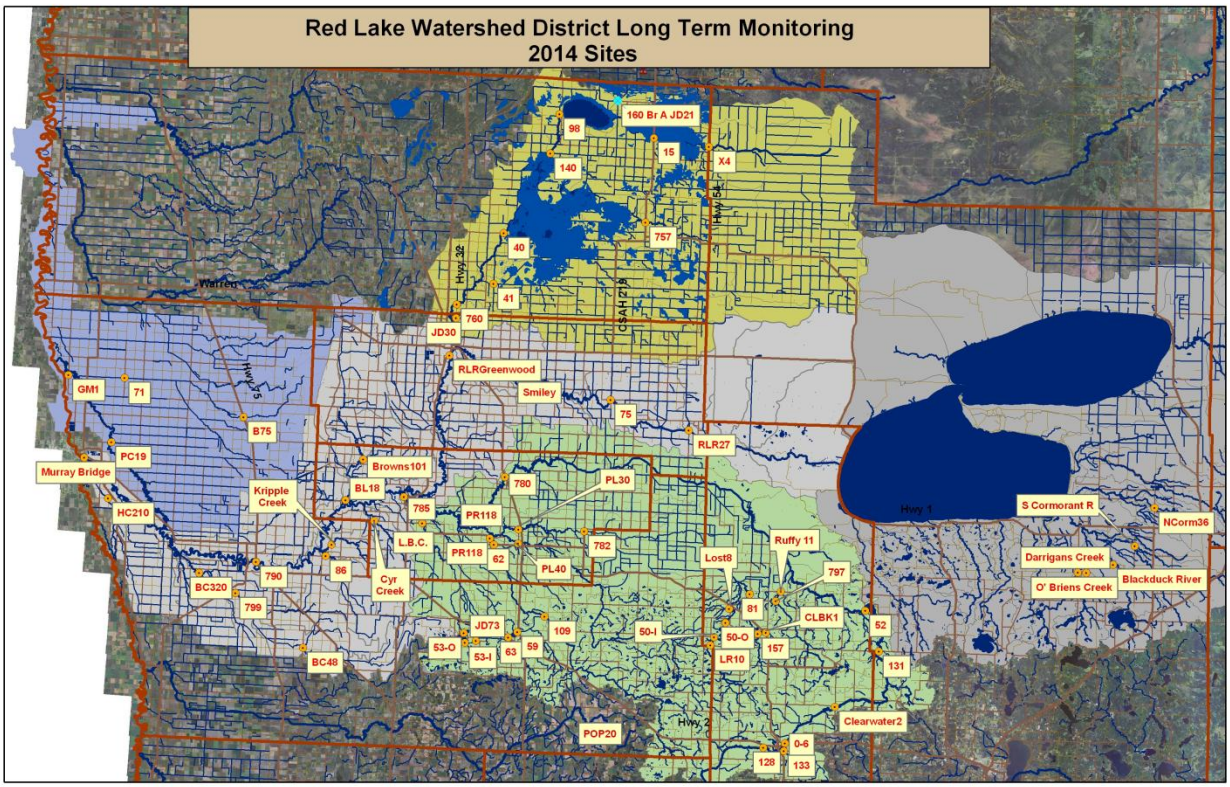
RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT	June 2014

Red Lake Watershed District Long-Term Monitoring Program



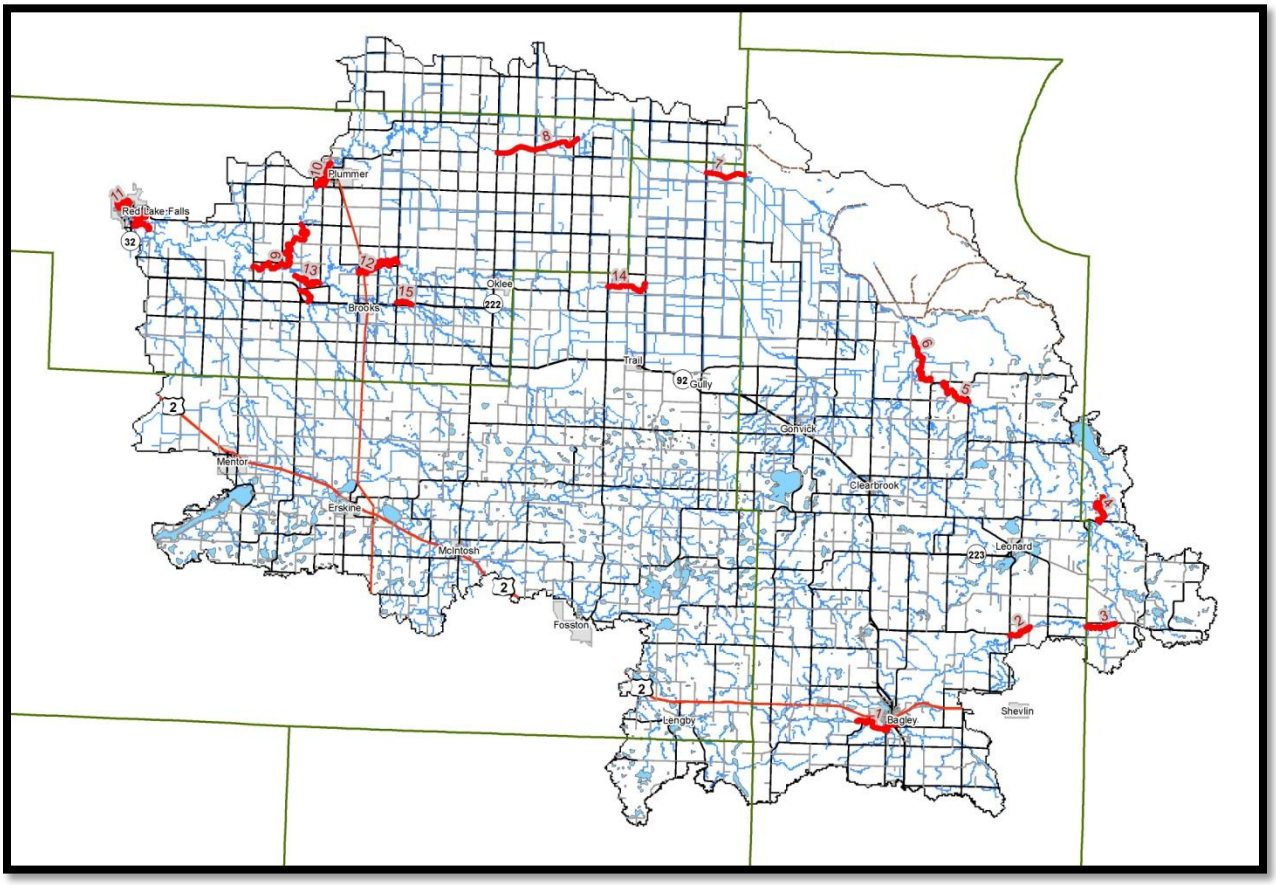
- The RLWD hired a Water Quality Assistant for the summer of 2014. Travis Torkelson was hired and began working here in June.
- The first (a few sites left over from previous months) and second rounds of district-wide sampling at long-term monitoring sites were completed for the Red Lake Watershed District long term monitoring program. We've had plenty of runoff and high flows to sample so far this year.
- High E. coli concentrations were found in samples collected at these sites in June:
    - Silver Creek near Clearbrook (twice)
    - Red Lake River in East Grand Forks
    - Mud River at Hwy 89, Judicial Ditch 21
    - Clearwater River at Plummer (twice)
    - Lower Badger Creek (twice, including SWAG sampling)
    - Poplar River at CR 118 (three times, including SWAG samples)
    - Lost River near Brooks (three times, including SWAG samples)
    - Hill River near Brooks (three times, including SWAG samples)
    - Brandt Channel at Highway 75
    - JD73 at the Badger Lake inlet
    - Burnham Creek at 320th Ave

- Low dissolved oxygen levels (<5 mg/L) were recorded during site visits of the following:
  - Clearwater River at Hwy 2
  - Walker Brook
  - Clear Brook
  - Heartsville Coulee
  - Lost River upstream of Pine Lake
  - Poplar River near Fosston
  - JD73 at the Badger lake inlet
  - JD73 at the Maple Lake inlet.
- High turbidity levels (>25 NTRU) were found in the Red Lake River in East Grand Forks and in Grand Marais Creek.

Clearwater River Watershed Restoration and Protection (WRAP) Project

- Objective 3 – Flow Monitoring
  - A HOBO water level logger was deployed at a new site on Terrebonne Creek and flow was measured at the site.
  - 59.2 CFS of flow was measured in Lower Badger Creek on 6/24/14.
- Objective 4 – Continuous Dissolved Oxygen Monitoring
  - Continuous dissolved oxygen loggers will be deployed by the RLWD at the following sites in 2014. There is a goal of 10 2-week deployments at each site.
    - Poplar River at CSAH 30 (S003-127)
      - Some low (<5 mg/L) daily minimum dissolved oxygen levels were recorded in June.
    - Lost River at 109th Ave (S005-283)
      - Some low (<5 mg/L) daily minimum dissolved oxygen levels were recorded in June.
    - Lost River at 139th Ave (S000-924)
      - Dissolved oxygen levels were good at this site.
    - Silver Creek at CR111 (S002-082)
    - Ruffy Brook at CSAH 11
    - Clearwater River at CSAH 22 (S002-929)
    - Clearwater River at CSAH 11 (S002-752)
  - The MPCA is also planning to deploy some dissolved oxygen loggers in the Clearwater River. They will be deployed for a shorter period of time – just the months of July and August.
    - Clearwater River, at CSAH 2 (S001-908)
    - Clearwater River, in Red Lake Falls (S002-118)
    - Lost River, north of Brooks (S002-133)
    - Hill River, north of Brooks (S002-134)
    - Clearwater River at CR127 (S002-916)
    - Lower Badger Creek at CR114 (S004-837)
  - Sensor caps for In-situ TROLL sondes were ordered.

- Objective 5 – Stream Channel Stability Assessment



  - RLWD staff made phone calls to landowners to get access permission for getting in or out of the rivers.
  - The Clearwater River between CSAH 10 and CSAH 5 was inspected via kayak on 6/9/14. Bank erosion hazard ratings (BEHIs), Pfankuck ratings, depth measurements, georeferenced photos, and bank full width measurements were collected along the reach. This reach is part of the channelized portion of the Clearwater River. Banks were undercut a bit, but seemed to be relatively stable. There were few major erosion problems. There is a definite lack of buffer and shading of the river, so that could be negatively affecting dissolved oxygen levels by increasing temperatures in the water. Many cliff swallows were living under the bridges (potential source of E. coli).

