

Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Creve Coeur Creek

Water Body Segment at a Glance:

County: St. Louis
Nearby City: Maryland Heights
Water Body ID: 1703
Impaired Length: 2 miles
Watershed Size: 27.6 square miles
Pollutants: Bacteria
Low Dissolved Oxygen
Chloride
Source: Urban Nonpoint Sources
(No source given for Low DO)



State Map Showing Location of Watershed

Scheduled for TMDL development: 2012 for bacteria; 2014 for chloride; 2017 for low D.O.

Description of the Problem

Designated Beneficial uses of Creve Coeur Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation – Category B

Uses that are impaired

- Protection of Warm Water Aquatic Life (Low DO and chloride impairments)
- Whole Body Contact Recreation – Category B (Bacteria impairment)

Standards that apply

- Missouri's Water Quality Standards at 10 CSR 20-7.031(4)(C) state that the *E.coli* bacteria count shall not exceed 126 colonies per 100 milliliters of water (126 col/100 mL) for Category A and 206 col/100 mL for Category B waters. This count is the geometric mean during the recreational season (April 1- October 31) in waters designated for whole body contact recreation.
- The criteria for chloride are found in 10 CSR 20-7.031 Table A. The chronic criterion is 230 milligrams per liter (mg/L or parts per million) and the acute criterion is 860 mg/L.
- Also in Table A, the criterion for dissolved oxygen in streams is a minimum of 5 mg/L.

Background information and water quality data

Creve Coeur Creek is an urban stream that starts in St. Louis and flows north to the Missouri River. The evidence for impairment is based on data collected by the U.S. Geological Survey, or USGS, and the Metropolitan Sewer District, or MSD, from 2001-2007. Creve Coeur Creek is designated as Category B for the whole body contact recreation use, which means it has places deep enough for total immersion (i.e., swimming), but they may be on private lands or inaccessible to the public.

Low Dissolved Oxygen

Water quality conditions in Creve Coeur Creek are not protective of aquatic life. Dissolved oxygen is important as many aquatic organisms require high levels of oxygen to survive. For dissolved oxygen, if more that 10 percent of measurements in a water body fail to meet the water quality criterion, then that water body is judged to be impaired. In the case of Creve Coeur Creek, 12 of 80 samples (15 percent) did not meet the water quality criterion (Figure 1). While no source has been identified for the low dissolved oxygen, it is likely also caused by urban nonpoint sources, like the chloride and bacteria.

