

# RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT

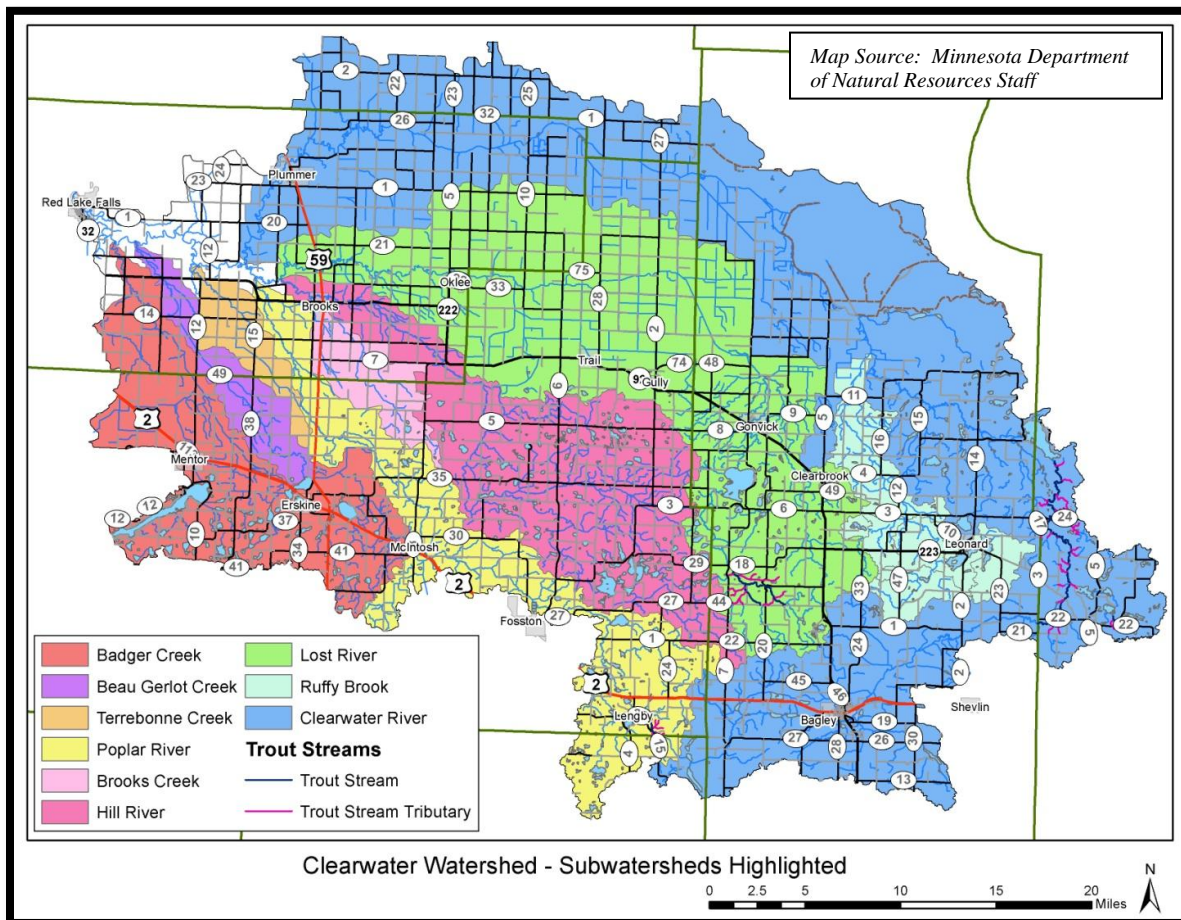
April 2014

## Snow and Mud.

That pretty much sums up the month of April 2014.



## Clearwater River Watershed Restoration and Protection (WRAP) Project



Work began on the Clearwater River WRAP project after the contract with the MPCA was executed on April 10, 2014. The total budget for Phase I of this project is \$185,473. The project is funded by money from the Clean Water, Land, and Legacy Amendment. The work plan consists of eleven objectives. Here is a list of the objectives and some notes on the work that was done for them in April.