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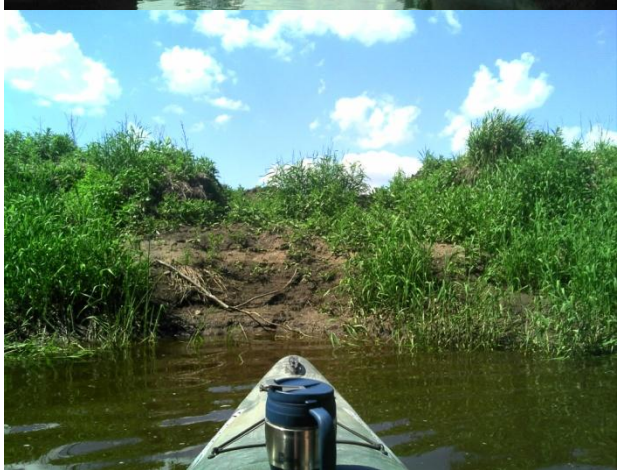
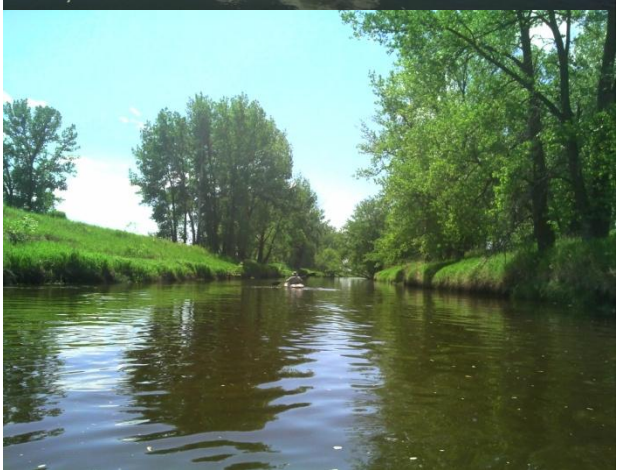
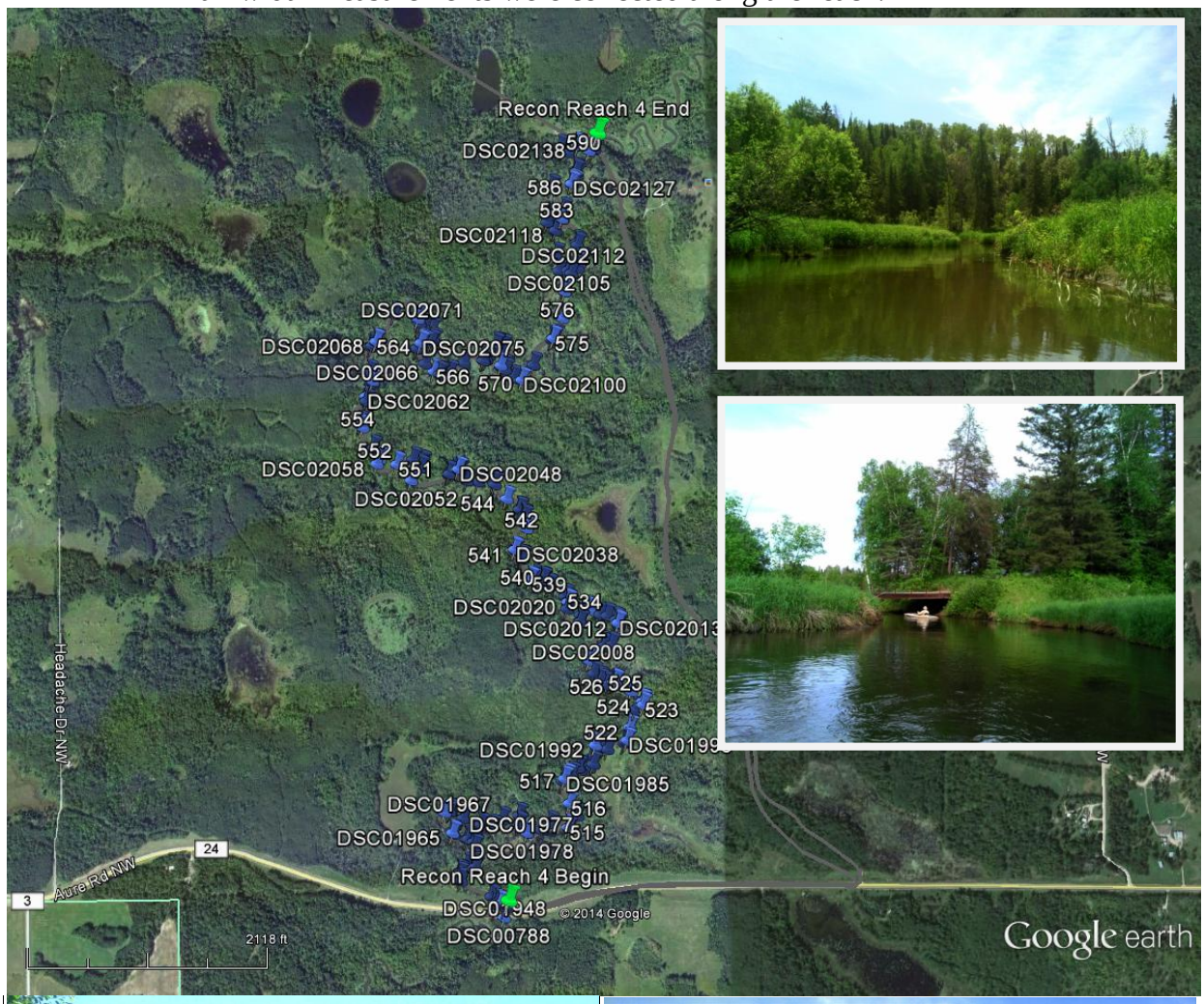
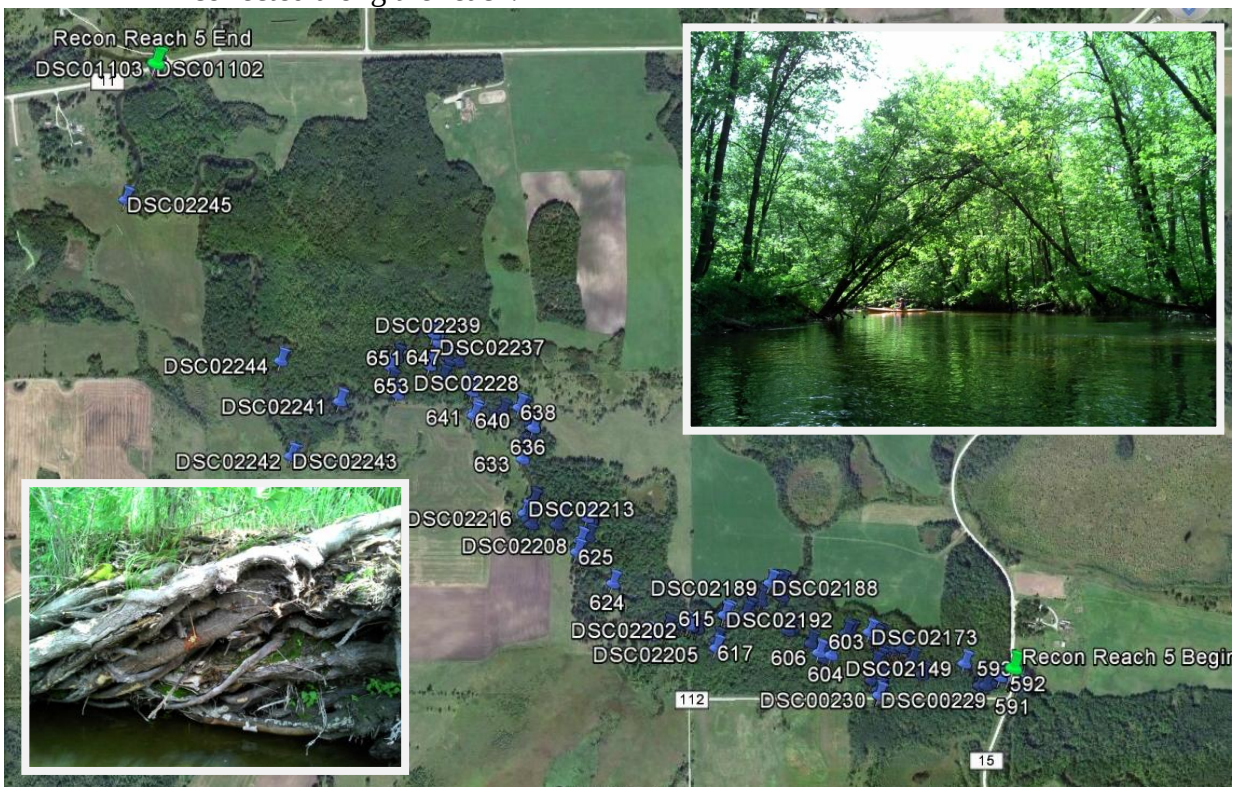


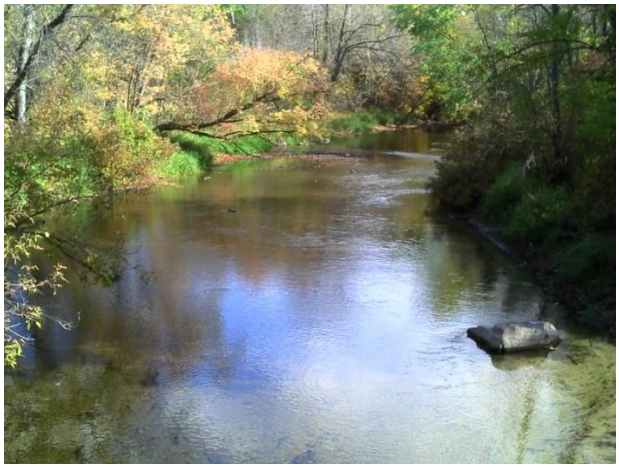


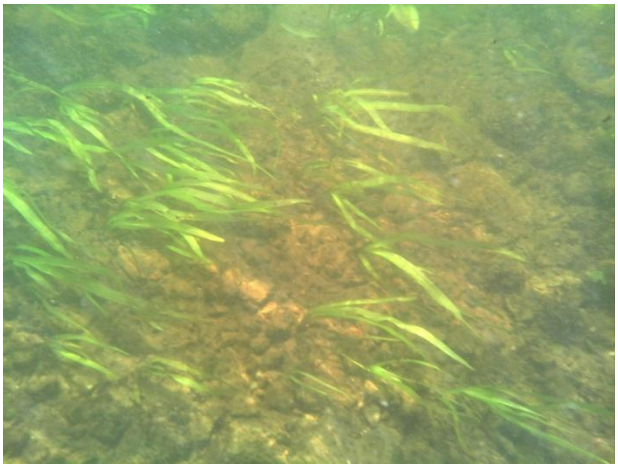
- The Clearwater River, upstream of Clearwater Lake, between CSAH 24 and an ATV trail bridge was inspected via kayak on 6/9/14. Bank erosion hazard ratings (BEHIs), Pfankuck ratings, depth measurements, georeferenced photos, and bank full width measurements were collected along the reach.



- The Clearwater River between CR 15 and CSAH 11 was inspected via kayak on 6/12/14. Bank erosion hazard ratings (BEHIs), Pfankuck ratings, depth measurements, georeferenced photos, and bank full width measurements were collected along the reach.







- The Clearwater River by Plummer (Highway 59 to CSAH 1) was inspected via kayak on 6/13/14. Due to recent rain, flows ended up being too high for full BEHI ratings because the water was higher than the bank full depth. Study bank heights, depths, channel widths, some bank angles, and georeferenced photos were still collected.

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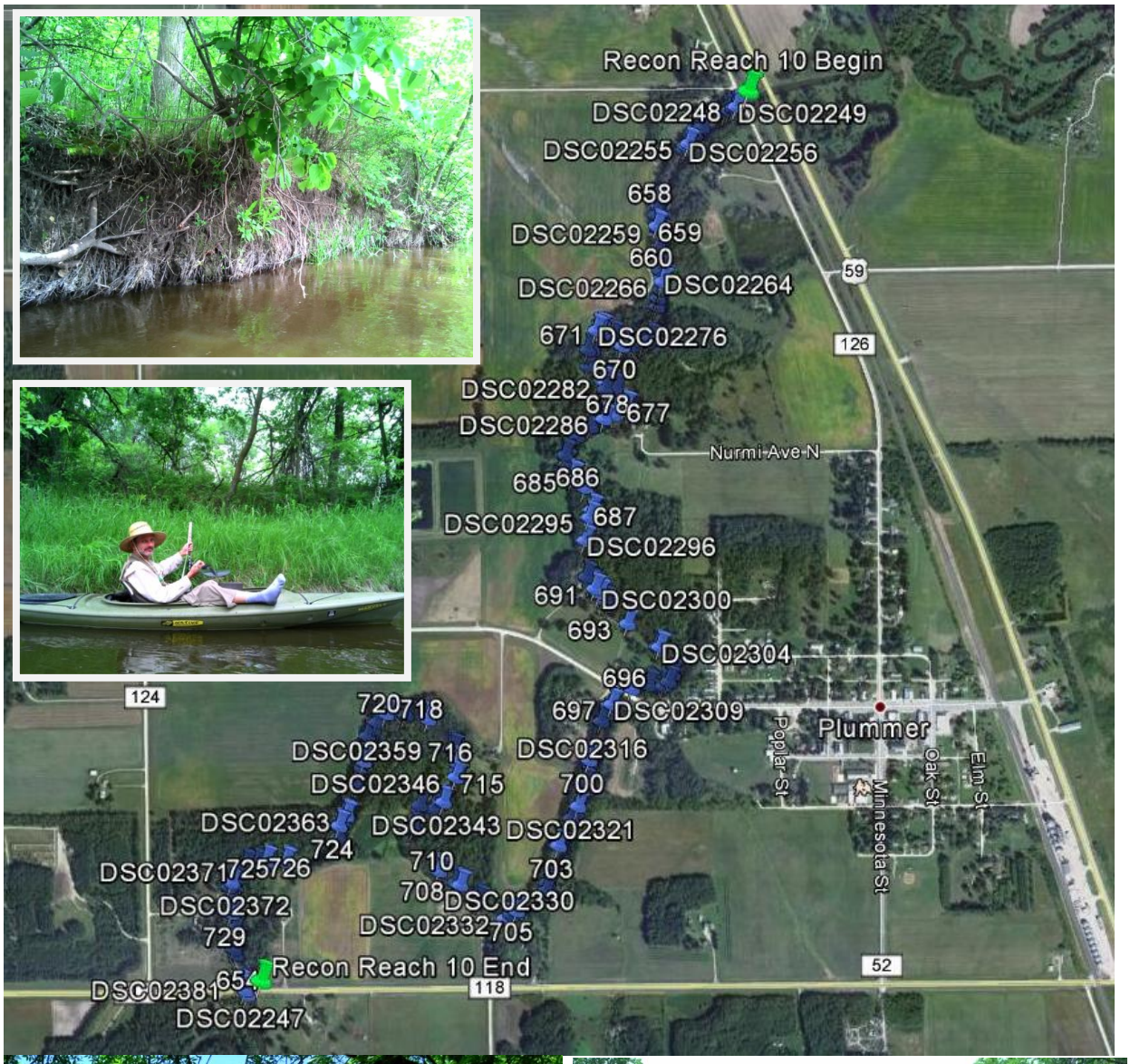
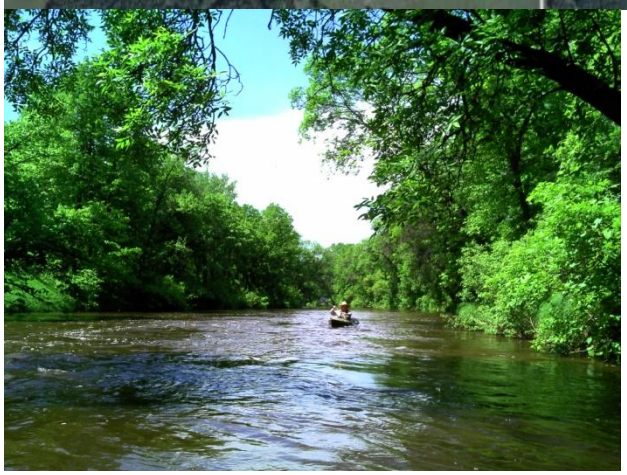




- Objective 9 – Civic Engagement
  - RLWD and RMB Environmental Laboratories staff met to discuss civic engagement plans and future meetings.
  - Emmons and Olivier Resources, Inc. staff began working on a website for the Clearwater River.