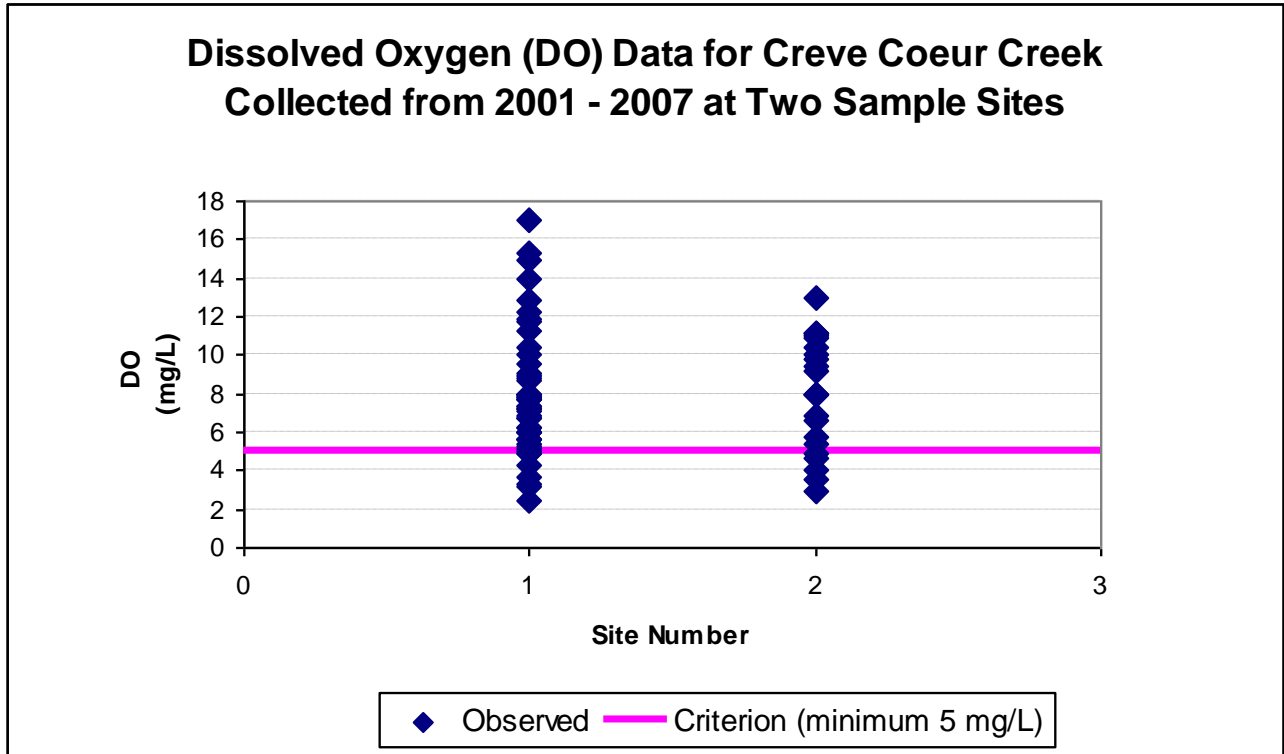


Figure 1

Chloride

The Listing Methodology stipulates that only one exceedance of the chloride criteria in the last three years of available data is necessary to constitute an impairment. The USGS data contain several samples where the chronic standard of 230 mg/L is exceeded in Creve Coeur Creek in that timeframe (Figure 2).