- Objective 1 – Evaluation of Existing Data
- Objective 2 – Water Quality Sampling
  - Monitoring sites were visited and reference points were marked.
- Objective 3 – Flow Monitoring
  - HOBO water level loggers (that were available) were deployed in April. Additional HOBO water level loggers were purchased.
  - MPCA staff installed new stage monitoring gauges on the Hill River (S002-134) and Poplar River (S007-608) near Brooks. In late 2013, they added gauges to the CR119 bridge over the Lost River and the CSAH 24 crossing of the Clearwater River
  - A contract was signed between the Red Lake Watershed District and the Red Lake Department of Natural Resources so that the RLDNR could conduct flow measurements during spring runoff in the Grand Marais Creek watershed with their River Surveyor flow measurement equipment.
  - Flow was measured in Lower Badger Creek on 4/16/14 by RLWD staff.
  - DNR staff measured flow in the Lost River at CR119, north of Brooks.



- Objective 4 – Continuous Dissolved Oxygen Monitoring
  - HOBO dissolved oxygen loggers were ordered.

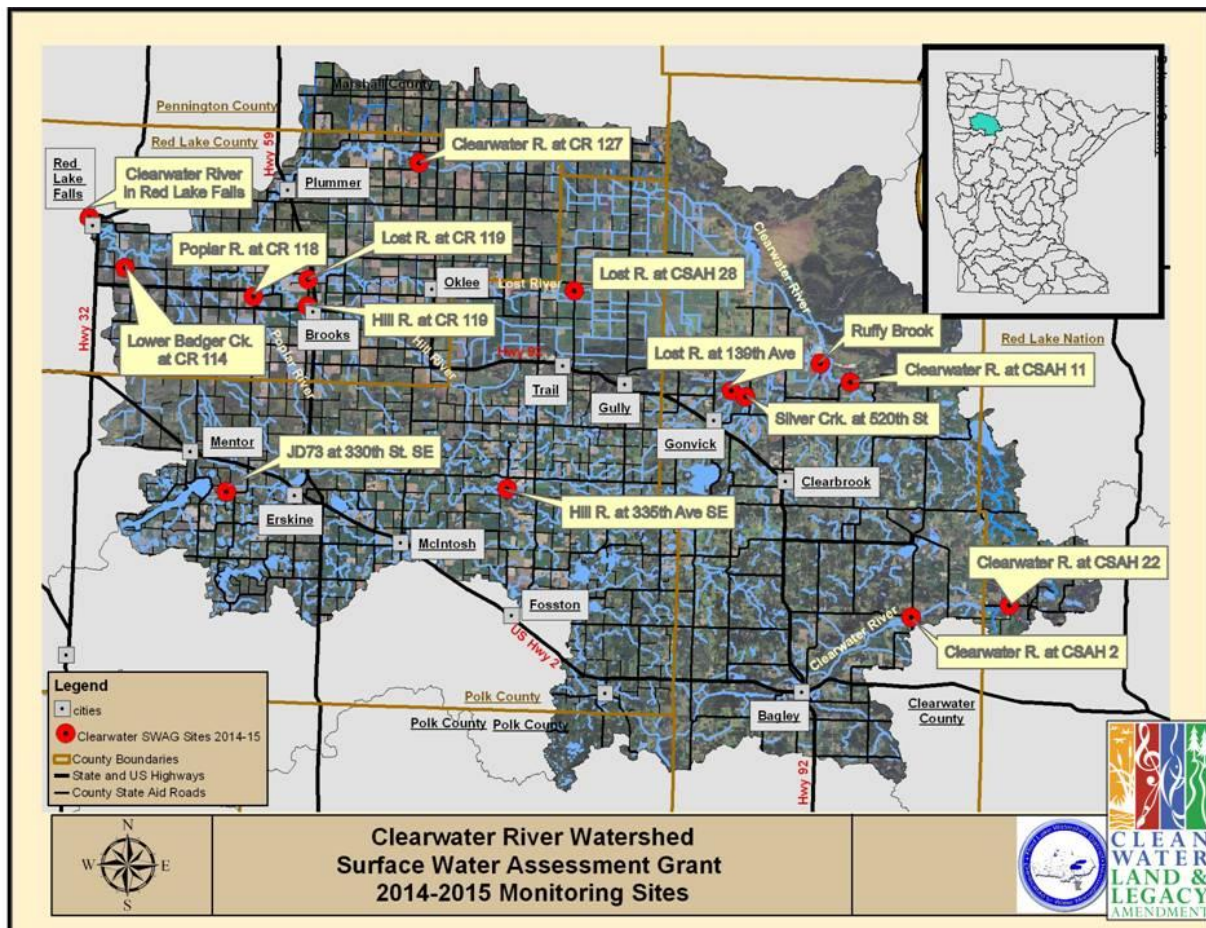


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- Objective 5 – Stream Channel Stability Assessment
  - A rangefinder was ordered was ordered for use in measuring channel widths and taller bank heights during the Clearwater River geomorphology reconnaissance and Bank Erosion Hazard Index ratings that are planned for the early summer of 2014.
  - A meeting was held in McIntosh to discuss the planned geomorphology work and get information on streambank erosion, flooding concerns, riparian health, wildlife, fisheries, agriculture, grazing, modeling, previous reports, current projects, and future projects from the attendees.
- Objective 6 – Pollutant Source Investigation and Stressor Identification
- Objective 7 – Data Entry
- Objective 8 – Data Analysis
- Objective 9 – Civic Engagement
