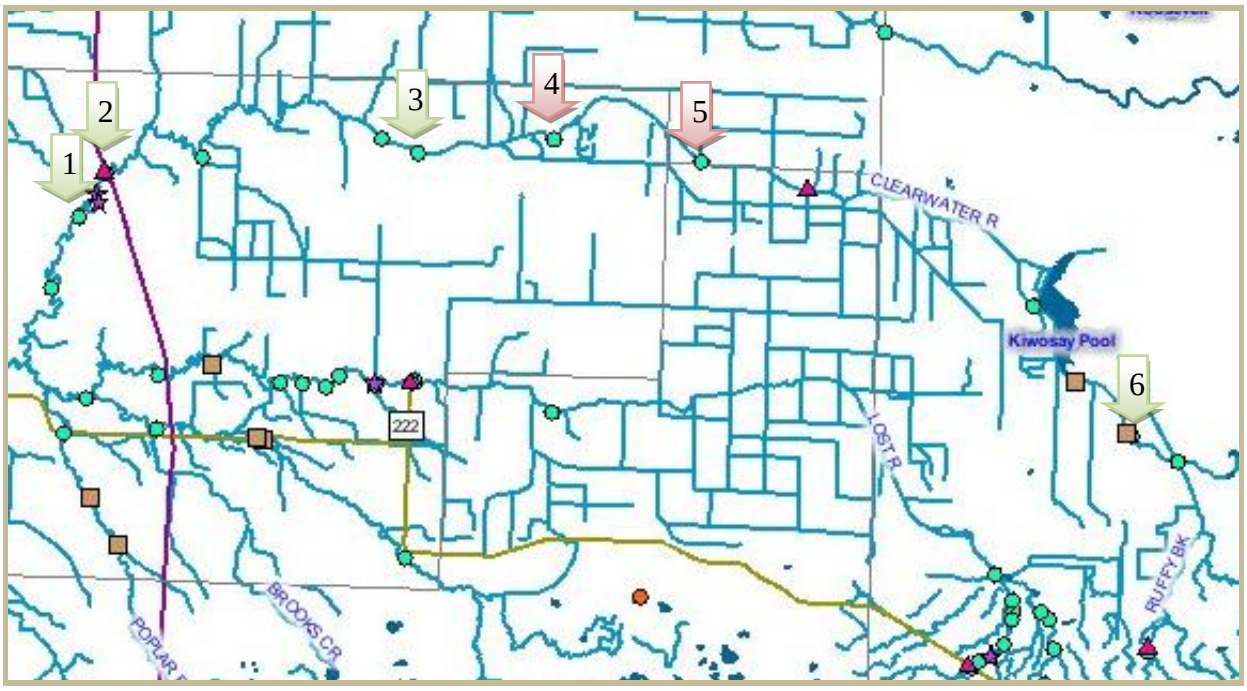
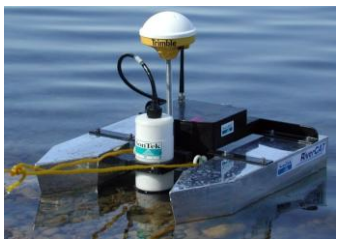


Figure 1. Current Monitoring Site Locations along the Clearwater River with dissolved oxygen data. Red arrows = partially or not supporting of aquatic life. Green arrows = fully supporting of aquatic life.

Thief River Watershed Sediment Investigation

- We will need to create a detailed work plan and budget for the project. Roger Fisher of the MPCA will help us put together a Quality Assurance Project Plan (QAPP) for the project as well. A work plan has been started for the project.
- I will be meeting with Pete Fastner of the MPCA to review the project, work plan, and budget.
- A local MPCA project manager hasn't been appointed yet.
- We can start spending money on the project now and are eligible for our first payment.
- Agassiz NWR has received money to purchase continuous monitoring equipment for the study. They will be monitoring 4 sites within the Refuge. The USGS is assisting with project planning and will be collecting a few flow measurements with a SonTek Acoustic Doppler flow measurement system. They will be charging the USFWS $3,200 for 3 measurements at each of the 4 sites within Agassiz (total of 12). Their services may also be available to the RLWD if we would like to have some Acoustic Doppler measurements on some of our stream gauging sites where flow measurement is difficult due to great depth and velocity of flow. Another option would be renting one of these units during a period of high flows to get a series of quality flow measurements at key stream gauging sites. These flow measurements could be used to update stream flow rating curves for these sites.



