Corey Hanson, Water Quality Coordinator, Red Lake Watershed District

Red Lake Watershed District Monthly Water Quality Report

DECEMBER 2007 **FOR JAN 14, 2008 BOARD MEETING**

Clearwater River Dissolved Oxygen and Fecal Coliform TMDL Study

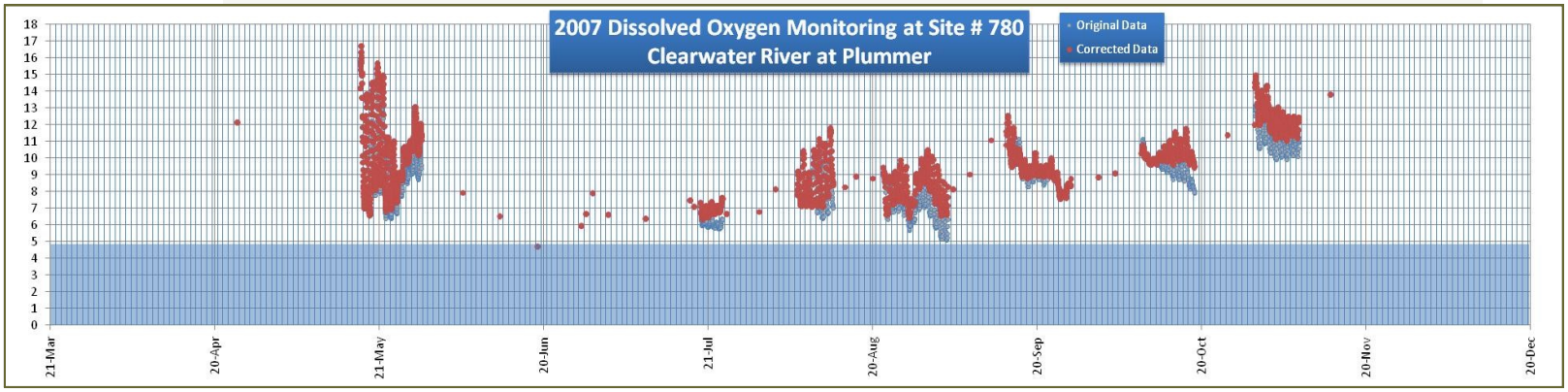
Data was downloaded from the Eureka Midge dissolved oxygen loggers and an In-Situ TROLL 9000 multiparameter sonde that were installed for this project. They were cleaned for over-winter storage and shipment to the company for repairs/upgrades.

I then began to go through the immense set of data that was collected throughout the year for this project. Data was extracted from continuous monitoring equipment. The equipment was cleaned and prepared for storage and/or shipment to the manufacturer for repair/upgrade. Continuous data from Eureka Midge Dissolved Oxygen Loggers had to be corrected for the fouling and calibration drift errors that accumulate over the time that the equipment is deployed in the river. The data is also adjusted so that Eureka Midge dissolved oxygen measurements will match measurements made with the RLWD's Eureka Manta portable multiparameter sonde. This data validation process includes the determination which data to keep and which to exclude from analysis. Site's 780, 21, 37, and 105 were completed in December.

This analysis shows that, although there are some occurrences of low dissolved oxygen concentrations, they are not frequent enough to deem the Ruffy Brook to Lost River reach of the Clearwater River impaired by low dissolved oxygen.

A teleconference was held with MPCA staff to discuss existing wastewater treatment facilities that may be affecting impaired reaches. Because the Fosston WWTP's permit expired in September 2007 and was not renewed, the October discharge from this facility was technically conducted without a permit. The total phosphorus concentrations reported by the plant have been higher than the permitted calendar month average concentration of 4 mg/L. The biological oxygen demand concentration found in the stream by RLWD sampling exceeded the permitted calendar month average value for the plant.

Inside this issue:



OTHER NOTES

- Added content to the RLWD Projects web page (added Clearwater TMDL Study and Thief River Watershed Sediment Investigation)
- Posted Monthly water quality reports on the RLWD website.
- The Valley City State Macroinvertebrate Lab completed analysis of the remaining samples from the Clearwater River Habitat and Bioassessment project.
- Tom Groshens of the DNR plans to use Burnham Creek as a pilot watershed for channel stability analysis.
- Added content to the RLWD Projects web page (added Clearwater TMDL Study and Thief River Watershed Sediment Investigation)

Thief River Watershed Sediment Investigation

Data records were downloaded from the Eureka Manta multiparameter water quality logging sondes that were installed. The sondes were cleaned for over-winter storage and/or shipment to the company for repairs.