  - A Clearwater River WRAP fact sheet was created for distribution at the RLWD booth at the Thief River Falls Community Expo.
- Objective 10 - Reports

### Clearwater River Watershed Surface Water Assessment Grant (SWAG)



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Work began on this project after the contract with the MPCA was executed on April 2, 2014.  
Clearwater River SWAG sampling sites:

Watershed	County	Stream Name	Site ID#	Site Location	Latitude	Longitude
Clearwater	Red Lake	Clearwater River <sup>1</sup>	S002-118	At Klondike Bridge/Bottineau Ave in Red Lake Falls	47.88607	-96.27691
Clearwater	Red Lake	Lower Badger Creek	S004-837	At CR 114, 4.5 mi. W of Terrebonne	47.84690	-96.23174
Clearwater	Polk	Judicial Ditch 73	S004-318	At 330th St SE, 2 mi. SE of Mentor	47.66836	-96.09813
Clearwater	Red Lake	Poplar River	S007-608	At CR 118, 4 mi. W of Brooks	47.82752	-96.07493
Clearwater	Red Lake	Hill River	S002-134	At CR 119, 0.5 mi. NW of Brooks	47.82152	-96.00964
Clearwater	Polk	Hill River	TBE	At 335th Ave SE, 7 mi. NE of McIntosh	47.67936	-95.76140
Clearwater	Clearwater	Clearwater River	S001-908	At CR 2, 4 mi. N of Shevlin	47.58533	-95.27002
Clearwater	Beltrami	Clearwater River	S002-929	At CSAH 22, 1.5 mi. W of Pinewood	47.59751	-95.15259
Clearwater	Red Lake	Clearwater River	S002-916	At CR 127, 5 mi. W of Roland	47.94112	-95.88110
Clearwater	Clearwater	Clearwater River	S002-752	At CSAH 11, 9 mi. NE of Clearbrook	47.77480	-95.35174
Clearwater	Clearwater	Ruffy Brook	TBE	Adjacent to Twp Rd 5, 4 mi. E of Berner	47.90719	-95.38817
Clearwater	Red Lake	Lost River	S002-133	At CR 119, 2.5 mi. N of Brooks	47.82158	-96.00957
Clearwater	Polk	Lost River	TBE	At CSAH 28, 4 mi. N of Trail	47.84182	-95.68864
Clearwater	Clearwater	Silver Creek	S001-020	At 520th St, 2 mi. NE of Gonvick	47.76075	-95.47801
Clearwater	Clearwater	Lost River	S000-924	At 139th Ave, 2 mi. N of Gonvick	47.76497	-95.49503