Clearwater River Habitat and Bioassessment

In order to put together a presentation for the International Water Conference, I did some additional data analysis on the macroinvertebrate data that we have. There are samples t hat weren't analyzed by the DNR Aquatic Invertebrate Biology Lab so my findings aren't exactly final. The Valley City State University Laboratory will be able to analyze the samples at $150 each. This is less than it would cost the RLWD for me to try to sort and identify these samples. There are 7 samples left to be analyzed. So, it will cost $1,050 to complete the sample analysis for this project so it can finally be completed. I have been adding to the report when I have time and it is now about 70 pages long, so, I am looking forward to finishing it.

One of the more interesting benefits I have found by analyzing the biology data is that problems show up in biologic data (fish, macroinvertebrates, and habitat assessments) that don't always show up in analysis of water quality data. The biologic data from the Clearwater River shows how badly the dredging of the Clearwater River is still impacting aquatic life and how the negative effects appear to extend upstream and downstream of the channelized reaches.

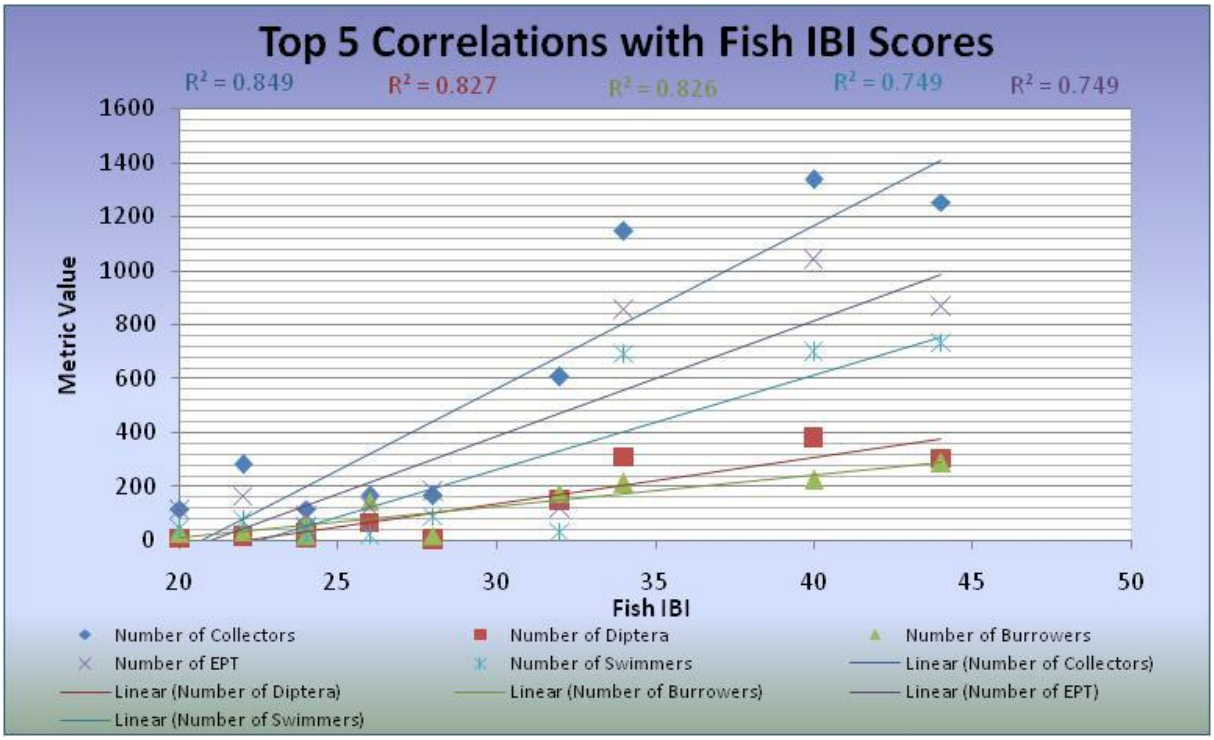


Figure 2. Correlating Macroinvertebrate Data with Fish Data

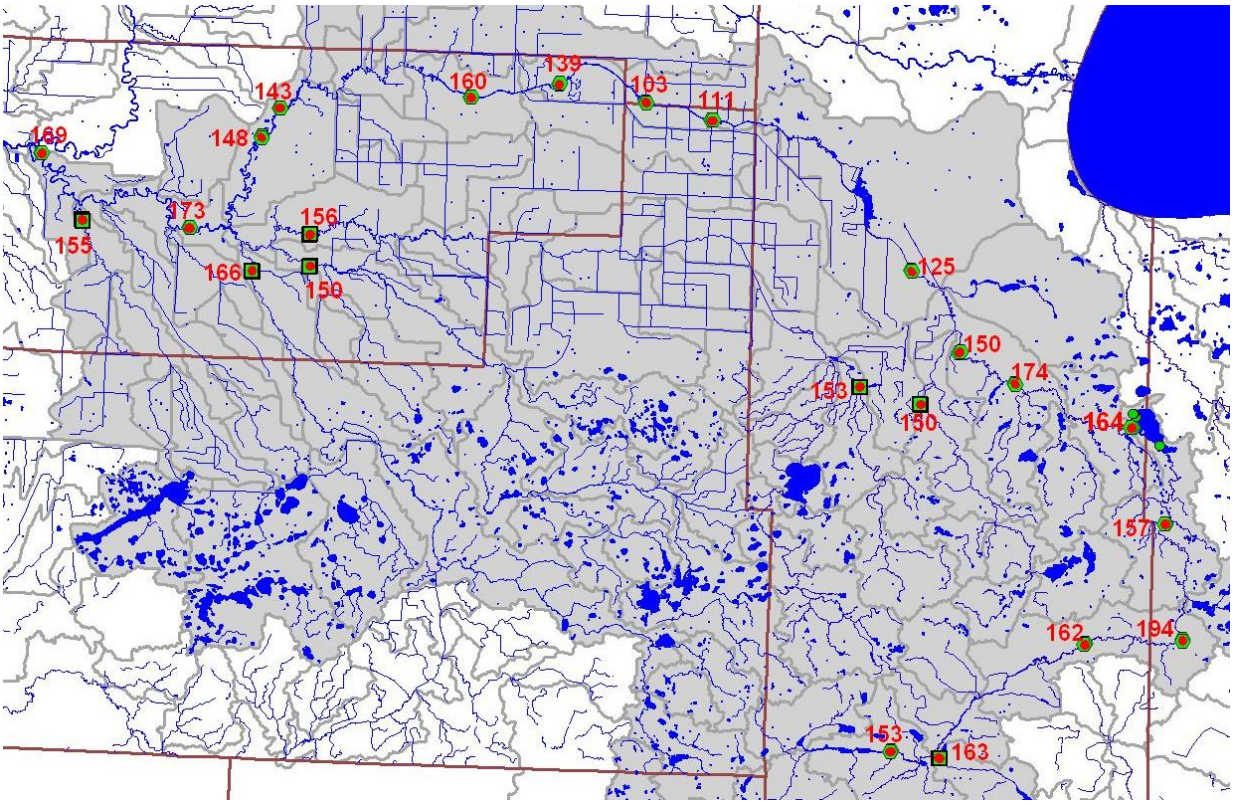


Figure 3. Habitat Assessment Scores

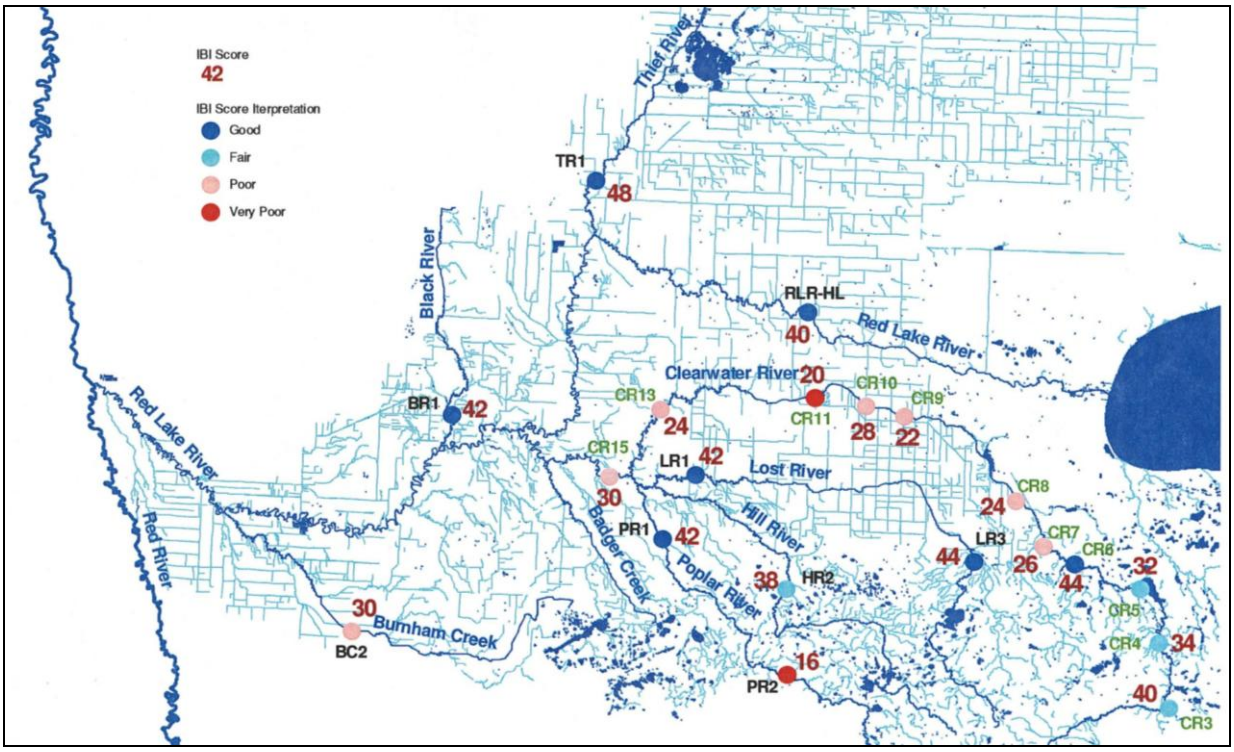


Figure 4. Fish Index of Biotic Integrity Scores

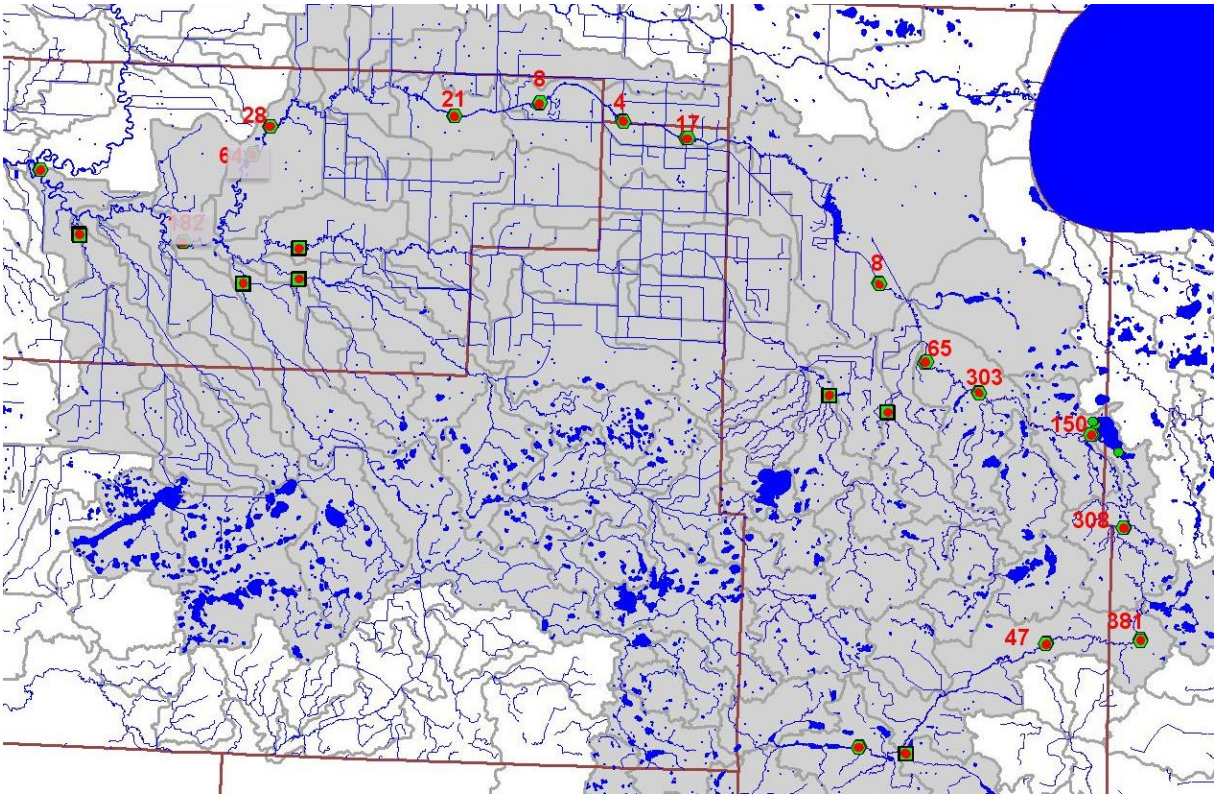


Figure 5. Number of Diptera (Flies)

