Paths Forward

CCCD will continue to monitor *E.coli* concentrations in the Donkey Creek Watershed through the 2019 primary recreation season. The microbial source tracking program will be expanded to examine canine contributions within city limits, avian contributions thought watershed, and human contributions outside of the city limits. CCCD will continue efforts to reduce bacteria concentration, improve water quality and work toward stream delisting. Additionally, CCCD is available to consult with residents and landowners regarding any water quality issues and concerns.

Public Involvement

A key component to improving water quality within Campbell County includes public involvement. The following provides a few suggestions for residents.

- Residents not connected to public sewer should know the location of their septic tanks and leach fields and be aware of potential failures.
- Residents within the City of Gillette should be aware that the storm sewers drain into Donkey and Stonepile Creeks.
- Landowners should inspect corrals and grazing systems to assess potential influences, particularly during runoff events.

For more information

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CAMPBELL COUNTY
CONSERVATION DISTRICT

Campbell County Conservation District

Donkey/ Stonepile Creeks Sub-Watershed

2015 - 2016

Monitoring Project

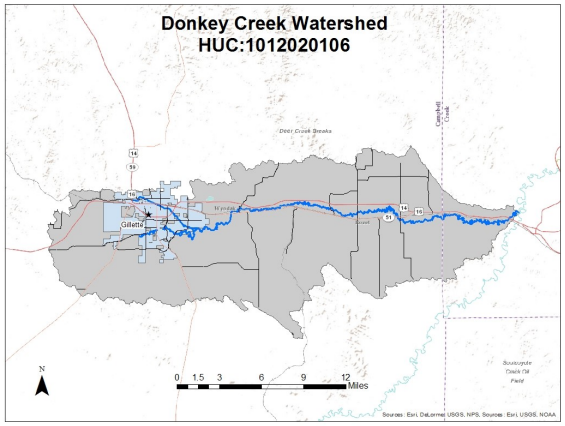
Donkey/ Stonepile Creeks Sub-Watershed Monitoring Project 2015-2016

Background

E.coli continues to be a threat to the surface waters in Campbell County. There are several human health concerns with the presence of *E.coli*, not only are some strains of *E.coli* harmful, but it is also an indicator that other harmful bacteria may be present. CCCD has monitored water quality at various sites on Donkey and Stonepile Creeks, since 2002. Donkey and Stonepile Creeks are designated as category 4A, Impaired Waters with an approved TMDL. The Belle Fourche Watershed Total Maximum Daily Load (TMDL) was complete in 2013 and contains recommendations for the Donkey Creek Sub-Watershed, which includes both Donkey and Stonepile Creeks.

E. coli Bacteria Standard

In all waters designated for primary contact recreation, during the summer recreation season (May 1 through September 30). Concentrations of *E.coli* bacteria shall not exceed a geometric mean of 126 organisms per 100 milliliters during any consecutive 60-day period. (Wyoming Water Quality Rules and Regulations Chapter 1, Section 27)



2015- 2016 Monitoring Project

A total of 121 *E.coli* samples were collected between June 2015 and August 2016. Water quality monitoring was made possible, in part by financial support provided by the Campbell County 1% funding, the City of Gillette, and a Wyoming Department of Agriculture's Water Quality Grant.

Field parameters collected in the stream include temperature, electrical conductivity, dissolved oxygen, pH, turbidity, and flow velocities. Water samples were collected at each site and analyzed for inorganic chemistry and nutrients. The District also collected 33 Microbial Source Tracking (MST) samples. MST is a set of biological testing methods, that can be used to determine a host species of fecal indicator bacteria. In 2015 -2016 CCCD utilized MST to examine the potential human contributions to the water quality of Donkey and Stonepile Creeks. This approach, allows CCCD to target best management practices that can maximize water quality benefits per dollars spent on project implementation..

Results

The monitoring project results indicate that bacteria concentrations remain in excess of the WDEQ's primary contact recreation standards. Currently the *E.coli* concentrations do not have a significant trend but instead continue to fluctuate, as in years past. There was a rise in bacterial counts for the 2016 sampling season; however it is difficult to determine if these increases can be attributed to the recent climatic conditions and/or increased activity of significant sources.

Stream	**% of Samples Greater than 126 col./ 100mL (May-September)**
Donkey Creek	78%
Stonepile Creek	76%

Microbial Source Tracking

Human Bacteroidetes were observed, 100% of the time at the Stonepile Creek monitoring site. These positive samples were significantly high and are likely a direct result of Gillette's Waste Water Treatment Facility (GWWTF) discharge. However, the two monitoring sites upstream from the GWWTF were negative for Human Bacteroidetes, except one sample which was positive at a low concentration. The MST results from 2015-2016 indicate that currently, humans are not a significant source of *E.coli* within the city limits of Gillette.