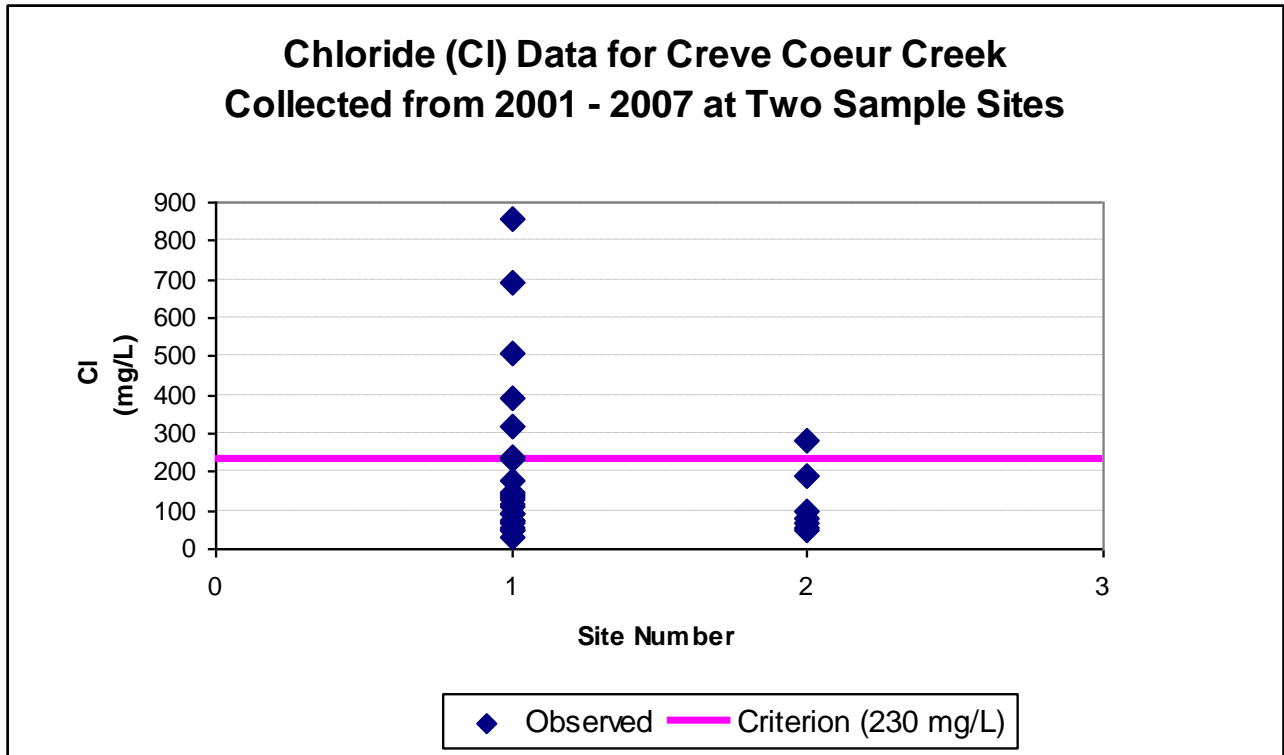


Figure 2

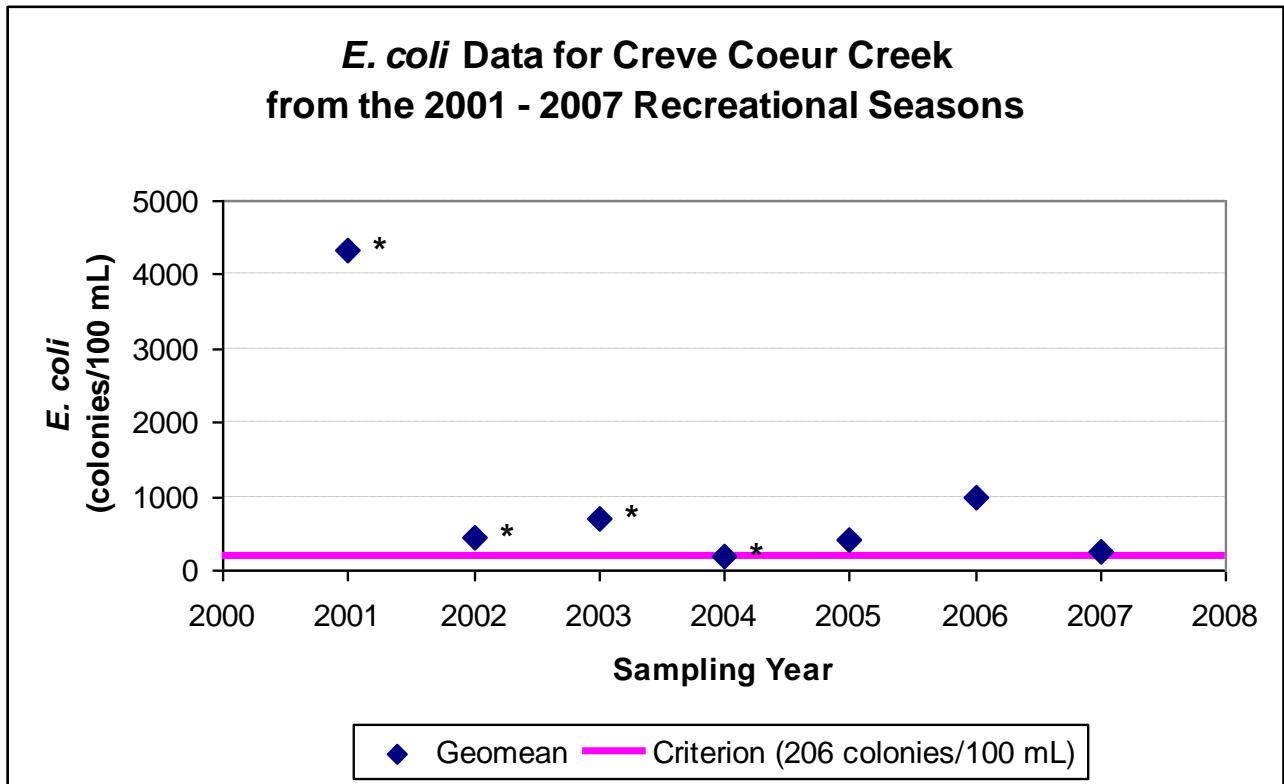
Bacteria

High counts of *E. coli* are an indication of fecal contamination and an increased risk of pathogen-induced illness to humans. Infections due to pathogen-contaminated waters include gastrointestinal, respiratory, eye, ear, nose, throat and skin diseases. *E. coli* are bacteria found in the intestines of warm-blooded animals and are used as indicators of the risk of waterborne disease from pathogenic (disease causing) bacteria or viruses. Most *E. coli* strains are harmless, but some can cause serious illness in humans and are occasionally responsible for product recalls. Missouri’s whole body contact bacteria criteria are based on specific levels of risk of acute gastrointestinal illness. The level of risk correlating to the category B criterion is no more than 10 illnesses per 1,000 swimmers in fresh water (1 percent).

Bacteria data recorded by the USGS and MSD show high levels of *E. coli* in Creve Coeur Creek every year from 2001-2007. The listing methodology states that, to be considered not impaired, a water body must meet the water quality criterion in each of the last three years of available data and that the geometric mean must consist of at least five data points within the recreational season. In Creve Coeur Creek, the geometric means have been calculated as 449 col/100 mL for 2005, 975

col/100 mL for 2006, and 242 col/100 mL for 2007 (Figure 3). These exceed the criterion of 206 col/100 mL for Category B.