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

- Task 3 – Continuous Dissolved Oxygen Monitoring
  - The United States Fish and Wildlife Service at Agassiz national Wildlife Refuge has installed water quality logging equipment around the refuge. Here, equipment is installed in the Mud River upstream of the refuge:

- Task 5 – Flow Monitoring
  - Flow was measured in Ditch 200 on 6-19-14. Flow was measured at 170 CFS. According to the rating curve, it should have been a little higher, so there may have been some backwater effect from the Thief River.
- Task 7 – Stressor Identification
  - Microbial Source Tracking samples were collected from the Mud River at Highway 89 and JD21 at CR48 on June 18, 2014. Microbial source tracking is a method for identifying the type of animal that is the source of fecal coliform and E. coli pollution. The samples were analyzed by a lab in Florida (Source Molecular) that specializes in this testing. E. coli samples were also collected and

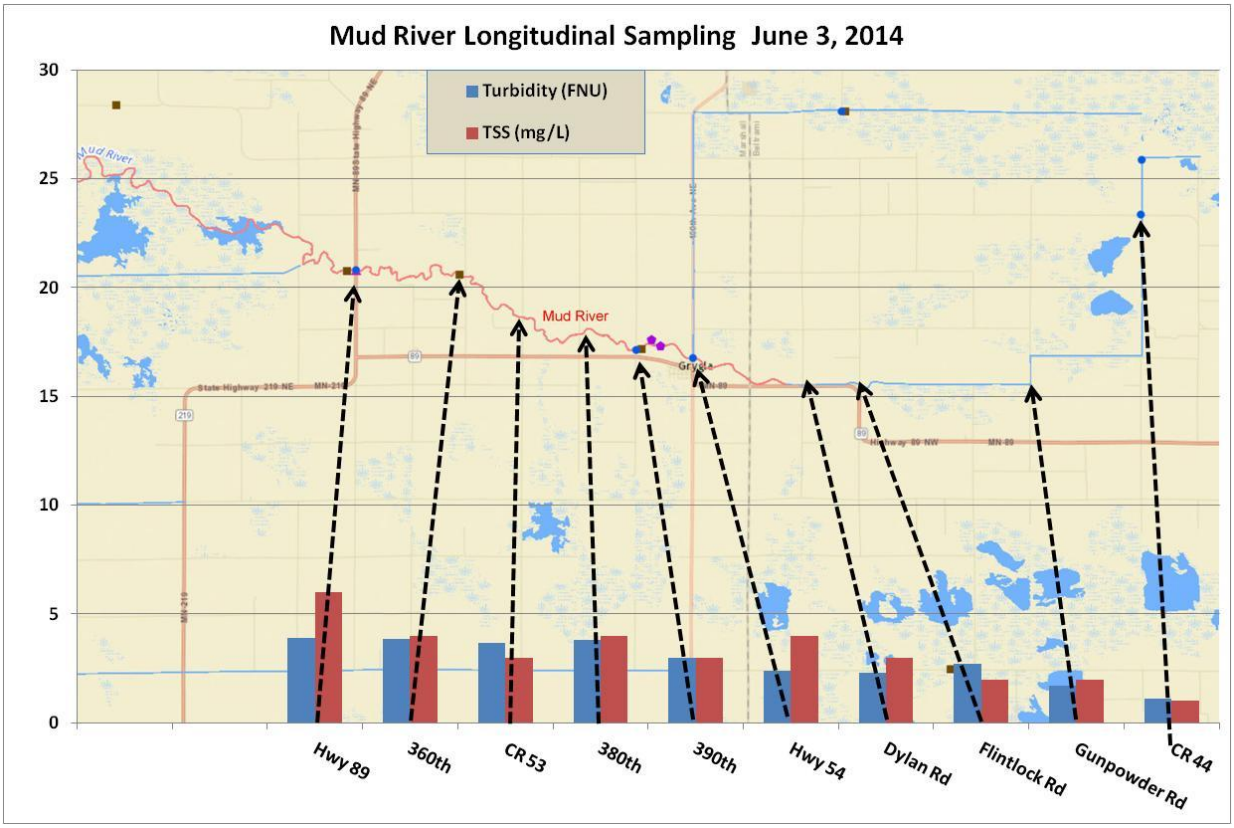
sent to RMB Environmental Laboratories in Detroit Lakes so we would know the concentration of E. coli bacteria at the time of sampling. E. coli concentrations were not very high at either site on this sampling day.

1. Mud River at Highway 89 – 95.9 MPN/100ml
    - Cow Bacteroidetes ID: Absent
    - Human Bacteroidetes ID 1: Absent
    - Human Bacteroidetes ID 2: Absent
    - Bird Fecal ID: Positive (trace), potential contributor, concentration was lower than the limit of quantification.
    - Goose Bacteroidetes ID: Absent
2. Judicial Ditch 21 – 26.2 MPN/100ml
    - Cow Bacteroidetes ID: Absent
    - Human Bacteroidetes ID 1: Absent
    - Human Bacteroidetes ID 2: Absent
    - Bird Fecal ID: Positive (trace), potential contributor, concentration was lower than the limit of quantification.
    - Beaver Bacteroidetes ID: Absent

- Microbial Source Tracking samples were again collected from the Mud River at Highway 89 and JD21 at CR48 and sent to the Source Molecular lab in Florida on June 24, 2014. E. coli concentrations in samples sent to RMB Environmental laboratories exceeded the State's chronic water quality standard for E. coli bacteria at both of the sites. The Bird Fecal ID test was the only one that returned a positive result.
    1. Mud River at Highway 89 – 920.8 MPN/100ml
        - Cow Bacteroidetes ID: Absent
        - Human Bacteroidetes ID 1: Absent
        - Human Bacteroidetes ID 2: Absent
        - Bird Fecal ID: Positive (trace), potential contributor, concentration was lower than the limit of quantification.
        - Goose Bacteroidetes ID: Absent
    2. Judicial Ditch 21 – 410.6 MPN/100ml
        - Cow Bacteroidetes ID: Absent
        - Human Bacteroidetes ID 1: Absent
        - Human Bacteroidetes ID 2: Absent
        - Bird Fecal ID: Positive (trace), potential contributor, concentration was lower than the limit of quantification.
        - Goose Bacteroidetes ID: Absent

RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT	June 2014

- Longitudinal water quality samples were collected along the Mud River on June 3, 2014 following a runoff event. Field measurements of dissolved oxygen, turbidity, pH, conductivity, and temperature were collected. Samples were analyzed for chemical oxygen demand (COD), ammonia nitrogen (NH3), total Kjeldahl nitrogen (TKN), total phosphorus (TP), total suspended solids (TSS), and E. coli. Despite the recent rain, runoff, and relatively high flows, turbidity and TSS levels were low throughout the reach. TSS ranged from 1 mg/L to 6 mg/L. E. coli concentrations were all below the chronic standard of 126 CFU/100ml. E. coli concentrations did increase from upstream to downstream, though, and there were some points where there were relatively significant increases in E. coli. The lowest bacteria levels were found where near the Mud River (JD11) leaves Moose River impoundment (which was discharging at the time). This indicates that the impoundment is not a likely source of the high E. coli readings that are sometimes found in the river.