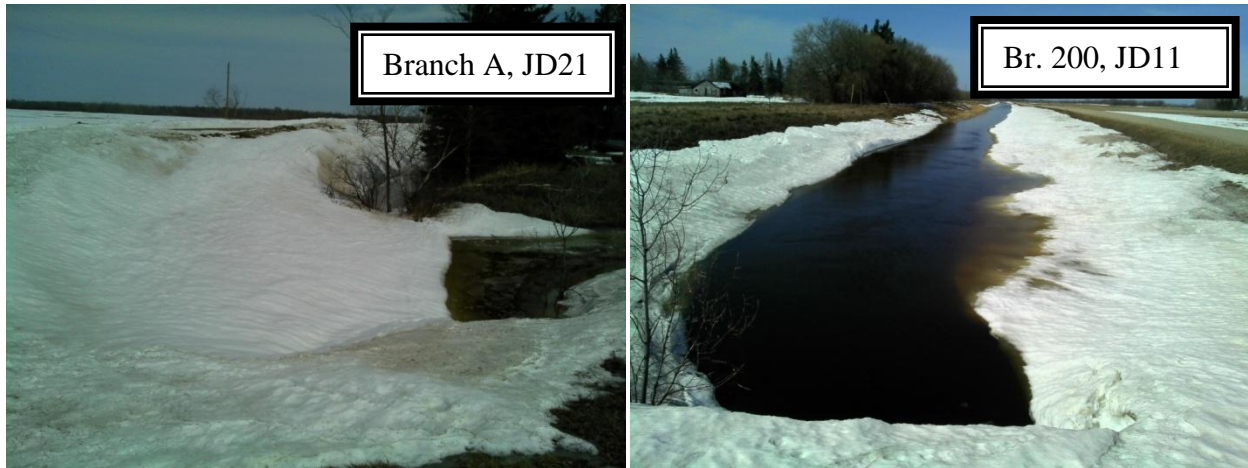
- A YSI 600QS multi-parameter sonde was purchased for the East Polk SWCD.
- A digital camera was ordered for the Red Lake SWCD.
- Safety equipment, sampling equipment, and calibration supplies were also ordered for project partners that needed them.
- A QAPP document was completed for the project. Project establishment and site establishment forms for EQuIS data submittal were also completed.
- Sites were visited and reference points were marked.

### **Stream Gauging**

- Flow was measured in the Brandt Channel monitoring site at Highway 75, north of Euclid.
- Sampling schedules were provided to project partners.

**Thief River Watershed Assessment Project**  
**(Watershed Restoration and Protection - WRAP)**

- Task 5 – Flow Monitoring
  - Some of the watershed's HOBO water level loggers were deployed, but some deployments had to wait until later in the month. Some of the ditches remained plugged with snow (covering the deployment pipes) for a relatively long time.
  - Some HOBO water level loggers that were used for this project were returned to Onset for battery replacements this spring.



- Task 11 – Civic Engagement
  - Thief River Falls Expo displays were assembled with WRAP project and water quality information.

**Red Lake River Watershed Assessment Project**  
**(Watershed Restoration and Protection - WRAP)**

- Task 5 – Flow monitoring
  - HOBO water level logger deployments began on April 9<sup>th</sup> where it was possible to access deployment pipes.
  - There was a lot of flow in Heartsville Coulee this spring. A flow measurement was made during one of this spring's visits to that site.
  - Flow was measured in Polk County Ditch 1.
  - MPCA staff made plans to install an ultrasonic water level monitoring gauge on the "Smiley Bridge" (CSAH 7 crossing of the Red Lake River).
  - Flow was measured in Cyr Creek and the Gentilly River on 4/16/14 by RLWD staff.
  - Flow was measured in the Black River on 4/18/14 by RLWD staff.
  - Some HOBO water level loggers that were used for this project were returned to Onset for battery replacements this spring.





**Long-Term Monitoring Program**

The first round of samples at Red Lake Watershed District long term monitoring sites was nearly completed in April.

