

Missouri Department of Natural Resources

# Total Maximum Daily Load Information Sheet

## Gravois Creek

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### Water Body Segment at a Glance:

**Counties:** St. Louis and St. Louis City  
**Nearby Cities:** St. Louis  
**Water Body ID:** 1712 (2 miles)  
1713 (4 miles)  
**Watershed Size:** 22.5 square miles  
**Pollutants:** Bacteria  
Chloride  
Low Dissolved Oxygen (1713 only)  
**Source:** Urban Nonpoint Sources



State Map Showing Location of Watershed

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**Scheduled for TMDL development:** 2012 for bacteria, 2014 for chloride and 2017 for low DO

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### Description of the Problem

#### Designated Beneficial uses of Gravois 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 (chloride and low dissolved oxygen impairments)
- Whole Body Contact Recreation – Category B (bacteria impairment)

#### Standards that apply

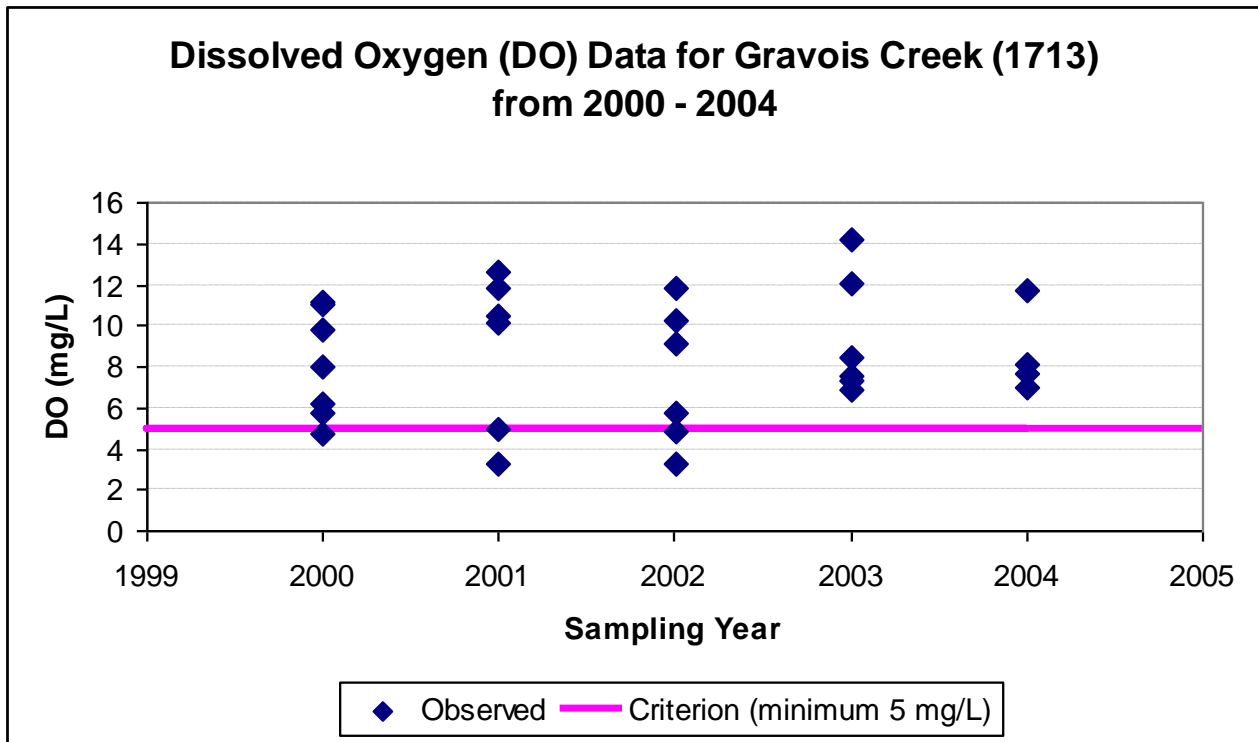
- Missouri's Water Quality Standards at 10 CSR 20-7.031(4)(C) state that the *E.coli* bacteria count shall not exceed 126 colonies per 100 milliliters of water (126 col/100 mL) for Category A and 206 col/100 mL for Category B. This count is the geometric mean during the recreational season (April 1- 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**