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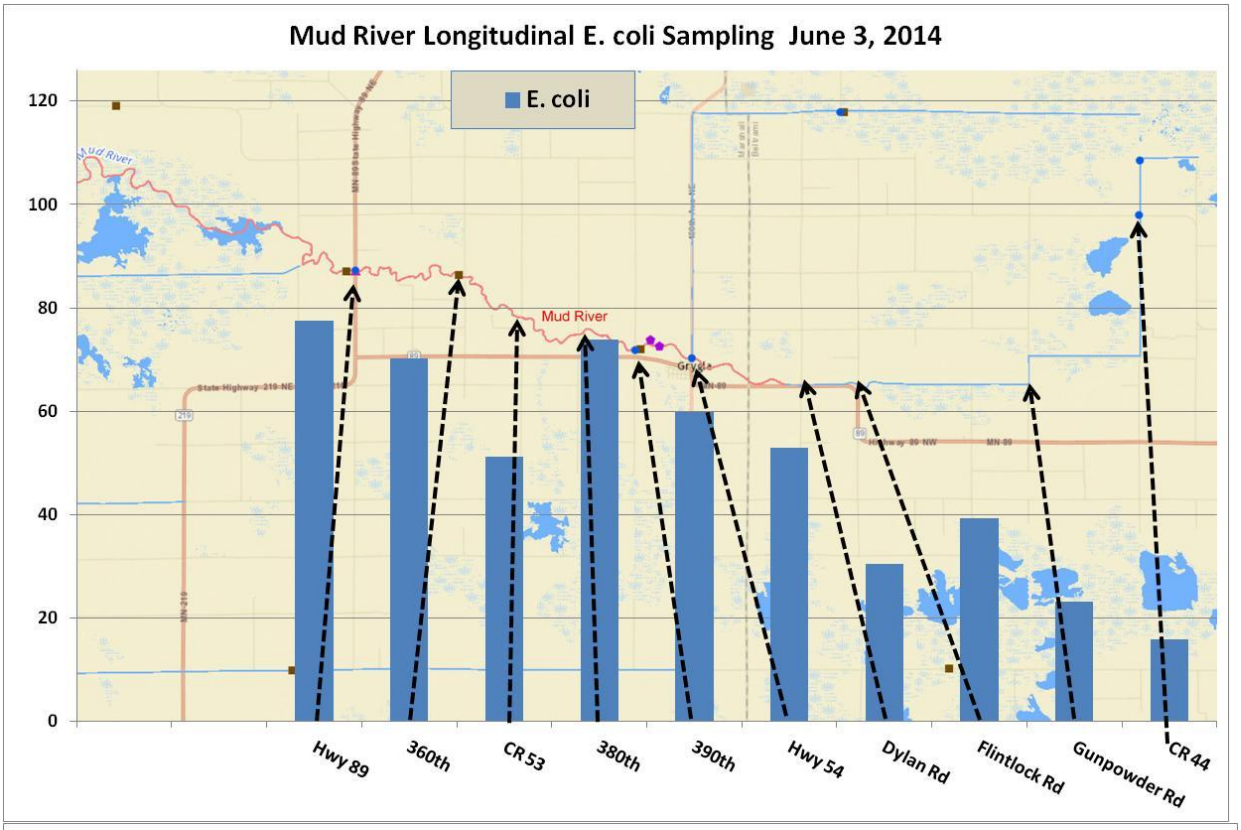
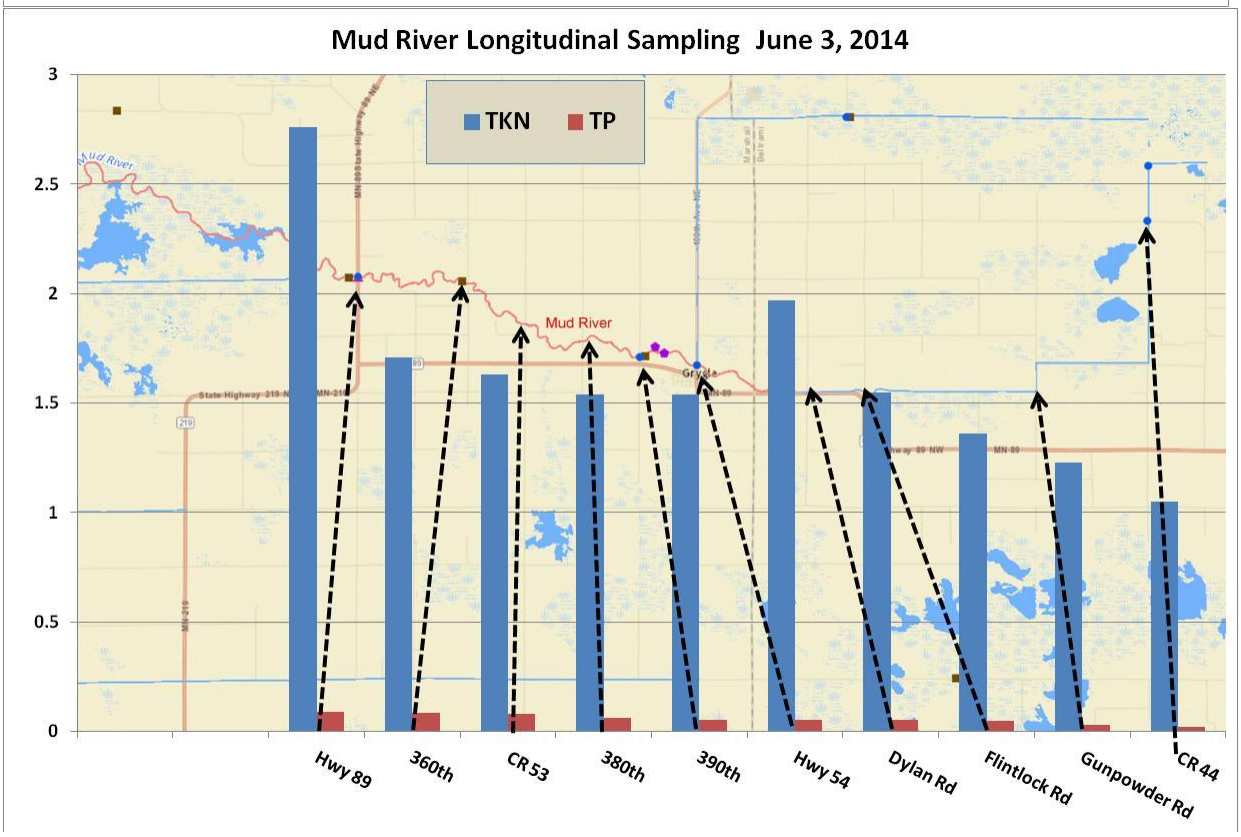
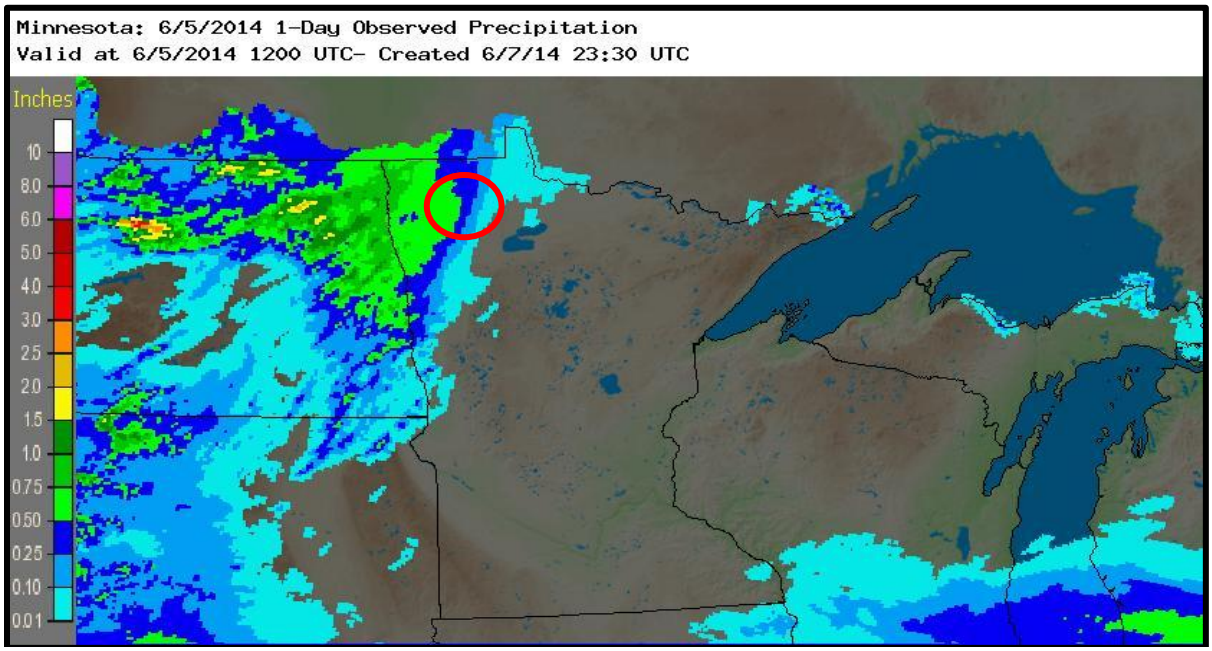




- Longitudinal water quality samples were collected along Branch A of Judicial Ditch 21 on June 5, 2014 after several days of rain in the area. Branch A of JD21 is a ditch that parallels the Moose River (main channel of JD21) to the north and enters the Moose River near the Thief lake inlet. High E. coli concentrations were found at the CR 48 crossing after June rainfall events in the past. Samples were analyzed for COD, NH3, TKN, TP, TSS, and E. coli. There aren't, however, any obvious anthropogenic sources of excessive E. coli bacteria in the watershed other than some plowed fields in Section 9 of Moose River Township. Despite the amount of recent rain in the area, pollutant levels were low. The only parameter that may have been of concern was dissolved oxygen which was as low as 5.52 mg/L on the upstream end of the ditch. The only noticeable, relative increase in E. coli concentrations was along the angled section of 305th Ave NE in Section 9 of Moose River Township. Total Kjeldahl nitrogen was similar throughout the reach with a range of 1.14 to 1.33 mg/L with an average of 1.2 mg/L. Total phosphorus concentrations were all less than .045 mg/L. Total suspended solids concentrations were all very low (less than 3 mg.L).



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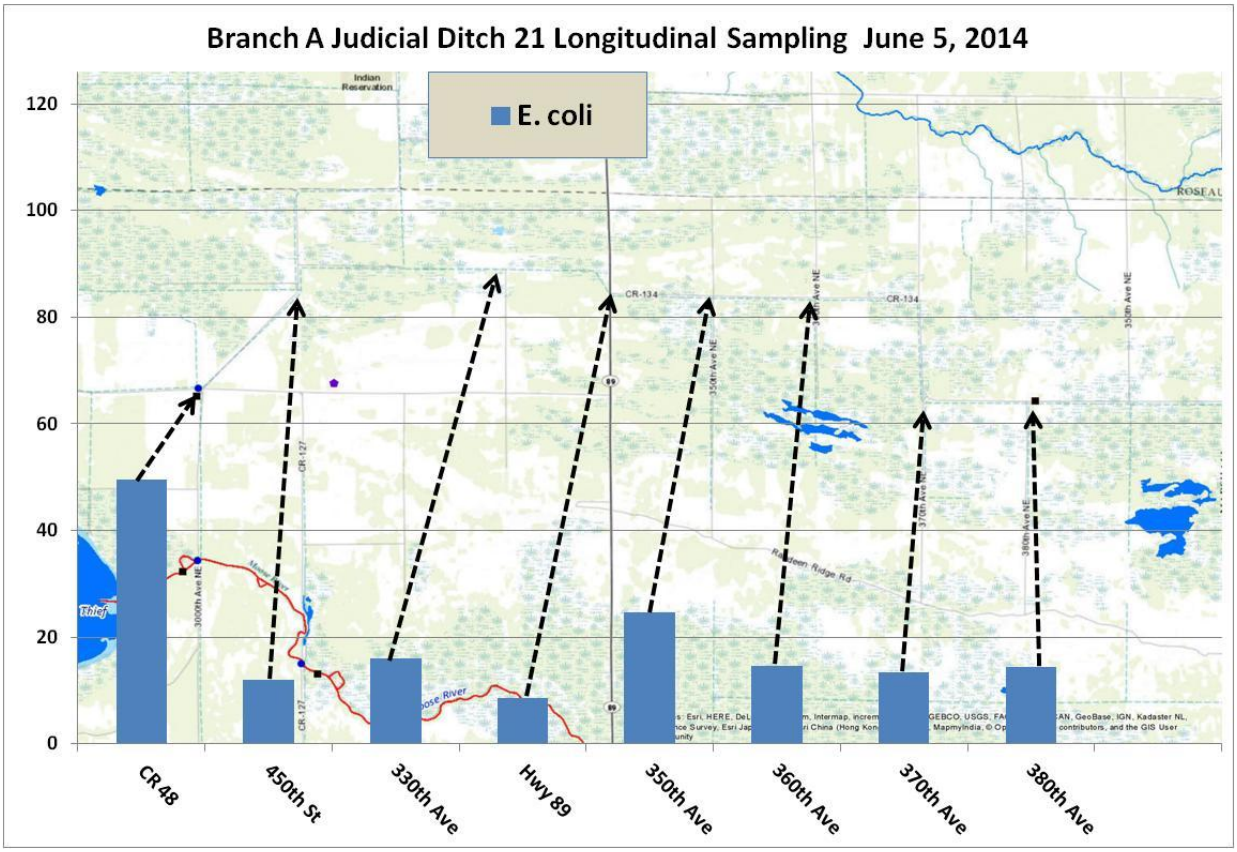

- Longitudinal water quality samples were collected along Marshall County Ditch 20 on June 12, 2014 after a June 11, 2014 rainfall event. Field measurements of temperature, dissolved oxygen, pH, specific conductivity, stage, and turbidity were collected at each road crossing. Samples were analyzed for chemical oxygen demand, ammonia nitrogen, total Kjeldahl nitrogen, total phosphorus, total suspended solids, and E. coli. Some of the highest E. coli readings were on the upstream end of the reach that was sampled. There is a lot of wilderness east of CSAH 219, so those results were a little surprising. However, a DNR GIS layer of potential stressors highlights some areas with livestock in the CD20 drainage area east of CSAH 54. Some of these look like they are well managed, without overgrazing, but there are a few that have bare soil and could be potential E. coli sources. There could also be natural sources in this area too. Turbidity and total suspended solids were consistent throughout the reach with a slight increase over the last two crossings. Total phosphorus was consistently in the .07-.09 mg/L range throughout the reach until an increase to .127 mg/l at the CSAH 12 crossing. All of the dissolved oxygen measurements were above the 5 mg/L standard. Dissolved oxygen increased approximately 1 mg/l from the upstream end (6.58 mg/l) to the downstream end (7.53). Total Kjeldahl nitrogen didn't vary much throughout the reach and the average concentration was 1.96 mg/l.

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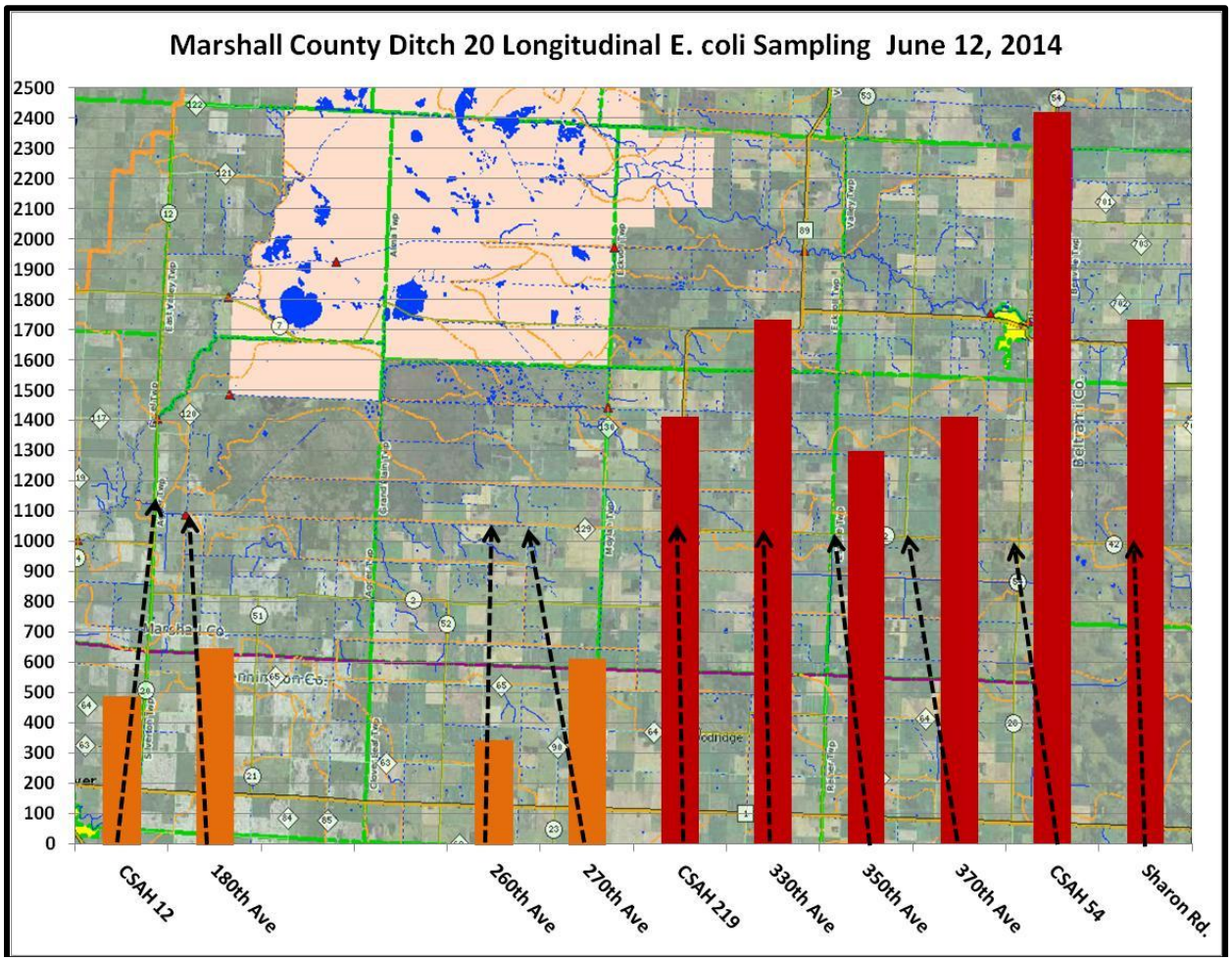