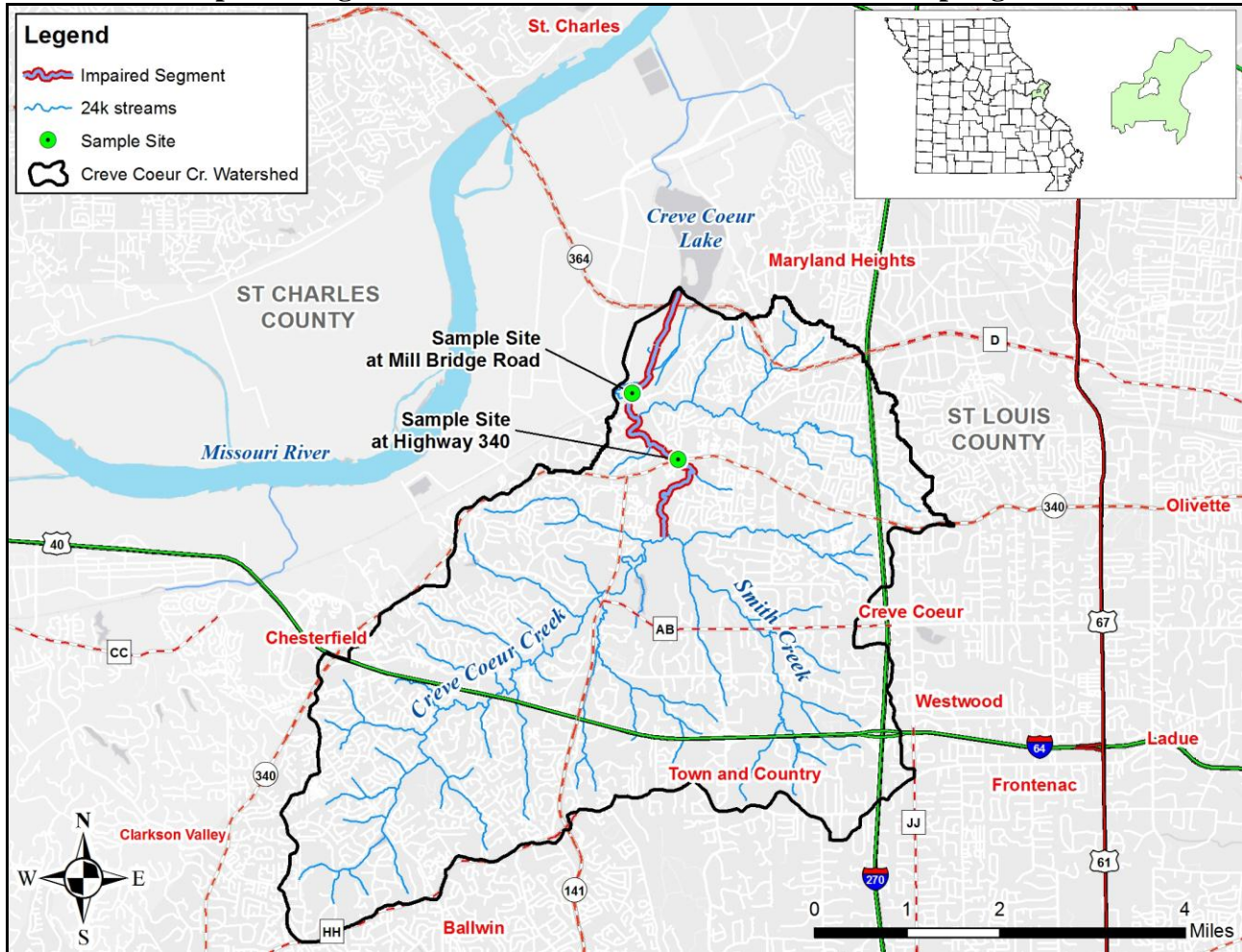
People can protect themselves from waterborne illness by avoiding contact with contaminated water. However, when swimming anywhere, it is wise to take commonsense precautions. These include washing hands before eating, showering after swimming and avoiding exposure to questionable water if you have open cuts or wounds. All streams may carry high bacteria loads and may have a higher risk for waterborne disease during high flow periods when water is turbid.



* Geomean calculated using fewer than five (5) samples

Figure 3

Map Showing the Creve Coeur Creek Watershed and Sampling Sites



NOTE:

The final Creve Coeur Creek TMDL will be based on the most current available data and information.

For more information call or write:

Missouri Department of Natural Resources

Water Protection Program

P.O. Box 176, Jefferson City, MO 65102-0176

1-800-361-4827 or 573-751-1300 office

573-522-9920 fax

Program Home Page: dnr.mo.gov/env/wpp/index.html