Gravois Creek is a tributary to River des Peres in St. Louis. Evidence for the impairments comes from data collected by the U.S. Geological Survey, or USGS, from 2000-2004. All data was from near the downstream end of WBID 1713 (see map on page 5) and was therefore judged to be representative of bacterial and chloride quality in both segments. Because dissolved oxygen can be more variable, dissolved oxygen data from 1713 was not judged to be representative of 1712 (the downstream segment).

Dissolved Oxygen

Water quality conditions in Gravois 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 Gravois Creek, four of 29 samples (13.8 percent) did not meet the dissolved oxygen water quality criterion (Figure 1).



**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 three samples where the chronic standard of 230 mg/L is exceeded in Gravois Creek in the last three years of available data, 2002, 2003 and 2004 (Figure 2).

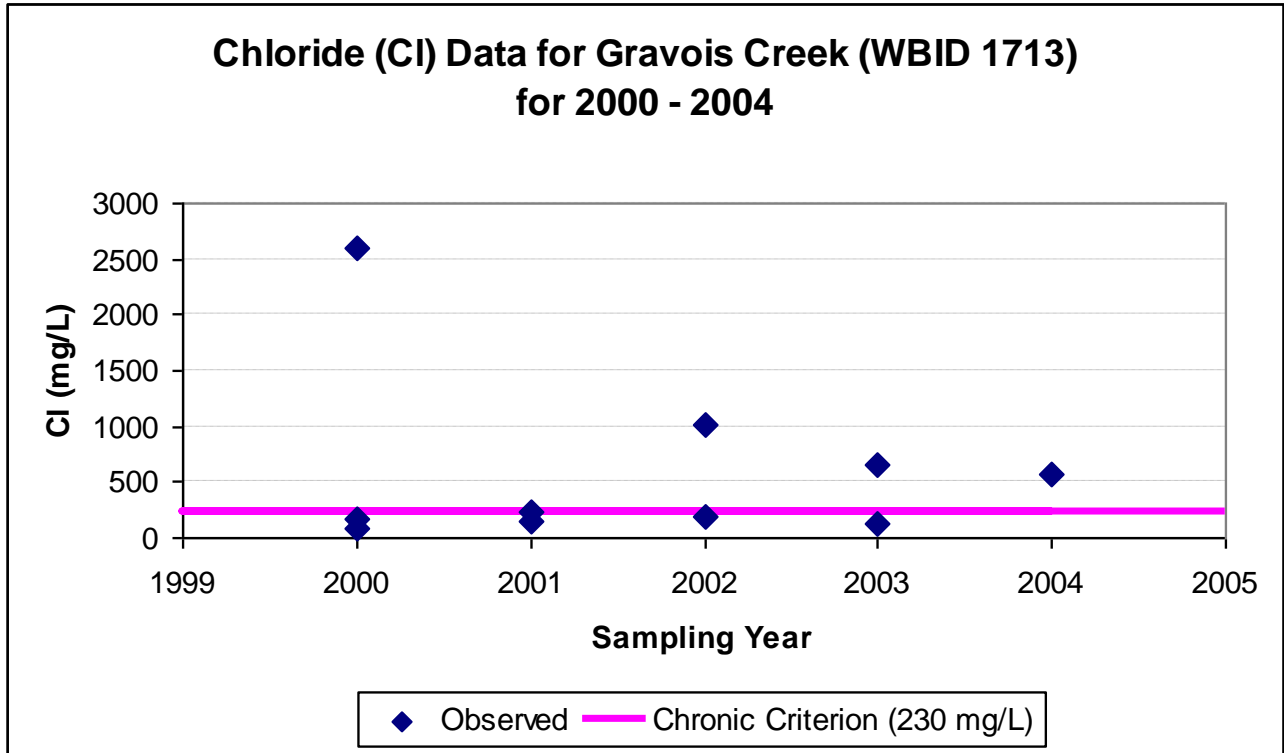


Figure 2

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).