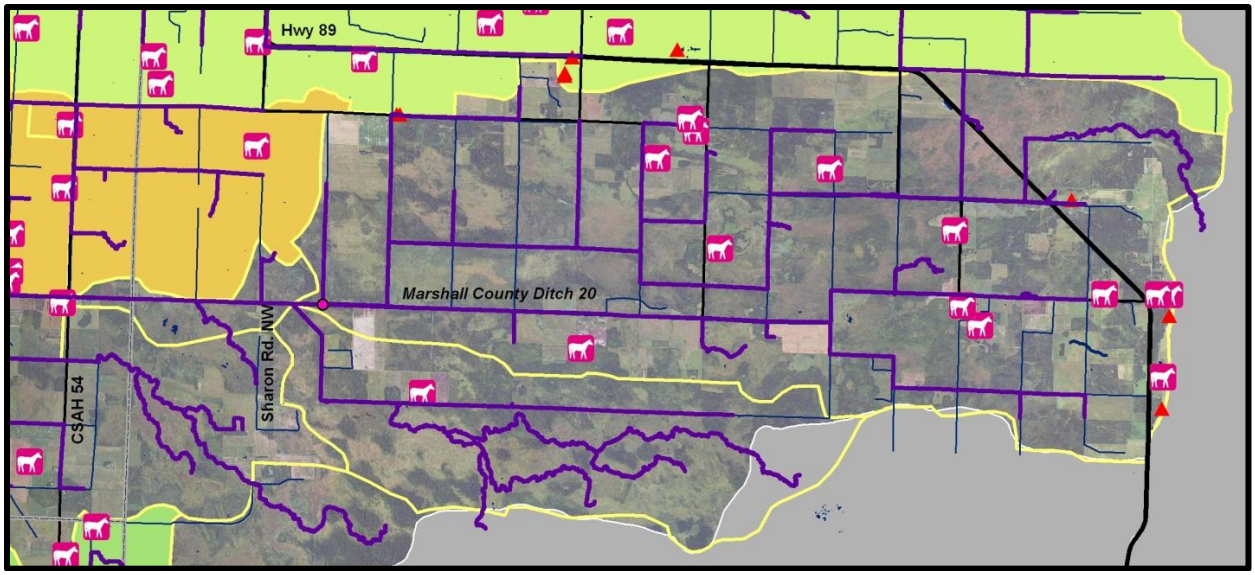

- Task 8 – Water Quality Modeling
  - The HSPF model (RESPEC consulting) of the Thief River watershed should be nearing completion.
- Task 10 – Data Analysis
  - Some low E. coli concentrations were found in June 2014 samples in Branch A of Judicial Ditch 21. Extra attention was paid to those samples because they were collected during investigative monitoring that as intended to identify the source of high E. coli concentrations in the ditch. When no problems were found in those samples, there was some thought that the ditch may not actually be impaired by high E. coli. Later in the month, however, there was one high concentration on 6/24/14 that keeps the June geometric mean higher than the 126 CFU/100ml impairment threshold. The June geometric mean did decrease from 188.35 (2004-2013) to 137.29 (2005-2014), though.
- Task 11 – Civic Engagement
  - RLWD and RMB Environmental Laboratories staff met to discuss civic engagement plans and future meetings.
  - Emmons and Olivier Resources, Inc. staff began working on a website for the Thief River.

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

- Task 3 – Continuous Dissolved Oxygen Monitoring
  - Dissolved oxygen will be continuously monitored with a HOBO optical dissolved oxygen logger during the summer of 2014. A dissolved oxygen logger is deployed at the CSAH 7 (Smiley Bridge) crossing of the Red Lake River, which is the closest crossing upstream of Thief River Falls. Dissolved oxygen levels stayed above the 5 mg/L standard during the May 23rd through June 6th deployment. The daily minimum DO levels dropped below the standard from June 10th through June 16th, though. There were some runoff events and spikes in the hydrograph during that time period, but there may have been sedimentation issues within the deployment pipe that led to the lower levels.
- Task 5 – Flow monitoring
  - 229 CFS of flow was measured in CD1 on 6/20/14.
  - 22.4 CFS of flow was measured in CD1 on 6/23/14.
  - 25.80 CFS of flow was measured in JD60 on 6/23/14.
  - 62.90 CFS of flow was measured in Gentilly Creek at CSAH 11 on 6/23/14.
  - 6.35 CFS of flow was measured in Cyr Creek on 6/24/14.
  - Red Lake River watershed flow monitoring site information was provided to MPCA staff.
- Task 7 – Stressor Identification
  - A Microbial Source Tracking sample was collected from the Red Lake River at CSAH 13 (the bridge near Voyageur's View Campground) on June 18, 2014. Microbial source tracking is a method for identifying the type of animal that is the

source of fecal coliform and E. coli pollution. The samples were analyzed by a lab in Florida (Source Molecular) that specializes in this testing. E. coli samples were also collected and sent to RMB Environmental Laboratories in Detroit Lakes so we would know the concentration of E. coli bacteria at the time of sampling. Past monitoring data was examined to determine the time of year when high E. coli concentrations most frequently occur at each site. The E. coli concentration in the Red Lake River at this site exceeded the State's chronic standard for E. coli (126 MPN/100ml) on that day. Another Microbial Source Tracking sample was collected from the Red Lake River at CSAH 13 on June 24, 2014. E.coli levels in the river turned out to be relatively low on that day and once again, the Bird Fecal ID test was the only one that returned a positive result.

1. Red Lake River at CAH 13 – 157.6 MPN/100ml on 6/18/14
    - Cow Bacteroidetes ID: Absent
    - Human Bacteroidetes ID 1: Absent
    - Human Bacteroidetes ID 2: Absent
    - Bird Fecal ID: Positive (trace), potential contributor, concentration was lower than the limit of quantification. Birds have been a suspected source of E. coli at this monitoring site because of the large numbers of cliff swallows that live under the bridge. Also, high E. coli concentrations seem to occur most frequently when the birds are present, especially during the month of June.
2. Red Lake River at CAH 13 – 27.2 MPN/100ml on 6/24/14
    - Cow Bacteroidetes ID: Absent
    - Human Bacteroidetes ID 1: Absent
    - Human Bacteroidetes ID 2: Absent
    - Bird Fecal ID: Positive (trace), potential contributor, concentration was lower than the limit of quantification. Birds have been a suspected source of E. coli at this monitoring site because of the large numbers of cliff swallows that live under the bridge. Also, high E. coli concentrations seem to occur most frequently when the birds are present, especially during the month of June.

- Red Lake River watershed stressor identification plans were discussed with MPCA Stressor ID staff. Copies of the Red Lake River continuous dissolved oxygen data summaries that were sent to EQuIS staff were sent to Stressor ID staff. MPCA staff planned deploy sondes in early July or late June at sites within reaches that are likely to be deemed impaired for biotic integrity when the official assessment is conducted.

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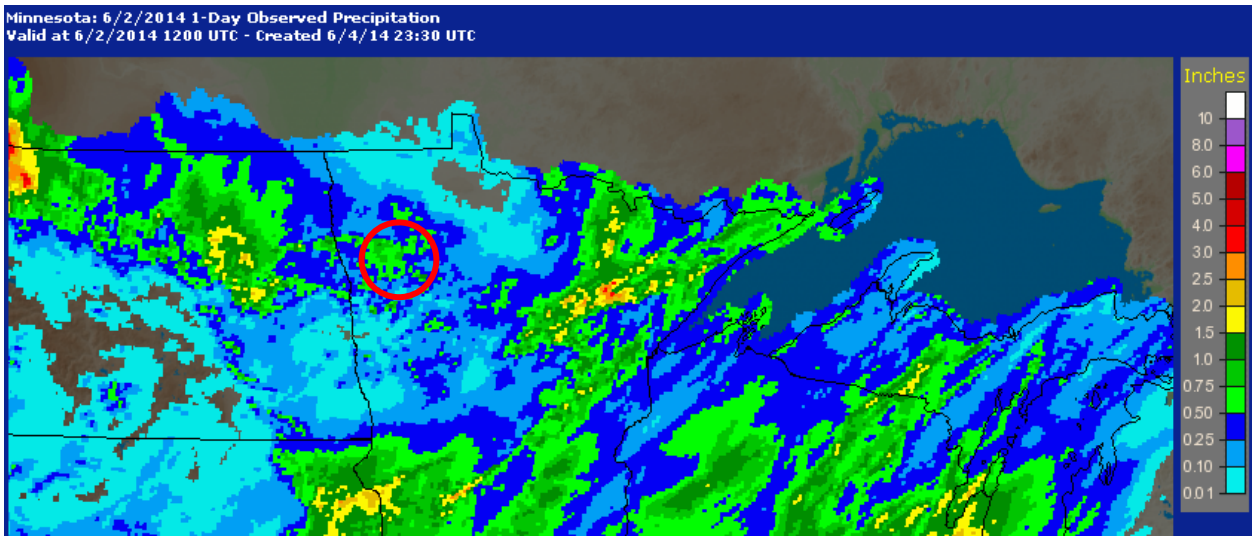
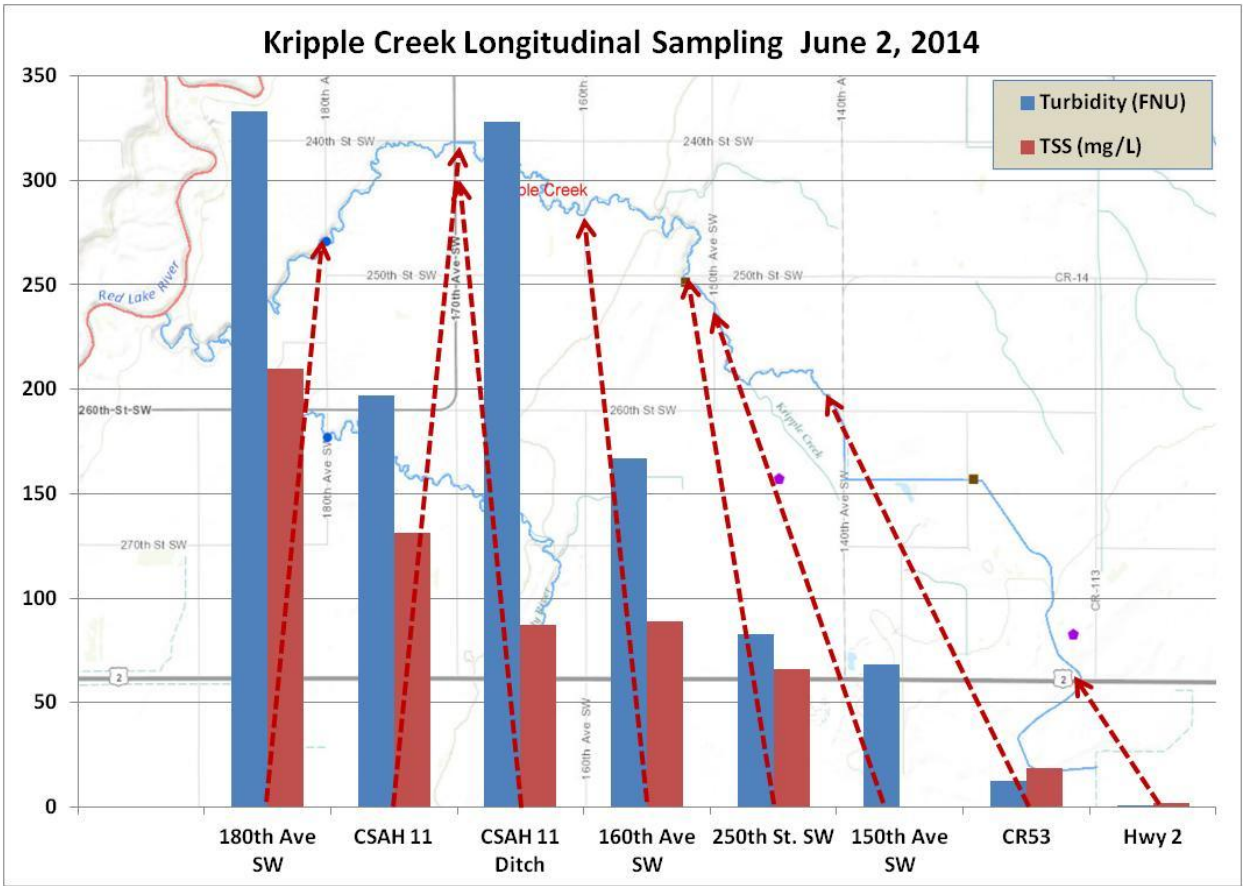
Longitudinal Samples were collected along Kripple Creek on June 2nd, 2014. Kripple Creek is a tributary of the Red Lake River that begins in Glacial Ridge National Wildlife Refuge and finally joins with the Gentilly River prior to flowing into the Red Lake River north of the town of Gentilly. High turbidity and E. coli levels have been observed at the lower end of the watershed during routine monitoring.