I worked with Jan Kaspari, Marshall County Water Planner, to complete the invoice for her assistance during the first year of the project. $5,900 of Marshall County's $11,921.14 in expenses will be reimbursed using Clean Water Partnership grant money. The remaining $6,021.14 in expenses will be used as an in-kind contribution to the project from the Marshall County Water Plan Office.

The USGS has finalized a work plan for the water quality and quantity monitoring it will conduct in and around Agassiz NWR. It is included in your Board meeting handouts as an attachment to this report.

Tile Drainage Study

At the beginning of the month, I needed to get the water level and flow data from the Red Lake River Watershed Farm to Stream Tile Drainage Study to Nate Dalager, of HDR Engineering, so he could complete his report on the flow-related effects of tile drainage. This data was sent to Nate on 12/5/07. I will be updating and completing the final report for the water quality study in January of 2008 and will be giving two presentations on the project in February. I was also asked to present the results of this study as an expert speaker for the West Central, Inc.'s March 5th agricultural update meeting for its retailers. Although it goes against my personal policy to say "no" to a public education opportunity, Myron and I agreed that it would be wise to politely decline this opportunity because West Central, Inc. is a private-sector business, my 2008 schedule is already very much overloaded, and there already are two opportunities for people to see a presentation on this study..

Water Quality Monitoring Equipment

The 22 Onset HOBO Water Level Loggers that were used by the RLWD this year were cleaned and stored .One of them was not working properly. An additional one was stolen from the Hwy 89 crossing of the Moose River this summer.

7 of the Eureka Manta multiparameter water quality logging sondes used for the Thief River Watershed Sediment Investigation will need to be sent back to the company for repair. Most of the problems are with the pH and depth probes. One of them has a bad turbidity probe.

The 10 Eureka Midge dissolved oxygen logging sondes will need to be sent back to Eureka as well. Most of them are working well, but the company has some updates/upgrades that they would like to perform on the instruments.

2007 Budget

Because of the increased number of projects and objectives in 2007, I felt it was necessary for me to figure out how much time I need to spend on each project to accomplish goals. I then set up a spreadsheet to track the dollar amounts I have charged to each of these projects. It helped keep me realize when I was spending too much time on one project and too little on another. I was able to keep the grant funded projects on-track and also spend enough time on the RLWD long-term monitoring program. I had no time for lake monitoring. I also didn't get much of a start on the next comprehensive water quality report, as I had planned. I had hoped to more completely minimize the general office time expenditures on admin (project 10 or 01, worktype 7) and general water quality (project 46, worktype 7), but there remains a certain inescapable amount of office work that has to be done such as staff meetings, diary, time sheets, email, phone calls, reports, moving to a new office, planning for the new office, etc. The erosion assessment of the Red Lake River didn't receive funding from the MPCA yet, but the data collected during the Red Lake River Rendezvous will still be compiled by a UMC student worker (Kristin Fritz).

