

September 2006 Water Quality Program Progress Summary

By: Corey Hanson

For: October 12, 2006 RLWD Board Meeting

Lake and Stream Monitoring:

There was no time for lake samples this month. Final lake samples for this monitoring season will be collected in October. The MPCA conducted water quality sampling on Maple Lake in September.

The Project 60 monitoring equipment is still in place, but there hasn't been any flow for a long time now. I checked on the equipment in August again to make sure it is clean and ready for flow, just in case there is a storm that actually produces some runoff.

Calibration of the Ruffy Brook In-Situ TROLL 9000 logging multiprobes continues on a bi-weekly basis.

Some supplemental fecal coliform samples were collected at sites that have had high levels in past Septembers, but have less than five samples for the month over the last 10 years.

All of the Red River Basin Buffer Initiative monitoring sites (3 sites in the Silver Creek watershed, sampled/monitored monthly) have had no flow to sample.

Tile Drainage Study:

There has been some flow from the tile drainage in the Bachand field in Red Lake County after recent rain from which I have been collecting samples. I also collected a sample further down in the channel, prior to where it enters into the Hill River.

I have taken a couple sets of field measurements from the Hill River above and below where the tile drainage enters the river. Conductivity is increased, but not by a lot.

I completed the monitoring of the wild rice paddies (particularly the surface drained paddy) this month as well and removed the continuous monitoring equipment.

The rain data logger at the Bachand (Red Lake County) may have been struck by lightning during some August storms. Its data was wiped out and it would no longer log any new data. It was replaced with a working data logger.

TMDLs

I participated in a 3rd Party TMDL web-conference. The presentation covered the basics of TMDLs in general, characteristics of third-party TMDLs, steps to third-party TMDL development, and tips for increasing stakeholder effectiveness. As the “Third-Party” that will be managing the Clearwater Dissolved Oxygen and Fecal Coliform study, the RLWD will be responsible for monitoring/data collection, stakeholder/community outreach, modeling (part of the budget is allocated to the EERC for SWAT modeling), data evaluation, allocation, and the implementation plan.

Work for the new Clearwater River TMDL project will begin November 1, 2006.

September (and other past) Meetings and Events

- ❖ **September 2nd** – Attended the Clearwater Lake Area Association meeting and talked and answered questions about water quality in and around the lake.
- ❖ **September 6th** - Watershed Watch (a Northwest Minnesota Foundation-funded program being administered by the International water Institute) meeting at the Best Western Inn in Thief River Falls. Discussed development of the River Watch program in Thief River Falls with some community leaders and agency people. The possibility of having a college-level or community-wide River Watch program (or any other river/water quality related awareness activity) was discussed.
- ❖ **September 7th – 8th** – 2006 Minnesota Lakes and Rivers Conference – Duluth Entertainment and Convention Center. Notes are included later in this report.
- ❖ **September 13th** – Pennington County Outdoor Education Day in Thief River Falls – Jim and I will be presenters at the “Incredible Journey” station where kids learn about the water cycle.
- ❖ **September 18th** – Project 60E Brandt channel restoration mtg.
- ❖ **September 19th** – Northwest Minnesota Water Festival in Warren
 - Corey – Water Quality Station
 - Jim and Tammy – Watersheds Station
- ❖ **September 20th** – Northwest Minnesota Water Festival in Fertile
- ❖ **September 20th** – Red Lake River Corridor Enhancement meeting at the Crookston City Hall at 7 pm.
 - We went through all the aspects of the project and decided which entities would take the lead in accomplishing them. The RLWD will be in charge of finding a way to conduct an erosion assessment on the river. Each organization will report progress on the tasks for which they are responsible at each RLRCE JPB mtg.
- ❖ **September 25th** – Red River Basin Water Quality Team Meeting in Moorhead.
- ❖ **September 27th** – Red River Basin Buffer Initiative meeting at the Detroit Lakes MPCA office at 10:30 am.
 - Project received an extension through the first half of 2007.
 - Bids have been received for the Silver Creek Restoration project.
 - 5,537.75 total acres of buffers have been installed for the project.
 - 128 total contracts
 - 1316 total landowner contacts

Future Meetings/Events

- ❖ **October 23rd** - Red River Basin Water Quality Team Meeting at the RLWD – Year 2 turbidity TMDL study reports
- ❖ **October 26th** – Red Lake River Corridor Enhancement JPB mtg. In Red Lake Falls at 7 pm.
- ❖ **November 22nd** – Marshall County Water Resources Advisory Committee Meeting
- ❖ **November 28th** - Invited to present findings of the tile drainage study at the MN/IA Drainage Research Forum in Owatonna by Gary Sands (U of M Extension Service).
- ❖ **November 30th** – Deadline for submitting data to STORET for the 2007 statewide assessment