Field measurements of stage, temperature, conductivity, dissolved oxygen, pH, and turbidity were collected. Samples were analyzed for chemical oxygen demand (COD), ammonia nitrogen (NH3), total Kjeldahl nitrogen (TKN), total phosphorus (TP), total suspended solids (TSS), and E. coli. The samples were taken during a heavy rainfall event with significant runoff. At the lower end of the watershed, turbidity, TSS, and E. coli levels were very high. Turbidity, TSS, and E. coli levels were very high in samples collected at the end of a ditch that was flowing north along the east side of CSAH 11.

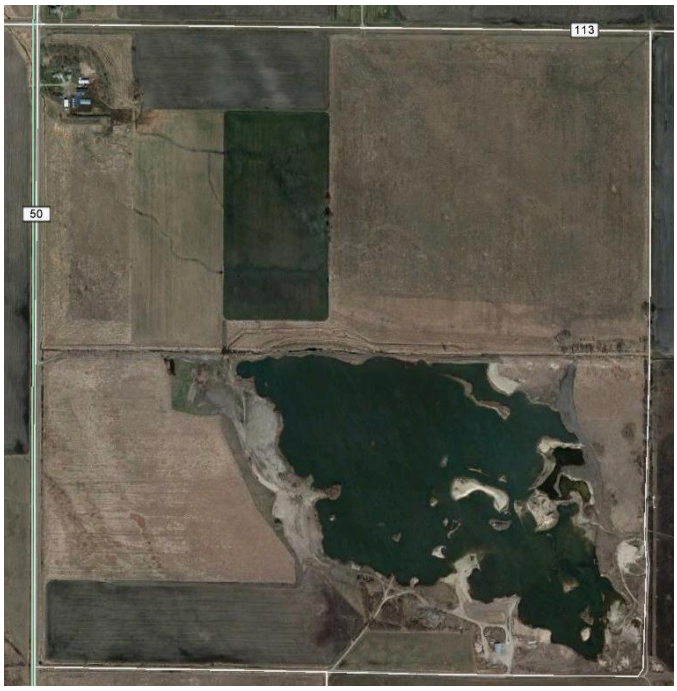
RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT	June 2014



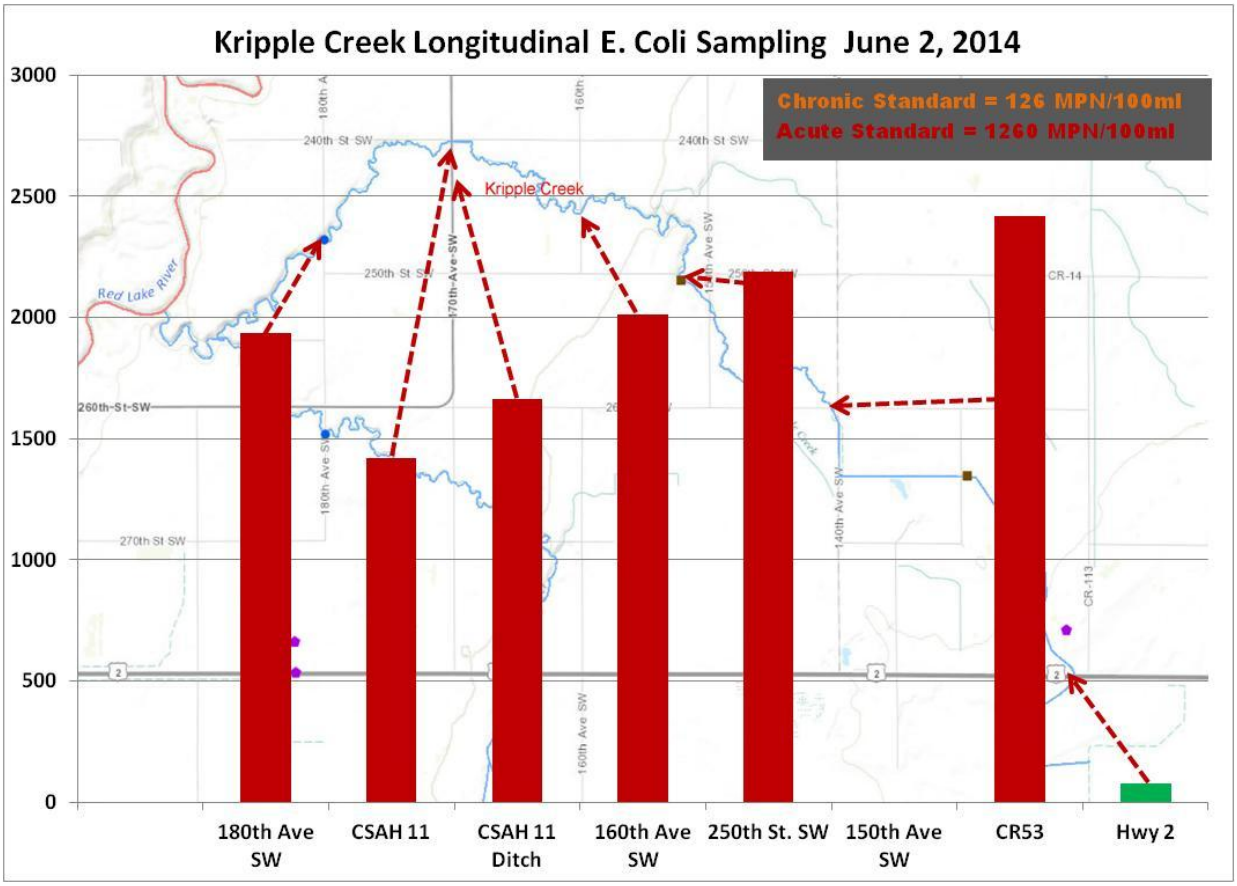
The water was very clean where it was leaving Glacial Ridge National Wildlife Refuge at Highway 2.

RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT	June 2014

There was a significant increase in turbidity/TSS and a very large increase in E. coli between Highway 2 and CR 53. E. coli went from 77.6 CFU/100ml at Highway 2 to a concentration that was higher than the laboratory's maximum reporting limit at >2419.6 CFU/100ml at CR53. Primary suspected sources of this E. coli are livestock operations in Section 30 of Pleasant Township in Red Lake County.



E. coli actually decreased at each of the next three crossings that were sampled and then increased again downstream of CSAH 11 (where there are some horses along the stream).

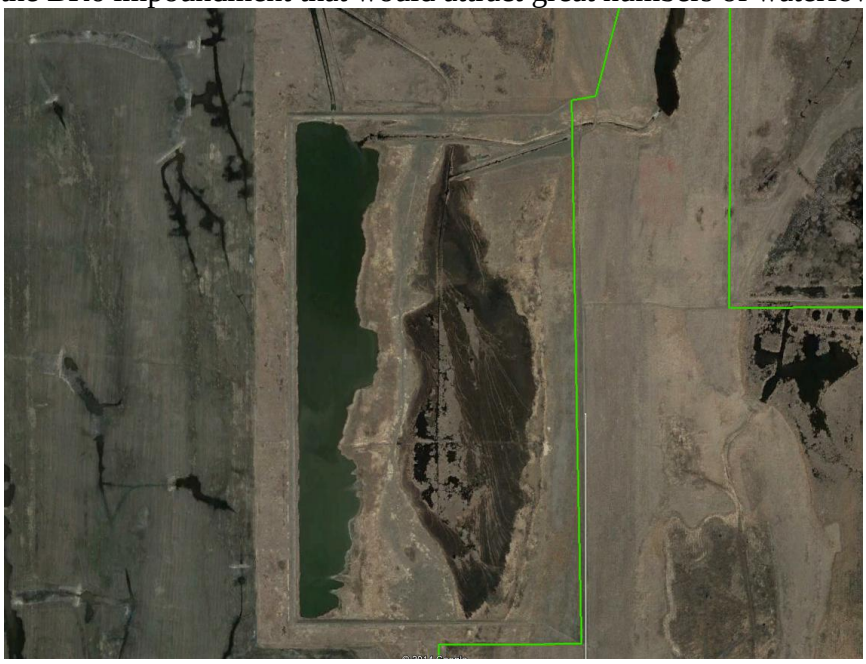


RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT	June 2014

Longitudinal samples were collected along Gentilly Creek on June 5th, 2014. The samples were collected after several days of rain in the area, including the day of collection. E. coli concentration and turbidity levels spike where the Polk County Ditch 140 portion of the Gentilly Creek watershed crosses CR44 and 300th St. SW. There is a definite livestock operation east of CR44 that drains to both branches of CD 140 that could be contributing to high E. coli levels.

The livestock operation is not the only source, however. There was a significant increase between CR44 and 300th St, even though there doesn't seem to be any obvious sources of E. coli (based on aerial photos) in Section 15 of Kertsonville Township.

E. coli was also high at the furthest upstream sampling site at County State Aid Highway 45. Most of the land along CD140 upstream of CSAH 45 is not farmed, so the sources of E. coli in this area may be "natural." A big potential source of excessive "natural" E. coli bacteria could be the BR6 impoundment that would attract great numbers of waterfowl.