February (and other past) Meetings and Events

- **February 8th –** Northwest Minnesota Foundation focus group meeting at the Evergreen Eating Emporium, Thief River Falls – 10 AM
  - They want to give more money out to natural resource projects.
    - Research leading to the development of new strategies and/or technologies that add value to local resources, including agricultural and forest products
    - Promoting the sustainable use and preservation of the natural resource base.
- **February 14th 2007 –** Marshall County Water Resources Advisory Committee. Jan Kaspari and I will be giving Power Point presentations on our water quality monitoring programs.
- **February 15th 2007 –** Moorhead Ag Drainage Workshop
  - I will be giving a presentation about the tile drainage study again this year.
- **February 27th** – Meeting at Agassiz NWR for planning the Thief River Watershed Sediment Investigation project and to find ways that the USFWS and USGS can assist with the project.

Future Meetings/Events

- **March 1st** – The final report(s) for the Tile Drainage Study are due.
  - Also the due date for delisting recommendations for the MPCA's 303(d) List of Impaired Waters.
- **March 7th** – Water Quality Monitoring Training Session at UMC
- **March 8th** – Red Lake River Corridor Enhancement meeting @ Red Lake Falls City Hall, 6:30 PM
- **March 12th and 13th –** St. Paul Best Professional Judgment meeting for Red River Basin water quality assessments.
  - I will be down there to make sure that correct water quality assessments are made for the waters within the RLWD.
- **March 13 through 15th –** International Water Conference and River Watch Forum
  - Will be giving a presentation on the macroinvertebrate monitoring we did in 2003 (Talked into it by Andre Delorme of Valley City State University).
  - River Watch Forum is on March 13th
- **March 20th –** Carnegie Training Class - UMC
- **March 21st** – Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study Stakeholder Advisory Committee meeting at the Clearbrook Community Center.
  - Data review
  - Monitoring Plans
  - 2007 Assessments
- **March 26th –** Red River Basin Water Quality Team – Thief River Falls – Ethanol
- **March 27th –** Carnegie Training
- **March 30th –** Deadline for annual report articles
- **April 3rd –** Carnegie Training Class - UMC
- **April 9th –** Pennington Co. Water Resource Advisory Committee Meeting – 9am
- **April 10th –** Carnegie Training Class – UMC – ½ day
- **April 11th -** Marshall County WRAC – Holt CC
- **April 13th –** eLink Challenge Grant progress reports due
- **April 15th –** Challenge grant progress reports to BWSR are due
- **April 19th –** Red Lake River Corridor Enhancement Project meeting – Thief River Falls City Hall, 6:30pm
- **April 23rd –** Red River Basin Water Quality Team – Moorhead, 10am
  - Agricultural Nonpoint Source Pollution
- **April 25th -** Envirothon
- **May 21st –** Red River Basin Water Quality Team – Moorhead
- **May 28th through June 10th –** Red Lake River Rendezvous 40th Anniversary Canoe/Kayak Expedition
- **June 13th -** Marshall County WRAC
- **June 25th –** Red River Basin Water Quality Team – Thief River Falls
- **July 23rd –** Red River Basin Water Quality Team – Moorhead
- **July 31st –** Final reports due for ditch inventory and project 60E BWSR Challenge Grant projects
- **August 8th -** Marshall County WRAC
- **August 27th -** Red River Basin Water Quality Team – Thief River Falls

- **September 24th -** Red River Basin Water Quality Team – Moorhead
- **October 10th -** Marshall County WRAC
- **October 22nd -** Red River Basin Water Quality Team – Thief River Falls
- **November 26th -** Red River Basin Water Quality Team - Moorhead

Other Notes

- Purchased Microsoft Office Professional 2007
- Purchased battery packs for the Project 60 turbidity monitoring equipment
- Purchased dissolved oxygen membranes for In-Situ TROLL 9000 continuous monitoring equipment
- The RRWMB has a YSI 600QS multiprobe that Jim can borrow for use with River Watch monitoring. There are other groups and agencies that are monitoring water quality but don't have the budget to purchase equipment like the YSI 600QS model multiprobe (a relatively inexpensive model used by most River Watch Groups). Meanwhile, we have money budgeted for River Watch expenses that is not used-up each year. Therefore it would be more responsible for us to purchase our own probe and allow another group that can't afford to buy their own multiprobe to borrow the RRWMB/MPCA probe.