ENDING VALUES IN THE 2007 BUDGET TRACKING SPREADSHEET

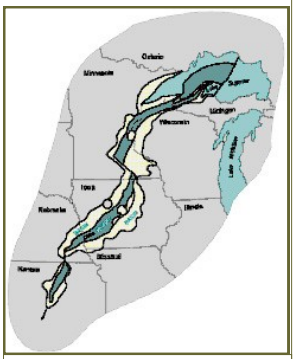
Project	Project Number	Work Type	Budget, (with OT)	Total Spent thru 12/31/07 (Salary + Overhead)	Balance	Percent Remaining
Grand Totals			$88,740	$90,214	$1,474	-2%
Admin - staff mtgs, diary, time sheet	10	7/17	$ 5,000	$ 9,992.57	$ (4,992.57)	-100%
Holidays			$ 1,316	$ 1,316.00	$ -	0%
Sick Leave			$ 263	$ 370.13	$ (106.93)	-41%
Vacation			$ 921	$ 1,167.95	$ (246.75)	-27%
Stream Gauging	21	19/7	$ 700	$ 1,562.77	$ (862.77)	-123%
Regular Stream Monitoring	46	19	$ 5,300	$ 5,593.13	$ (293.13)	-6%
Lake Monitoring	46	19	$ 3,290	$ -	$ 3,290.00	100%
Beltrami County Stream Mon.	46	19		$ 1,274.92	$ (1,274.92)	9%
RRBWQT	46	7	$ 3,600	$ 2,303.03	$ 1,296.97	36%
Education (46-17, 82F)	46/82F/10	17	$ 1,500	$ 3,660.14	$ (2,160.14)	-144%
46K Report	46K	73/74	$ 1,500	$ 1,583.31	$ (83.31)	-6%
Data Entry, STORET submittal, Data Assessment	46P	52	$ 3,000	$ 3,804.07	$ (804.07)	-27%
Data Analysis	46P	54	$ 1,000	$ 812.22	$ 187.78	19%
RRBMAC	46P	56	$ 2,000	$ 1,151.50	$ 848.50	42%
SOP Revision	46P	57		$ -	$ -	not budgeted
Water Quality Report	46P	59	$ 2,000	$ 82.25	$ 1,917.75	96%
Misc Water Quality - Phone calls, planning, meetings, etc	46	7	$ 4,600	$ 7,669.81	$ (3,069.81)	-67%
More Misc Water Quality - Ruffy Brk Report, etc	46	7	$ 750	$ 4,174.40	$ (3,424.40)	-457%
Maple Lake Monitoring	46E	19		$ -	$ -	not budgeted
Website Maintenance	46P/001E	58	$ 1,000	$ 647.75	$ 352.25	35%
Project 60 Monitoring & Reporting	60E	19/7	$ 1,000	$ 2,035.77	$ (1,035.77)	-104%
Clearwater DO and fecal TMDL	**157A**	**Total**	**$ 24,000**	**$ 16,543.04**	**$ 7,456.96**	31%
Clearwater DO and fecal TMDL - Office	157A	7/17/54		$ 6,271.59		
Clearwater DO and fecal TMDL - Field	157A	19		$ 10,271.45		
RLRCE	159	19/7	$ 800	$ 1,316.01	$ (516.01)	-65%
RRB Buffer Init	162	19/7	$ 1,000	$ 236.48	$ 763.52	76%
Erosion Assessment for Turbidity TMDL - Lower Red Lake River	164	19/7	**$ 3,000**	$ 349.56	$ 2,650.44	88%
Tile Drainage Study - Report	165	7/17	$ 1,500	$ 4,492.91	$ (2,992.91)	-200%
Tile Drainage Study - Flow and WQ Monitoring	165	19	$ 1,500	$ 1,408.58	$ 91.42	6%
Other Projects - 31, 145			$ -	$ 143.93	$ (143.93)	not budgeted
Ditch Inventory Project	167	78	$ -	$ 658.01	$ (658.01)	not budgeted
Thief River Sediment Study	168	7/19	**$ 18,200**	$ 15,864.25	$ 2,335.75	13%

2008 Budget

I have developed a similar budget-tracking spreadsheet for 2008. A table of estimate expenditures is included in your Board meeting handouts as an attachment to this report.

December Meetings and events

- **December 14th –** Red River Basin Monitoring Advisory Committee – 9:30 to 2:30 – Sand Hill Watershed District
  - Turbidity/TSS correlation issue.
- December 17th—Red River Basin Water Quality Team Meeting—Detroit Lakes
  - TSS concentration as a surrogate turbidity measurement.
    - For the Red River Basin Turbidity TMDL Study, the MPCA is trying to find a total suspended solids concentration that correlates with the 25 NTU turbidity standard. Turbidity itself cannot be used for calculating loads (mass of a pollutant over time) as it is an optical property of water and not a physical property. Total suspended solids are measured in milligrams per liter. Despite being imperfect, the correlation is high between paired TSS and turbidity values that have been collected as part of the Red River Basin water Quality Monitoring Network. Because of the imperfection in the relationship, the MPCA may choose to adopt a higher TSS concentration such as 35 mg/L as a standard to minimize the occurrence of "false positive" exceedances of water quality standards.
  - Representatives Morrie Lanning and Kent Eken were present to discuss their proposal to create river basins commissions for the state's major river basins. Currently, just 3 of the nine major river basins in the State have a some form of a basin board. The Red River Watershed Management Board is one of them. The Red Board, along with the Minnesota River Basin Joint Powers Board, and the Mississippi Headwaters Board will have the same powers and duties of a basin board under this new legislation.
    - Membership of the basin boards will consist of two members from each of the existing "watershed management organizations," or WMOs. Watershed districts will act as WMOs. Where WMOs don't currently exist for a major watershed, the counties within the watershed will jointly appoint a county commissioner and a SWCD supervisor to the basin board.
      - Possible difference from current Red Board organization: Staff of local units of government that are members of the WMO are not eligible to be appointed to the respective basin boards. The reason behind this is that if the basin boards are going to have taxing authority, all the members should be elected or appointed by elected officials.
      - There will be a 5-member peer review panel that will include 2 members of the basin board, technical professionals from 2 WMOs, and a BWSR representative.
      - One of the main motives behind this legislation is to move away from county water planning and focus more on watershed-based water planning. Tanya Hanson of the Red Lake County SWCD voiced concerns over this because a lot of the SWCD's funding is dependant upon their county water plan.
    - There may be local tax increases, especially where new WMOs and basin boards are created.
    - BWSR's oversight powers are strengthened under the legislation
    - Another difference from existing procedures: Annual reports from each watershed district/WMO will be completed on or before April 15. BWSR will be creating a form for these reports.
    - I can provide you with a full printout of the legislation upon request.
    - A motion was made to draft a letter of support of the <u>concept</u> of basin boards proposed by this legislation. It was agreed upon that the members of the RRBWQT would get their organization/agency's opinion on the legislation prior to voting on whether or not the RRBWQT should support the legislation. <u>I will try to get this on the agenda for the January 24th RLWD Board meeting to get the Board's opinion of the legislation. I need to report the RLWD Board's opinion to the RRBWQT at its January 28th meeting at the RLWD.</u>
  - Representative Eken talked about some recently passed legislation for terrestrial carbon sequestration
    - $385,000 to the DNR and U of M to determine the capacities of forests, wetlands, and prairies
    - $90,0000—study geologic carbon sequestration in the mid-continent rift, oil extraction sites, and coal seams
- **December 20th** – Red Lake River Corridor Enhancement Project advisors conference call