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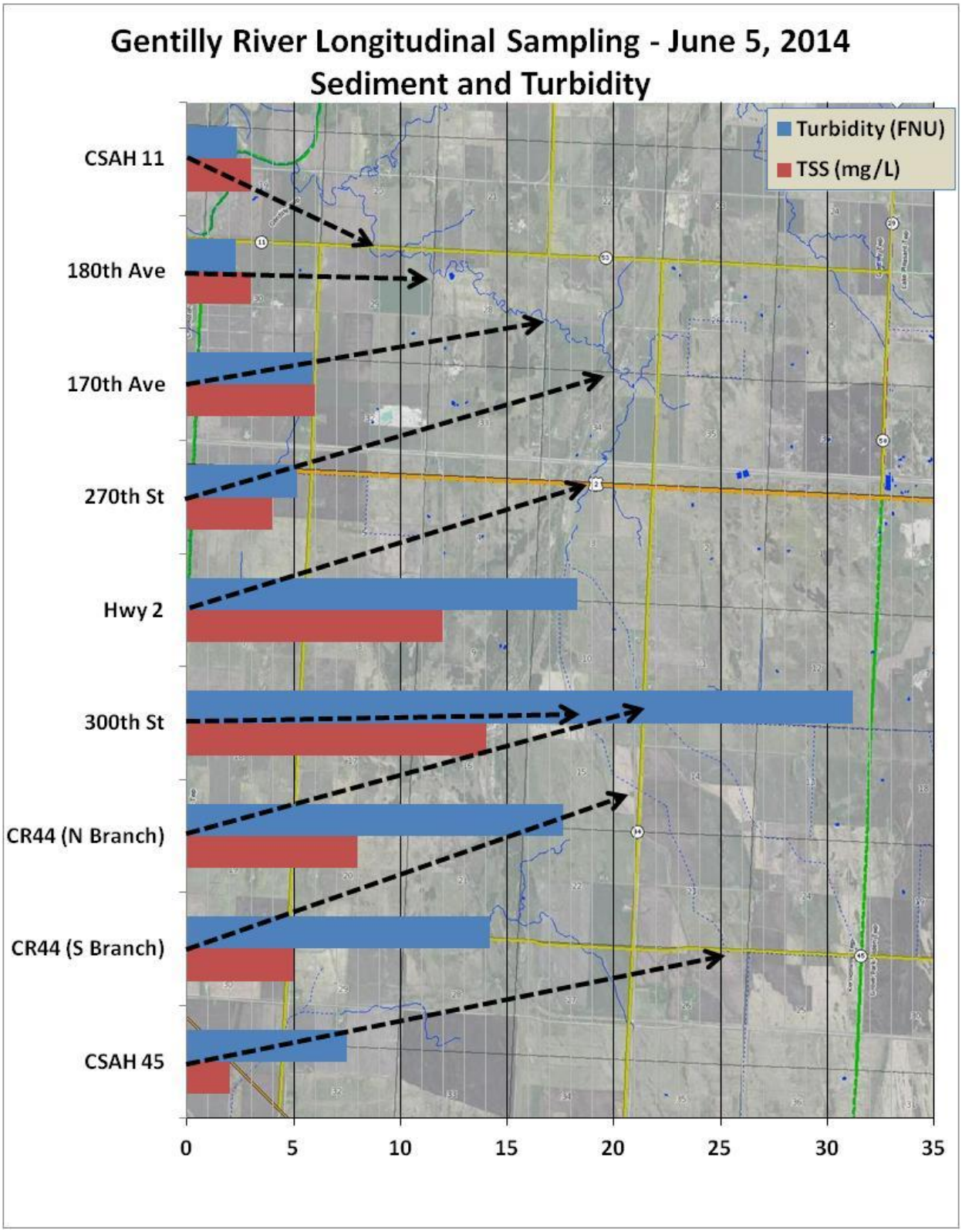
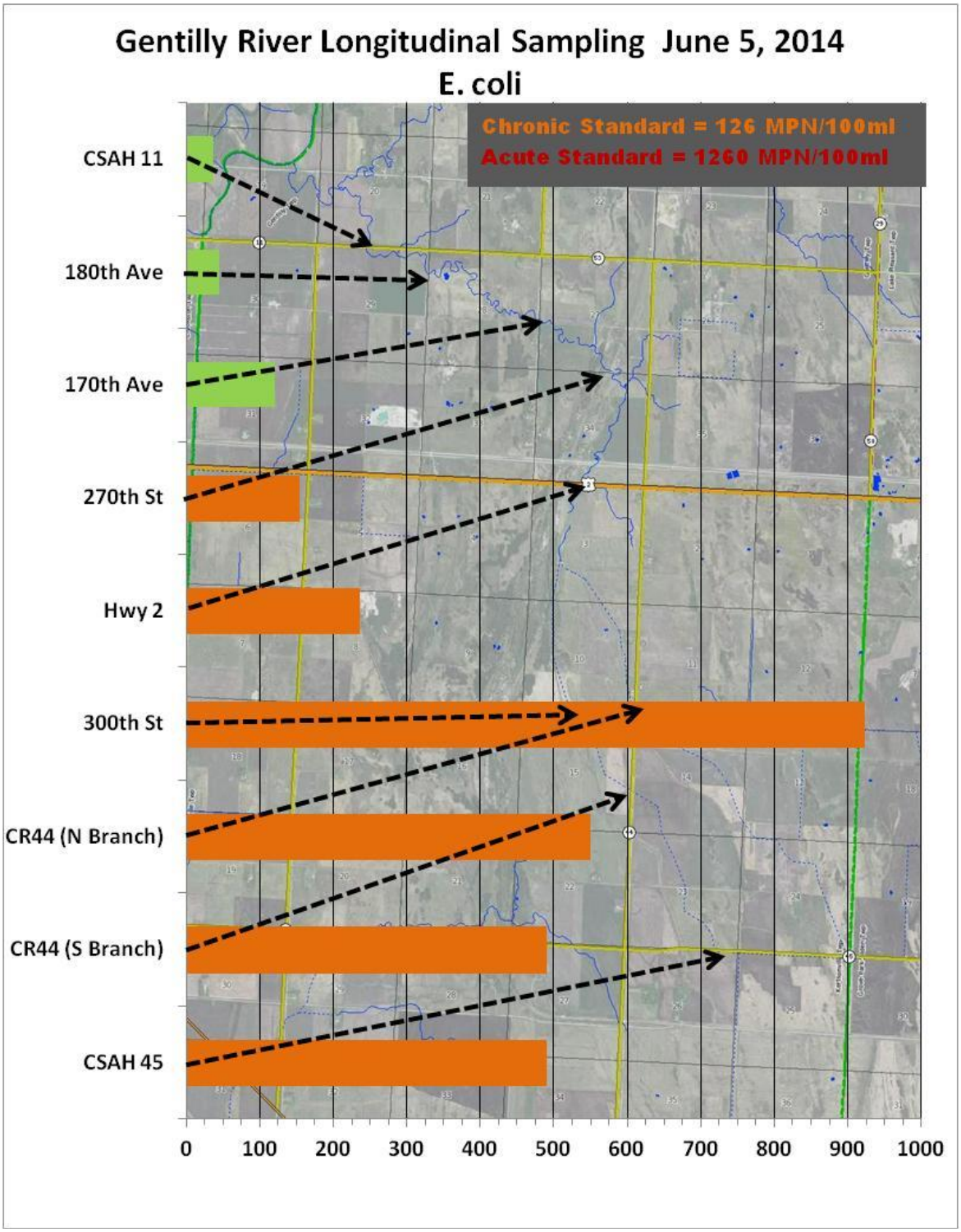


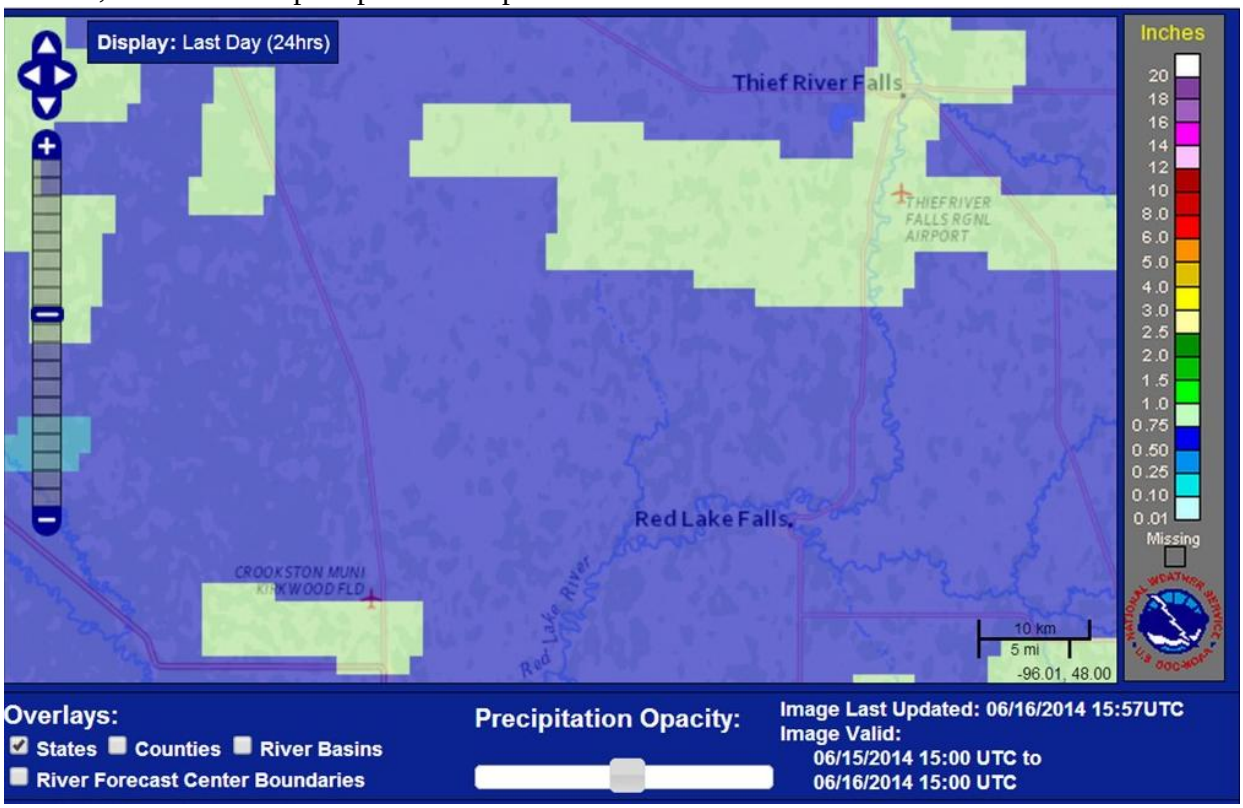
RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT	June 2014



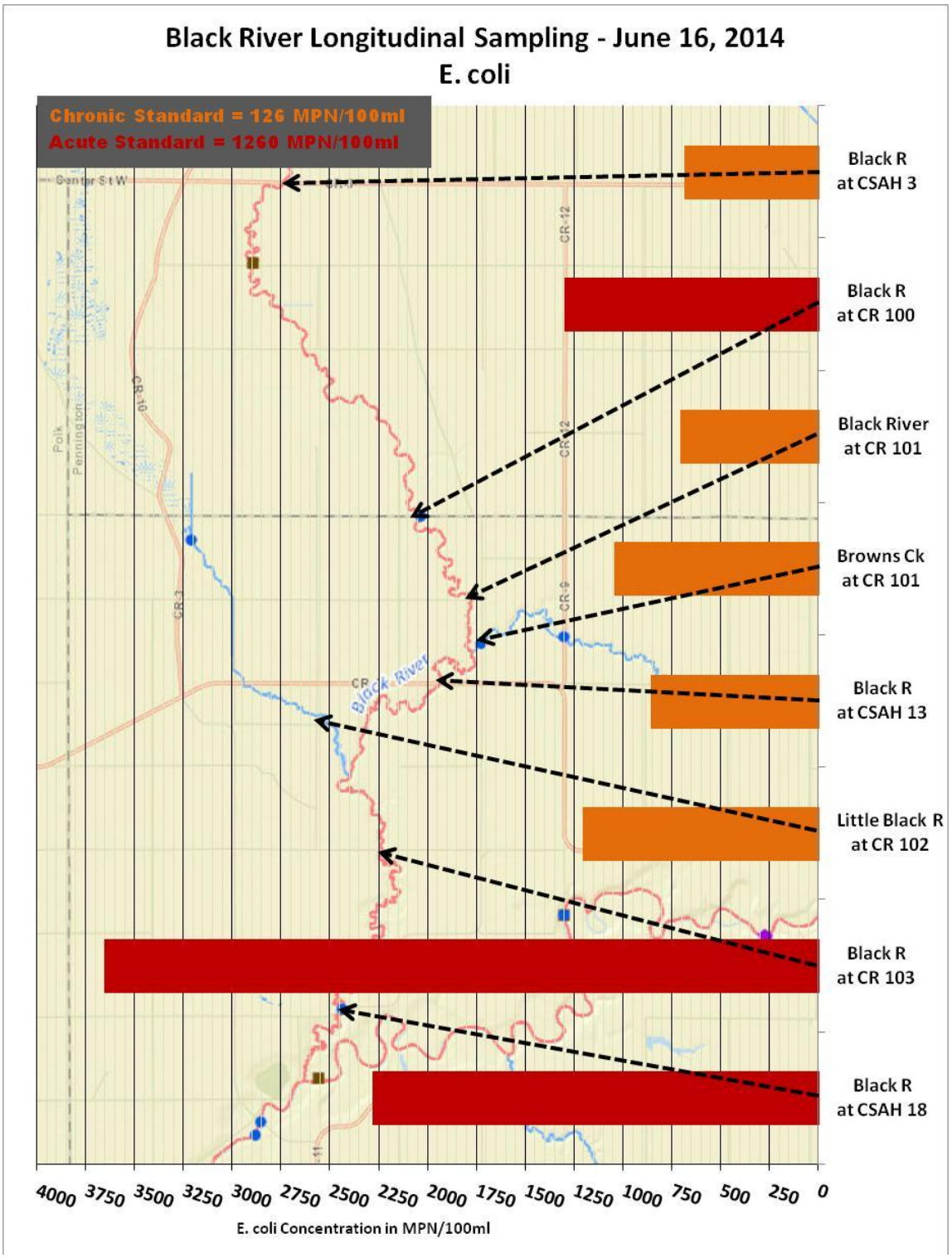
RED LAKE WATERSHED DISTRICT MONTHLY WATER QUALITY REPORT	June 2014

On June 16, 2014, longitudinal samples were collected at sites along the Black River and at the pour point s of two of its main tributaries (Little Black River and Browns Creek). The samples were taken after a rain event to help identify specific areas in the watershed in which runoff is significantly increasing pollutant concentrations in the river. These areas can be targeted for project implementation.

