For the sixth year in a row, Dakota County Soil and Water Conservation District staff has monitored the water quality of Chub Creek at the permanent monitoring station located on Dixie Avenue in the town of Randolph (indicated by the star on the map below).

**Monitoring Activities**
Water quality monitoring is conducted on a monthly basis beginning at snowmelt and continuing through October. Water level monitoring equipment was installed in April to continuously measure water level and temperature at the site.

Manual flow measurements were collected in both April and July of this year and four water samples have been collected at this time (April through July).

**Streamflow and Rainfall**
The United States Geological Survey (USGS) operates 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).

Stream flow data for Chub Creek can be accessed at waterdata.usgs.gov using the station ID 05355038.

Infrequent rainfalls throughout the spring led to low water levels during the early part of the monitoring season. Two heavy rain events occurred in one week in June resulting in an increase in water levels and velocity following the event.
Sampling Dates and Interpretation Considerations
Sample data shown here were collected on April 15, May 16, and June 14. Season and flow conditions play a role in stream dynamics and should always be considered when interpreting results. Precipitation in the Chub Creek watershed this spring was less than in previous years and the April and May samples were collected at low flows. The June sample was collected during a runoff event as 3 inches of rain had fallen in the week previous to the monitoring effort.

Routine water monitoring was performed on July 12 of this year; however, data are still being processed and are not available for analysis at this time.

Water Quality Analysis

<table>
<thead>
<tr>
<th>Parameter</th>
<th>2016 Findings</th>
<th>Monitoring Trends</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dissolved Oxygen</strong></td>
<td>April - 11.23, May - 10.02, June - 7.98</td>
<td></td>
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<tr>
<td><strong>pH</strong></td>
<td>April - 8.07, May - 7.98, June - 8.12</td>
<td></td>
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<tr>
<td><strong>Transparency</strong></td>
<td>April - &gt;100, May - &gt;100, June - 35</td>
<td></td>
</tr>
<tr>
<td><strong>Conductivity</strong></td>
<td>April - 621.3, May - 639.0, June - 647.9</td>
<td></td>
</tr>
</tbody>
</table>

**Total Phosphorus**
Both the April and May samples had phosphorus values within the proposed range (0.032 and 0.044 mg/L, respectively). The June sample exceeded the standard at 0.157 mg/L.

**Total Suspended Solids**
Samples of suspended solids were low in April and May with total suspended solids concentrations at 2 and 5 mg/L. The June sample was measured at 42 mg/L, still falling well within the state standard of 65 mg/L.

**Nitrate**
All three springtime nitrate values were within the approved drinking water standard at 4.13, 4.35, and 5.9 mg/L.

**E. coli Bacteria**
The two bacteria samples that have been analyzed to date have values of 34, 261, and 579 organisms/100mL. Only the April sample 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 (2016 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.