Other Notes

- ❖ Investigated a turbidity problem on the Thief River above Agassiz NWR. Field measurements at road crossings showed that the problem starts at least a mile downstream of the Thief Lake outlet, between the outlet and CR6.
 - No one had heard of any work occurring in the river at the time.
 - Since there was low flow, I collected chlorophyll-a samples above and below where the problem starts. Results showed a higher concentration of chlorophyll-a in the clearer water, so the problem must be related to sediment somehow.
- ❖ Drafted and hand-delivered (at the NW MN Water Fest) letters of support to SWCDs for CWLA projects.
- ❖ Thief River Sediment Investigation Study pre-proposal
- ❖ Helped Marshall-Beltrami County with writing their CWLA application
- ❖ Provided some water quality related language for Clearwater County CWLA application
 - There are several landowners that would be willing to do projects (that require erosion control structures in addition to plantings) but are unable to afford their share of the project. CWLA (or money could be

2006 Lakes and Rivers Conference – Session Notes

- ❖ **Making BMPs Exciting Again – Greg Berg, Stearns Co. SWCD**
 - Presentation available at:
<http://www.soilandwater.co.stearns.mn.us/Education%20Materials/education.htm>
 - Minnesota Erosion Control Association
 - Communicates erosion control techniques and practices through workshops, seminars, demonstrations
 - Funding of BMP projects
 - SWCD uses CCRP for installing buffers (small portions of land)
 - CP21 = Filter strip – streams, ditches, etc.
 - CP22 = Riparian Forest Buffer
 - CP27/28 = Farmable wetland buffer
 - CP30 = Riparian buffer
 - Financial assistance to cover over 90% of costs
 - Not competitive, as long as you are eligible

- Have 1 yr to establish cover
- Average buffer width >35'
- Sent mailings to landowners with maps and lists of potential projects that may be eligible on their land
 - Section wide and individual farm maps
- Used NRCS technical Standard Guidelines to estimate water quality benefits of projects...for example:
 - 60 ft. buffer
 - Decrease sediment by 90 %
 - Decrease nitrogen by 74%
 - Decrease phosphorus by 70%
 - The decrease in Chemical Oxygen Demand was very high.
- Delineated drainage areas for all inlets to a particular water body (Rice Lake in the example), then explored implementation ideas.
- Used hickenbottom standpipe outlets to create “stormwater ponds” on hillslopes. Greg referred to these as grad stabilization structures. These work well for watersheds where blowouts are a concern.
- Rock check dams have also worked well
- Showed example of a stream that flowed through a feedlot. They built a manure pit and directed the stream around the feedlot.

❖ **Clean Water Legacy Act – Mike Robertson, Lee Pfanmuller, Glenn Skuta, Doug Thomas**

- \$1.085 Million to the MPCA for citizen stream monitoring and remote sensing
 - I have requested \$25,000 of this money through Molly MacGregor (DL MPCA)
- \$1.74 Million to the MPCA for TMDL projects
 - The Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Project that will be starting next year is funded by this chunk of \$ (\$100,000).
- \$1.41 Million for nonpoint restoration projects
 - The SWCD CWLA project apps that the RLWD supported are competing for some of this \$.
- \$1.0 Million for streambank, channel, and lakeshore protection
 - Has to be a public interest (threatening a road)
- The DNR will be using its CWLA \$ for stream flow monitoring (15 add'l sites - underway), lake IBIs (24/30 are already completed), and mercury monitoring.
- The DNR will also be looking at protection of unimpaired waters.
 - “Legacy lakes”
 - Establish reference sites
 - Aquatic vegetation data

❖ **E-Coli Happens – Bacteria Monitoring and New Water Quality Standards – Heidi Bauman, Barbara Liukkonen, Mary Karius**

- Deciding to either collect samples for just e-coli or to collect samples for e-coli and fecal coliform should be based on the quality of existing data.
 - Is the fecal coliform dataset sufficient?

- Collecting samples for both for a while can help with finding correlations between the two parameters.
 - RLWD began collecting e-coli last year so we would have a head start on collecting data by the time the MPCA came out with an e-coli standard.
 - Citizen monitoring trial of different test kits
 - Coliscan Easygel
 - 3M Petrifilm
 - Some of the monitoring sites for this statewide program are located on the Buffalo, Sand Hill, and Clearwater Rivers.
 - New e-coli standard is 126 cfu/100ml
- ❖ **Sept 8th Plenary Session**
 - Quote: “You Can’t Manage What You Can’t Measure” – Adam Werbach, former Sierra Club President
 - **Changing Demographics in Minnesota – Martha McMurry**
 - There has been an increase in the number of boat owners but a steady to decreasing trend in the rate of lake use.
 - Declining rates of participation in outdoor activities.
 - The *Ten year forecasts of Minnesota adult outdoor recreation participation, 2004 – 2014* report is available online at: http://files.dnr.state.mn.us/aboutdnr/reports/ten_year_rec_forecast.pdf
 - **Minnesota’s Changing Climate – Dr. Mark Seeley**
 - There is evidence of trends in the upper Midwest.
 - Increased frequency of high dew points
 - Greater annual precipitation
 - Increase in contribution of convection to precipitation
 - T-storms
 - Too much, too fast
 - Scattered
 - Increase in frequency of rain events that are > 2”
 - We still don’t have adequate data to tell what is driving climate changes
 - Natural variability?
 - Land use?
 - Anthropogenic emissions?
 - Tracing isotopes in rain water to investigate environmental change
 - **Changing Sense of Place – Dr. Richard Stedman**
 - Shoreline development
 - Less woody debris = different bird species
 - People are worried about the loss of the “northwoods” character
 - Doesn’t always affect eagles, herons, water quality
 - SD affects aesthetics, has social impacts (how to measure?)
 - Can be managed through policy
 - Home vs. Escape – shoreline properties are transitioning from “escape” to “home”
- ❖ **Volunteers: Finding and Keeping Them!**
 - Why do people volunteer?
 - Vested interest