MIDCONTINENT RIFT

Future Meetings and Events

- **January 15, 2008**—Pennington County Water Resources Advisory Committee, 9 am
- **January 16, 2008**—Marshall County Water Resources Advisory Committee, 9:30am—11am @ Middle River City Office
  - Review of 2007 activities, financial report
  - MPCA sub-surface treatment systems rule revisions
  - Flood plain map modernization
  - WCA rule revisions
  - Thief River Watershed Sediment Investigation
- **January 17, 2008** – Judging at the Franklin Middle School Science Fair, 12-3 pm
- **January 28, 2008**—Joint meeting of the Red River Basin Water Quality Team and The Red River Basin Monitoring Advisory Committee, 10am @ the RLWD mtg. Room
  - Need to report on the RLWD Board's opinion on the concept of statewide Basin Board proposal
- **January 30, 2008**—Clearwater County Water Plan Task Force meeting, 10am @ Clearwater County Courthouse
- **January 31, 2008** – Final Report deadline for the Tile Drainage Study, semi-annual reports to the MPCA for the TMDL study and Thief River study are also due.
- **February 1, 2008** – Semi-annual report for the Thief River Watershed Sediment Investigation is due.
- **February 14th** – Presentation at Tile Drainage Forum
- **February 21st, 2008**—Red Lake River Corridor Enhancement Project Meeting, 4-6:30 pm @ Room 116 of the Kiehle Auditorium on UMC Campus
- **February 25th** – Red River Basin Water Quality Team Meeting
  - I will be giving a presentation on the results of the Tile Drainage Study
- **March 20, 2008** – Red Lake River Corridor Enhancement Project meeting, St Hilaire City Hall, 6:30 PM
- **April 17, 2008** – Red Lake River Corridor Enhancement Project meeting, Thief River Falls City Hall, 6:30 PM
- **May 15, 2008** – Red Lake River Corridor Enhancement Project meeting, East Grand Forks – Campbell Library, 6:30 PM
- **June 19, 2008** – Red Lake River Corridor Enhancement Project meeting, Fisher School Library, 6:30 PM
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- **June 19, 2008** – Red Lake River Corridor Enhancement Project meeting, Fisher School Library, 6:30 PM

Red Lake Watershed District

January & February Tasks

- ♦ TMDL Study Data Analysis
- ♦ Order Flow Measurement Equipment
- ♦ Ship equipment to manufacturers for service
- ♦ Annual Report
- ♦ Complete Tile Drainage Study report
- ♦ Comprehensive Water Quality Report
- ♦ Planning 2008 monitoring strategies
- ♦ Thief River Watershed Sediment Investigation continuous and spot water quality measurement data analysis
- ♦ Complete Clearwater River Watershed Habitat and Bioassessment Project Report
- ♦ Establish the new stream gauging sites from 2007 and start rating curves. Make list of sites that need flow measurements so Gary and Loren can collect some of them
- ♦ Vehicle maintenance/ cleanup
- ♦ Assist, as much as time allows anyway, Clearwater Lake residents in determining cause of algae blooms under the ice.