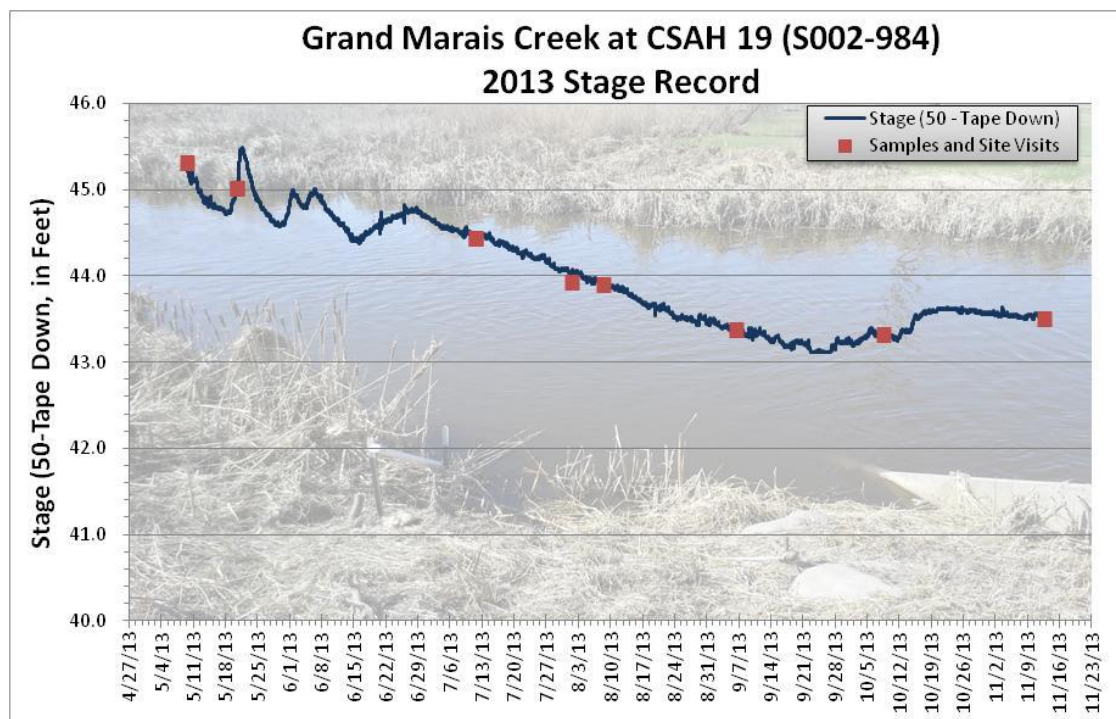
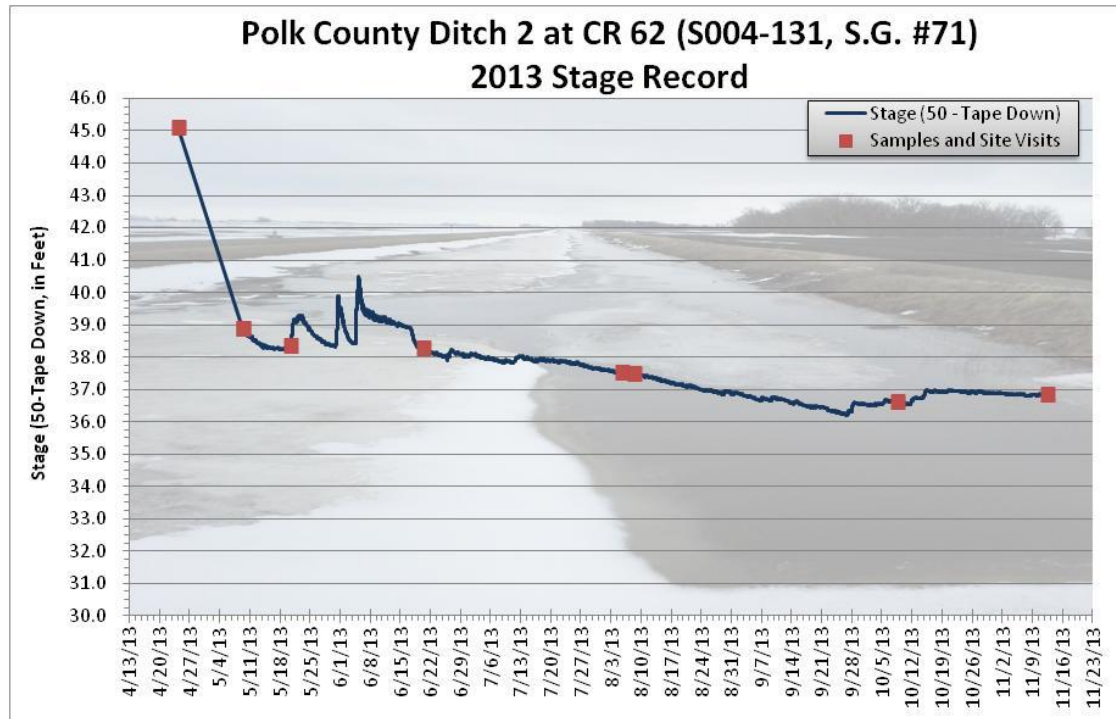


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### Grand Marais Creek Watershed Restoration and Protection Project

2013 water level data was compiled, trimmed, transformed, plotted, and shared with project partners.