- Hobby - something to do
- Involvement – part of community – social activity
- Build skill sets
- Sense of responsibility
- Make a difference
- Feel good about what you are doing
- Accomplish goals
- Because they are asked to
- Solve problems
- Make contacts
- What is the “hook” to involve people?
 - Something to offer volunteers – skills, info
 - The people who are interested in developing skills may be more interested in the monitoring aspect of volunteering (younger people)
 - Social position, prestige – for people who like to contribute
 - Solo river monitoring may be a wrong fit for these people
 - Coordination may be better suited to these people (older people)
 - *People that are interested in this aspect of volunteering would be well suited for the “community involvement” aspect of the International Water Institute’s Watershed Watch project.*
 - Can better meet needs if we know what the volunteers’ needs are
- Ways to recognize volunteers
 - Newsletter
 - Local newspaper
 - Trinkets
 - Who wants more junky trinkets?
 - Put \$ toward something else...like buying trees for volunteers
 - Hat, t-shirt
 - Books
 - Gatherings
 - A bench along a walkway in name of the group
 - Point out things they did very well
 - Membership cards for children
 - Banquets
- Volunteering Cycle
 - Needs → Recruit → Orientation/Training → Supervise → Evaluation/Recognition → Back to Needs
 - Many monitoring coordinators stop before they get to the evaluation/recognition step of the cycle. You need to evaluate the program and recognize volunteers. You will retain more volunteers by doing this and avoid having to start from scratch the next year.
 - Retention of volunteers can be accomplished by something as simple as asking them whether or not they would like to stay involved. Also ask them about what sorts of things would make them want to stay involved.

- Leadership Mountain
 - Board, formal leadership
 - Volunteer leaders
 - Steady volunteers
 - 1-time volunteer efforts
 - Members, interested public
 - People don't naturally find their way to the top on their own. Opportunities may have to be intentionally created for them.
 - Have to hold people accountable
 - "Pledges"
 - Letters of commitment
 - May have to ask people to move aside non-confrontationally
- ❖ **Macroinvertebrate Monitoring – Using Bugs as Indicators of Water Quality – Joel Chirhart, Jenny Schaust, Mary Karius**
 - MPCA's EMAP program – random site selection, professional monitoring
 - Flow is an aspect of the integrity of the stream (affects biologic integrity)
 - Invertebrates are identified and tallied. Data is analyzed to develop an Index of Biotic Integrity (IBI).
 - IBI Metrics
 - Taxonomic Diversity
 - # of Intolerant Groups
 - % Tolerant
 - % Dominant
 - Trophic structure (feeding behavior)
 - Individual health
 - Samples are collected with dipnets
 - 20 jabs, sample all productive habitats
 - Samples are sent to a contractor for ID
 - Taxa are identified to genus level.
 - Habitat is assessed at 13 sites along the assessed reach
 - QHEI (Rankin) for non-wadeable streams
 - MPCA is developing biologic standards for assessment
 - Heavily targeted monitoring in areas of biotic impairment
 - IBI scoring system is dependant on stream class
 - Fish and macroinvertebrate IBIs tend to agree, especially if the data is good (no complications with sampling)
 - Rhithron Associates - ID work
 - joel.chirhart@pca.state.mn.us, 651-296-7219
 - WHEP (Wetland Health Evaluation Program) – Volunteer monitoring
 - Participants receive plant and invert ID training from MPCA staff
 - 7 vegetation metrics
 - 6 macroinvertebrate metrics
 - # odonata taxa (dragonflies and damselflies)
 - Use bottle traps, dipnets
 - Teachers make good volunteers for this monitoring, especially those with a biology background and access to a school lab.

- Quality assurance
 - Team leaders receive stipend – put in extra time/effort
 - Hired consultant helps with ID (URS Consultants)
- Results are used to measure
 - Development impacts
 - Effectiveness of different buffer widths
 - Wetland improvement/restoration success
- Appreciation dinner for volunteers
- SHEP is a similar program that focuses on streams instead of wetlands
- www.mnwhep.org
 - training videos, methods, etc.