

North Cannon River Watershed Management Organization

Serving the Townships of: Castle Rock - Douglas - Eureka - Greenville - Hampton - Randolph - Sciota - Waterford
 And the Cities of: Miesville - New Trier - Randolph

2014 Mid-Season Water Monitoring Update

Monitoring Activities

Dakota County Soil and Water Conservation District staff continued to monitor Chub Creek at the permanent monitoring station on Dixie Avenue on a monthly basis through the monitoring season (snowmelt through October). Equipment was installed in April to continuously measure level and temperature. Manual flow measurements were conducted on two occasions and four water samples have been collected, to date.

On February 12, 2014 nitrate samples were collected at four springs and three stream sites in the Trout Brook watershed. A full report is available on the North Cannon River WMO website.

Right: Field staff collect nitrate samples at a spring in the Trout Brook Watershed.



Chub Creek Flow and Weather

About a year ago, the United States Geological Survey (USGS) installed a permanent stream gaging station on Chub Creek at County Highway 47 upstream of Randolph, MN. Stream level is continuously monitored and used to calculate stream flow (cubic feet per second or cfs). Instantaneous data can be accessed at waterdata.usgs.gov using the station ID 05355038.

This spring has been much wetter than a typical year. Each month this year has had above average rainfall. Altogether, this adds up to close to 10 inches above average for the year, to date.

USGS 05355038 CHUB CREEK AT CO. HWY. 47 ABOVE RANDOLPH, MN

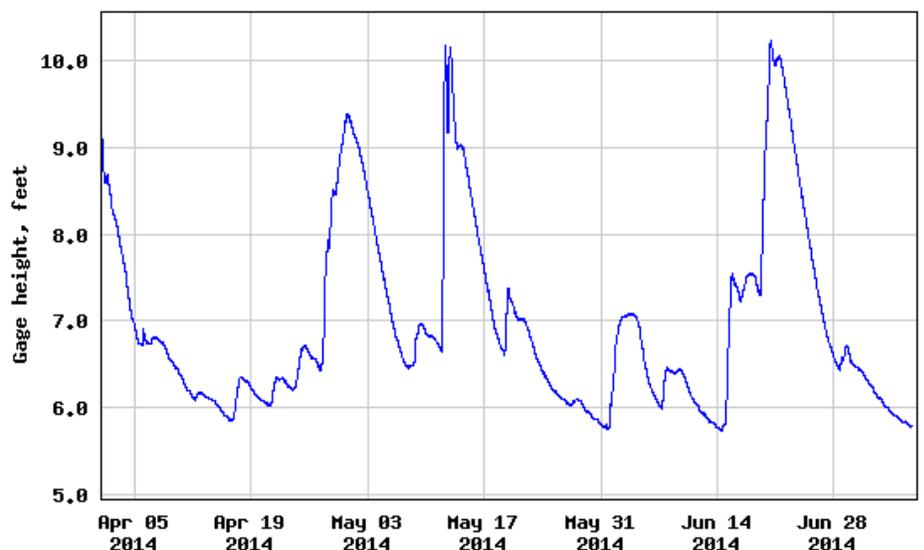


Figure courtesy of USGS.

Sampling Dates and Interpretation Considerations

Sample data shown here were collected on 4/17 and 5/15. Precipitation in the Chub Creek watershed this spring was much higher than normal. When these samples were collected, Chub Creek was at low and high flows. Season and flow conditions play a role in stream dynamics and should always be considered when interpreting results. Samples were also collected on 6/16 and 7/16; however, data are still being processed and are not yet available.

E. coli Bacteria

The two bacteria samples that have been analyzed to date have values of 48 and 118 organisms/100mL. This is within the approved state standard of 126 organisms/100mL. Additionally, these values are much lower than the historical average which is near 1,000 organisms/100mL.



LEGEND

Short-term trend (2014 Mid-season)



Long-term trend (entire data record)



Within desired range



Occasionally outside of desired range



Repeatedly outside of desired range



Desired ranges refer to approved or proposed state standards, or Minnesota Pollution Control Agency derived ecoregion means where standards have not been established.

Total Suspended Solids and Turbidity

Samples of suspended solids and turbidity were low for the spring season with total suspended solids ranging from 12 to 17 mg/L (within the proposed standard) and turbidity ranging from 5 to 12 NTU (within the approved standard).



Nutrients

Both the April and May samples had phosphorus values within the proposed range (0.094 and 0.142 mg/L, respectively).



Springtime nitrate values were only available for the April sample which was within the approved drinking water standard at 3.23 mg/L. Nitrate tends to decrease as flows increase. Low values measured here may be due to the wet spring.



The Minnesota Pollution Control Agency is currently re-evaluating nitrate standards to protect aquatic life. Once approved, Chub Creek nitrate levels will be re-assessed.



Downstream of Beaver Spring (Trout Br. Watershed), Feb. 2014.

Dissolved Oxygen, pH, Transparency, Conductivity

Dissolved oxygen (8.97 - 7.91 mg/L). These values seem a little low for early spring, but are still acceptable.



pH (7.74 - 7.81 S.U.). These values are typical of Minnesota streams.



Transparency (41 - 22 cm). Water was not as clear as usual for the spring. Rain decreased transparency in May.



Conductivity (413.5 - 508.9 μ S/cm). These values are typical of warm water streams.