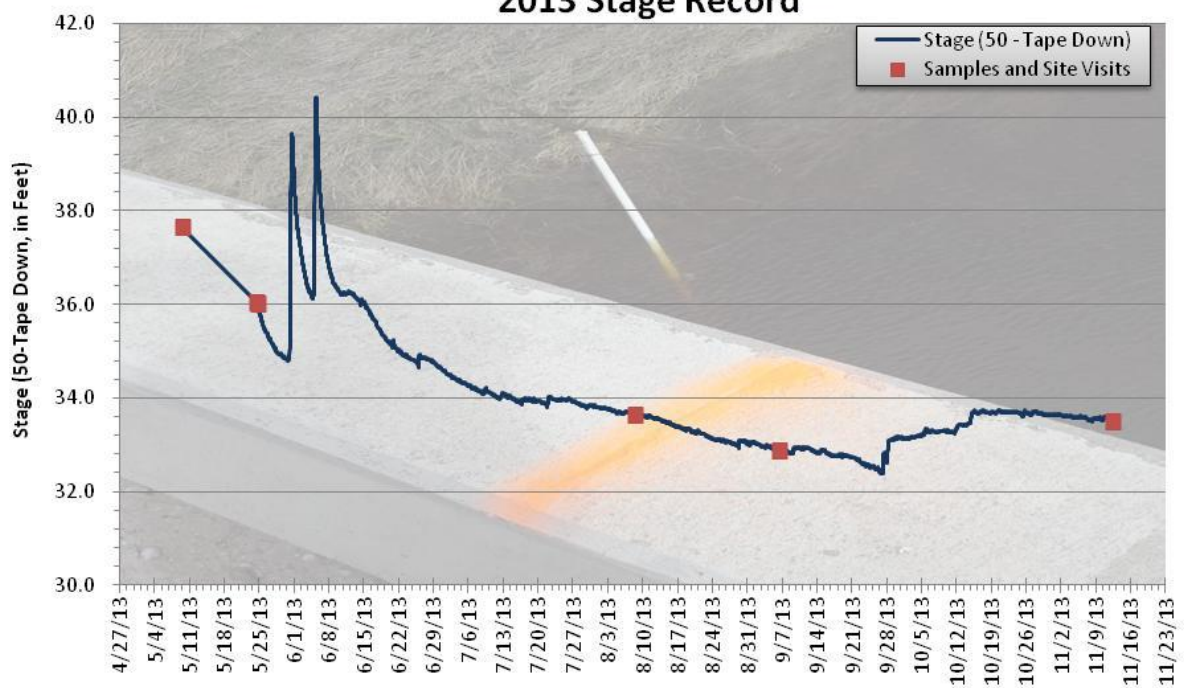
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**Judicial Ditch 75 at CSAH 22 (S005-570)  
2013 Stage Record**



**Judicial Ditch 1 at 450th Ave NW (S007-693)  
2013 Stage Record**





## **RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT**

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A presentation about the Grand Marais Creek WRAP was given at the April 3, 2014 Project 60 Flood Damage Reduction Work Group meeting.

A contract was signed between the Red Lake Watershed District and the Red Lake Department of Natural Resources so that the RLDNR could conduct flow measurements during spring runoff in the Grand Marais Creek watershed with their River Surveyor flow measurement equipment.

Although the MPCA's official water quality assessment won't take place until later this year, Emmons & Olivier Resources (EOR) staff conducted an assessment of the Grand Marais Creek watershed as an addendum to the watershed conditions report.

A lot of water with high turbidity was flowing into Grand Marais Creek from County Ditch 32.



JD1 and JD75 were packed with snow until after mid-April.

HOB0 water level loggers were deployed to monitor stage at select monitoring sites in the watershed. The MPCA began installing new ultrasonic stage monitoring gauges at some of the



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monitoring sites, reducing the number of HOBO water level logger deployments that will be needed for the remainder of the project.