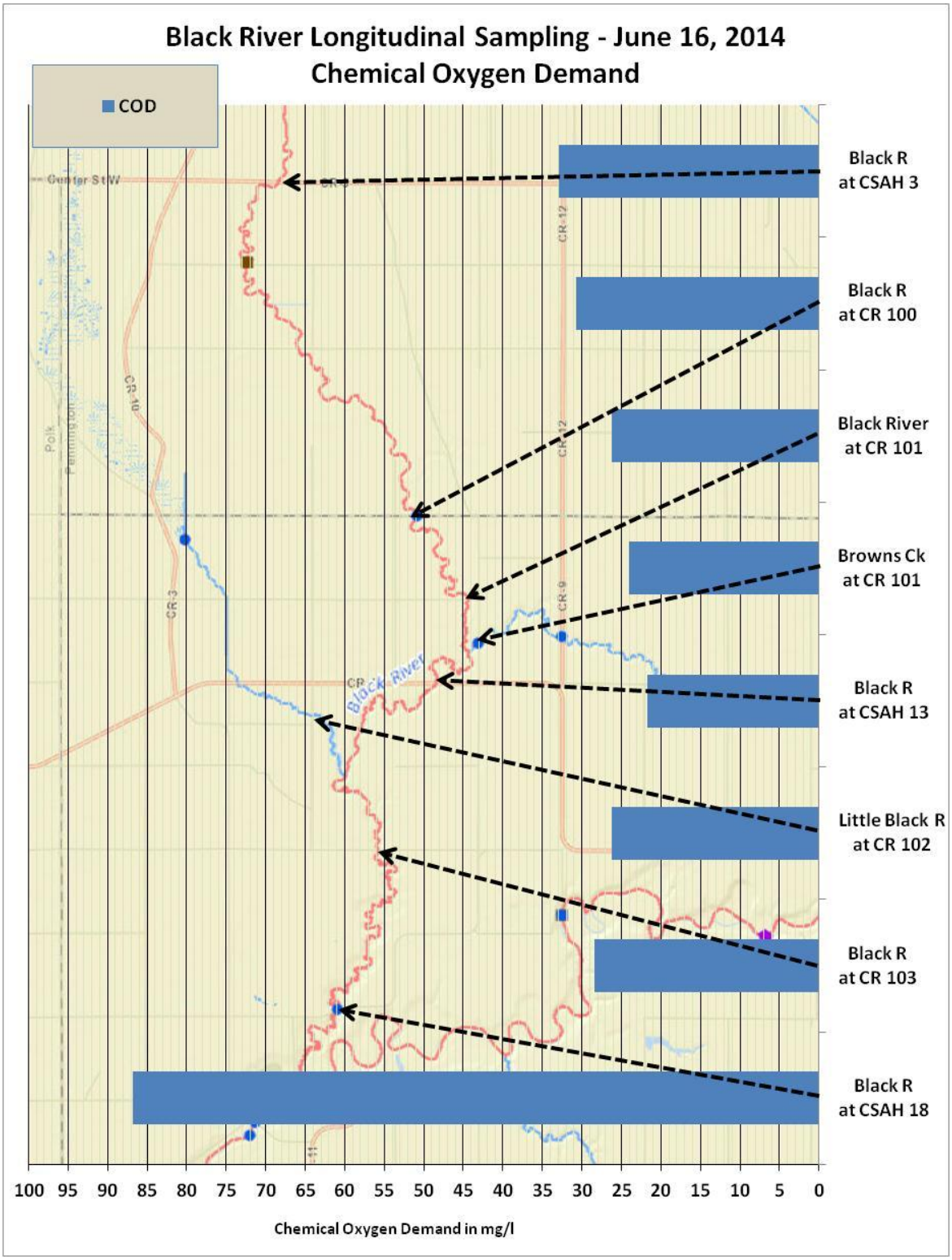
June 16, 2014 24 hour precipitation map:



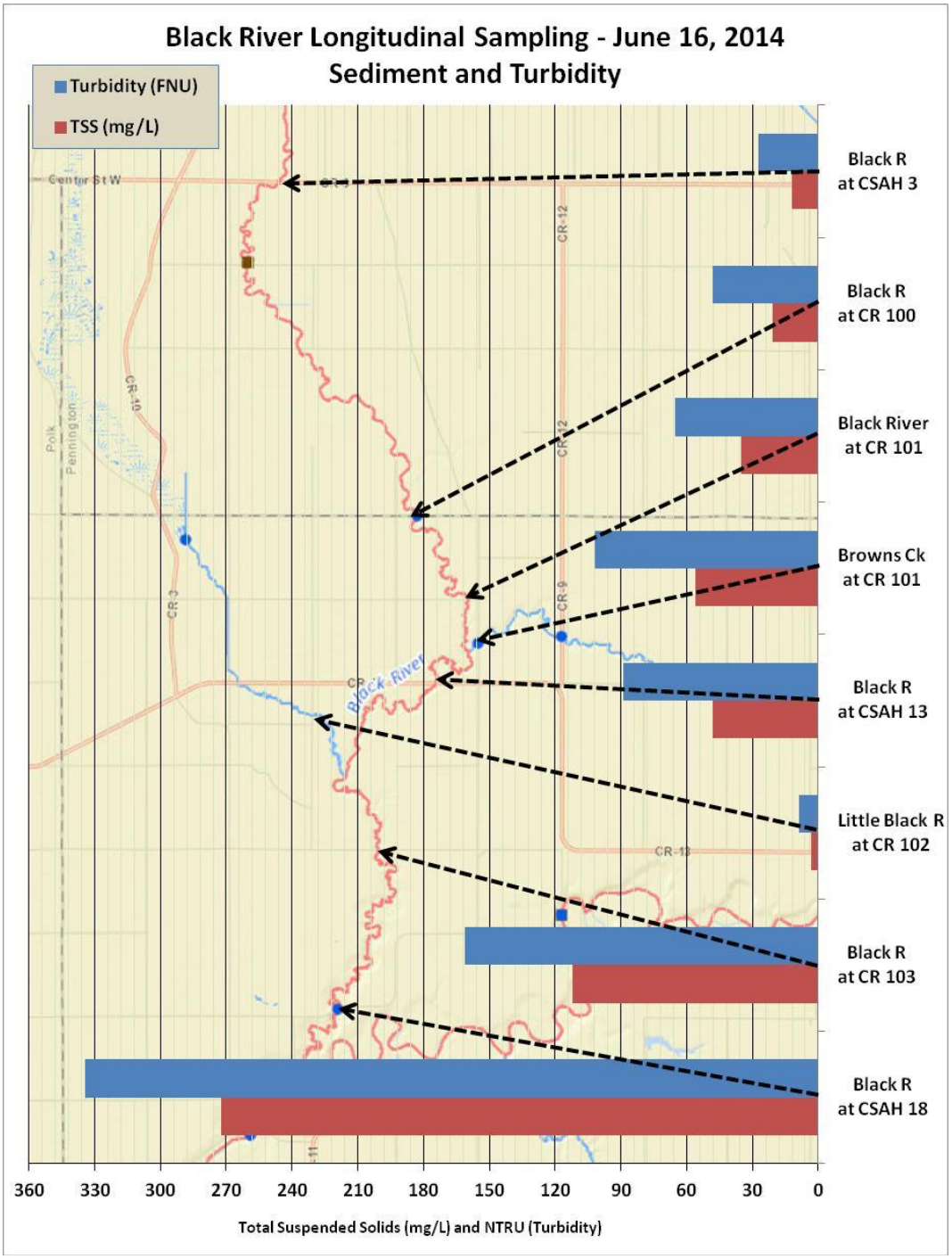
Very high E. coli concentrations were found at the lower end of the watershed. E. coli concentrations still exceeded the chronic standard (126 MPN/100ml) at the upper end of the sampled reach. Time was a factor in why sampling wasn't extended further upstream.



Chemical oxygen demand was fairly uniform throughout the upper part of the watershed, but has a relatively dramatic increase between the CR 103 and CSAH 18 sampling sites.



Total suspended solids and turbidity also increase dramatically at the lower end of the watershed. Erosion control projects will be needed in the lower part of the watershed. These could include structural projects in the channel to fix eroding banks and best management practices to reduce overland erosion. Based on preliminary observations during the geomorphologic analysis of the Black River, lowering peak flow rates would reduce stress on stream banks and would be an important part of reducing erosion in the lower reach of the Black River.



- Task 10 – Thief River WRAP Civic Engagement
    - RLWD and RMB Environmental Laboratories staff met to discuss civic engagement plans and future meetings.
    - Emmons and Olivier Resources, Inc. staff began working on a website for the Red Lake River.

Grand Marais Creek Watershed Restoration and Protection Project

- A report on the *Geomorphic and Hydrologic Influences on TMDL Impairments in the Grand Marais Creek watershed* is available on the project documents page of the www.prairiebasin.com Grand Marais Creek WRAP website.
- In June, Emmons and Olivier Resources (EOR) staff worked on data compilation, finishing the geomorphology report, data analysis, revising reporting maps, a watershed conditions report addendum, and updates to reports based on MPCA review.
- The CSAH 19 crossing of Grand Marais Creek has had enough high E. coli concentrations to warrant some extra sampling in 2014 to help verify whether or not there is a problem in that part of that watershed.
- Grand Marais Creek watershed flow monitoring site information was provided to MPCA staff.
- Red Lake DNR staff finished conducting flow measurements at Grand Marais Creek WRAP monitoring sites for he year. There are plans to hire them to collect another set of measurements in the spring of 2015.
- 84.3 CFS of flow was measured in Polk County Ditch 2 on 6/27/14 by RLWD staff.
- The HOBO water level logger at the CD2 monitoring site was retrieved after the MPCA installed an ultrasonic gauging system at the site.
- The Grand Marais Creek WRAP contract was amended to extend Phase I of the project through December 2014.

Clearwater River Watershed Surface Water Assessment Grant (SWAG)

- Clearwater County Soil and Water Conservation District (SWCD), Red Lake County SWCD, and East Polk County SWCD staff continued sampling for this project in June. Travis Torkelson assisted East Polk County staff with monitoring while their sonde was being repaired.
- E. coli concentrations exceeded the chronic water quality standard (>126 CFU/100 ml) in at least one set of samples collected in June at the following sites:
    - Clearwater River at CSAH 2
    - Clearwater River at CSAH 22
    - Clearwater River at CAH 11
    - Clearwater River at CR 127
    - Clearwater River in Red Lake Falls
    - Lower Badger Creek (twice including district monitoring)
    - Lost River at CR 139 (twice)

- Silver Creek (twice)
- Poplar River at CR118 (three times, including District monitoring)
- Lost River near Brooks (three times, including District monitoring)
- Hill River near Brooks (three times, including District monitoring)
- Ruffy Brook (twice)
- JD73 near Rydell National Wildlife Refuge
- Hill River upstream of Hill River Lake
- Lost River at CSAH 28.

Stream Gauging

A HOBO water level logger was deployed at the Hwy 75 crossing of the Brandt Channel.

Other Notes

- The Red Lake Watershed District 2013 Annual Report has been completed, distributed, and made available on the internet at: http://redlakewatershed.org/Annual%20Reports/2013%20Annual%20Report.pdf
- The MPCA is getting closer to officially adopting new water quality standards. At its June 24, 2014 meeting the Minnesota Pollution Control Agency Citizens' Board will be considering a request for adoption of amendments to the Water Quality Standards (Minn. R. chs. 7050 and 7053) addressing Total Suspended Solids and Eutrophication Standards for Rivers, Streams, Mississippi River Navigation Pools and Lake Pepin. Information about these amendments, which were the subject of public hearings in January, 2014 can be found at http://www.pca.state.mn.us/6paqdkc.
- The Red Lake River watershed has been selected to be a pilot for the Board of Water and Soil Conservation's One Watershed One Plan program.

June Meetings/Events

- **June 9, 2014** – Pennington County Water Resources Advisory Committee
- **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.

Plans for 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 by RESPEC
  - 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 by RESPEC
  - 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.
  - Intensive study of dissolved oxygen levels and nutrients in the Poplar River near Fosston.
  - Compile existing data and summarize existing reports
- Clearwater River Surface Water Assessment Grant sampling, administration, and data management.

Upcoming Meetings/Events

- **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 set).
- **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.
- **October 6-17** – Clearwater River Geomorphology – Intensive station work
- **September 2014** – Holding a public kick-off meeting for the Clearwater River WRAP

- **November 2014** – Thief River WRAP stakeholders meeting (date not set)
- **November 2014** – Clearwater River WRAP Stakeholders' Meeting and/or Open House (date not set yet)
- **December 3, 2014** – Marshall County Water Resources Advisory Committee Meeting
- **December 4-6, 2014** – Minnesota Association of Watershed Districts 2014 Annual Meeting and Trade Show

Quote of the Month:

"Failures do what is tension relieving, while winners do what is goal achieving."
– Dennis Waitley

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.