Judicial Ditch 1



Judicial Ditch 75





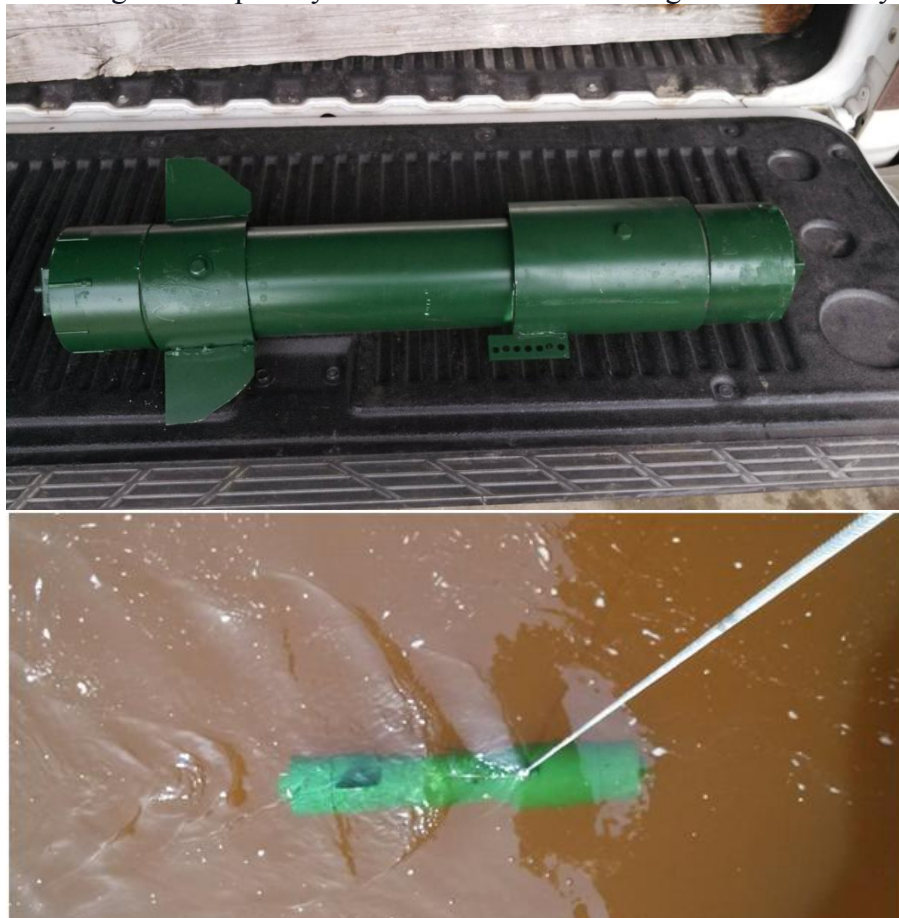
DNR staff completed a GIS layer that shows potential pollutant sources (erosion, livestock operations) throughout the Grand Marais Creek watershed.

**Other Notes**

- A monitoring plan (checklist/schedule) was created for the 2014 sampling that will be done at the RLWD long-term monitoring sites. This year's four rounds of sampling are scheduled for April, May, July, and September.
- The MPCA posted public comments about its Triennial Water Quality Standards Review on the agency's website.
- The MPCA will be installing more water level gauges within the RLWD this spring. Reference point and other site information from existing sites was provided to MPCA staff.
- The International Water Institute released March/April issue of their River Rendezvous newsletter.
- The International Water Institute made plans for Flood Damage Reduction Project monitoring for the 2014 monitoring season:
  - Sample at receiving water site downstream of projects; Brandt, N. Ottawa, and Ross 1 time per month.
  - Determine and establish site locations for flow and load monitoring work to begin in the spring of 2015.
  - Purchase necessary equipment for flow work and install stage recorders if feasible.
  - Train personnel in stage equipment install and use.
  - Train personnel in flow measurements and development of rating curves or seek contractor to develop flow stage relationships.
  - Progress has been made on the Grand Marais Creek Outlet Restoration Project



- The United States Fish and Wildlife Service staff at Agassiz National Wildlife Refuge are continuing their study of sediment moving into and out of their pool system. This spring, they are using a new strategy for monitoring the sediment. The new equipment deployments have been observed in the Mud River, Thief River upstream of the Refuge, and the Thief River downstream of the refuge. From their Facebook page: “Agassiz NWR is continuing its effort to better understand water quality issues impacting its wetland impoundments. This spring Refuge staff are working with the St. Croix Watershed Research Station (Science Museum of MN) to sample suspended sediment flowing into the Refuge from upstream sources. The experimental sediment sampling device pictured here was originally designed to be deployed in the MN River Basin, but given its resemblance to a bomb, suitable bridge deployment sites in populated, unrestricted areas could not be found. Fortunately, two of these devices (affectionately known as "Bridge Bombs" by Agassiz staff) will be tested within the Refuge and hopefully contribute to our knowledge of sediment dynamics.”





**April Meetings/Events**

- **April 3, 2014** – Project 60 Flood Damage Reduction work Group meeting.
- **April 8, 2014** – Clearwater River Fluvial Geomorphology planning meeting at the East Polk SWCD conference room in McIntosh
- **April 24, 2014** – Thief River Falls Community Expo at the Ralph Engelstad Arena in Thief River Falls.

**Plans for Early Summer 2014**

- Thief River Watershed Restoration and Protection Project.
  - Creating Stream Power Index maps.
  - Create a web page dedicated to the Thief River Watershed
  - Flow measurements
  - Longitudinal sampling during runoff events
  - Flow characterization
  - Finish a summary of existing data
  - Work on writing WRAPS report
  - Technical Advisory Committee meeting
  - Collect Microbial Source Tracking (Fecal DNA) samples.
  - HSPF model is scheduled to be completed
- Red Lake River Watershed Assessment Project
  - Stream Power Index Analysis of the watershed
  - HSPF model is scheduled to be completed
  - Create a webpage dedicated to the Red Lake River
  - Flow characterization
  - Flow measurements
  - Finish assessing water quality conditions based upon 2004-2013 data.
  - Finish a summary of existing data that will include the assessment results.
  - Begin writing parts of the WRAPS report
  - Technical Advisory Committee meeting
  - Send flow data from select sites to MPCA staff for a “trial run” of entry into the State’s HYDSTRA database.
  - Collect Microbial Source Tracking (Fecal DNA) samples.
- Clearwater River Watershed Restoration and Protection Project
  - HSPF model is scheduled to be completed
  - Flow measurements
  - Water level logger deployments
  - Dissolved oxygen logger deployments
  - Geomorphology Reconnaissance and Bank Erosion Hazard Index ratings of banks along 16 reaches of the Clearwater River at some of its significant tributaries.
- Clearwater River Surface Water Assessment Grant sampling, administration, and data management.
- Deploy HOBO water level loggers as the ice starts to melt and spring runoff begins.

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**Upcoming Meetings/Events**

- **May 6-9 and 12-15, 2014** – Clearwater River geomorphology reconnaissance
- **May 31, 2014** – Thief River and Red Lake River HSPF models are due to be completed by RESPEC.
- **June 9-12, 2014** - Clearwater River geomorphology reconnaissance
- **June 30, 2014** – Clearwater River HSPF model should be completely finalized.
- **July 7-11, 2014** – Clearwater River geomorphology
- **July 21-24, 2014** – Clearwater River geomorphology
- **August 11-15, 2014** – Clearwater River geomorphology

**Upcoming Meetings/Events**

- **April 3, 2014** – Project 60 Work Team meeting
  - Grand Marais Creek Cut-channel project update from Houston Engineering
  - Grand Marais Creek Outlet Channel Restoration project update from Houston Engineering
  - Grand Marais Creek WRAP project update from RLWD staff.
- **April 8, 2014** – Clearwater River Fluvial Geomorphology Discussion, East Polk SWCD Office in McIntosh
- **April 24, 2014** – Thief River Falls Community Expo at the Ralph Engelstad Arena, 4:30-7:00 pm
- **April 30, 2014** – Expected completion date for the geomorphology report for the Thief River watershed.
- **May 2014** – Sampling begins for the Clearwater River Surface Water Assessment Grant
- **May 6-9 and 12-15, 2014** – Clearwater River geomorphology reconnaissance
- **May 31, 2014** – Thief River and Red Lake River HSPF models are due to be completed by RESPEC.
- **June 9-12, 2014** - Clearwater River geomorphology reconnaissance
- **June 27, 2014** – Red River Basin Monitoring Advisory Committee meeting in Fertile
- **June 30, 2014** – Clearwater River HSPF model should be completely finalized.
- **July 7-11, 2014** – Clearwater River geomorphology
- **July 8, 2014** – Marshall County Water Resources Advisory Committee meeting at Florian Park at 9:30 AM
- **July 21-24, 2014** – Clearwater River geomorphology
- **August 2014** – Technical Advisory Committee meeting for the ongoing WRAP projects within the RLWD (Date not formally set – probably will be held in the first week).
- **August 11-15, 2014** – Clearwater River geomorphology
- **August 2014** – Enter and submit monitoring data from the Red Lake River and Grand Marais Creek watersheds to the MPCA for EQuIS entry prior to the official water quality assessment.
- **September 2014** – Holding a public kick-off meeting for the Clearwater River WRAP
- **November 2014** – Thief River WRAP stakeholders meeting (date not set)



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**Quotes of the Month:**

“Time is the most valuable thing a man can spend.”

– Laertius Diogenes

“Tolerance can lead to learning something”

– Jakob Dylan

Red Lake Watershed District Monthly Water Quality Reports are available online at:

<http://www.redlakewatershed.org/monthwq.html>.

“Like” the Red Lake Watershed District on [Facebook](#) to stay up-to-date on RLWD reports and activities.