Gravois 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 those places may be on private lands or inaccessible to the public. The Department judges a stream to be impaired by bacteria if the water quality criterion for *E. coli* is exceeded in any of the last three years for which there is adequate data (minimum of five samples taken during the recreational season). Gravois Creek was

listed as impaired prior to the existing listing methodology and does not have five or more bacteria samples available for each recreational season. However, the geometric mean of the available data does exceed the category B criterion each year from 2000-2003 (Figure 3) and therefore shows that there is not good cause for delisting using the current methodology.

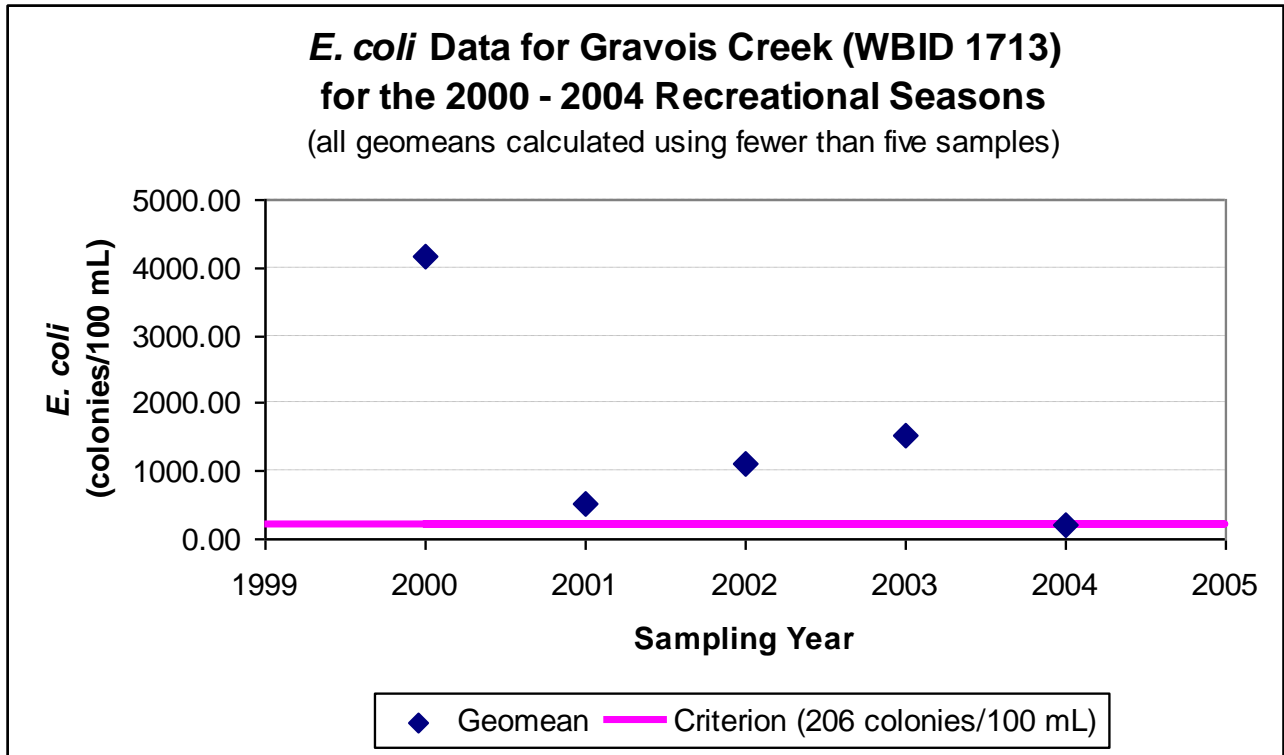
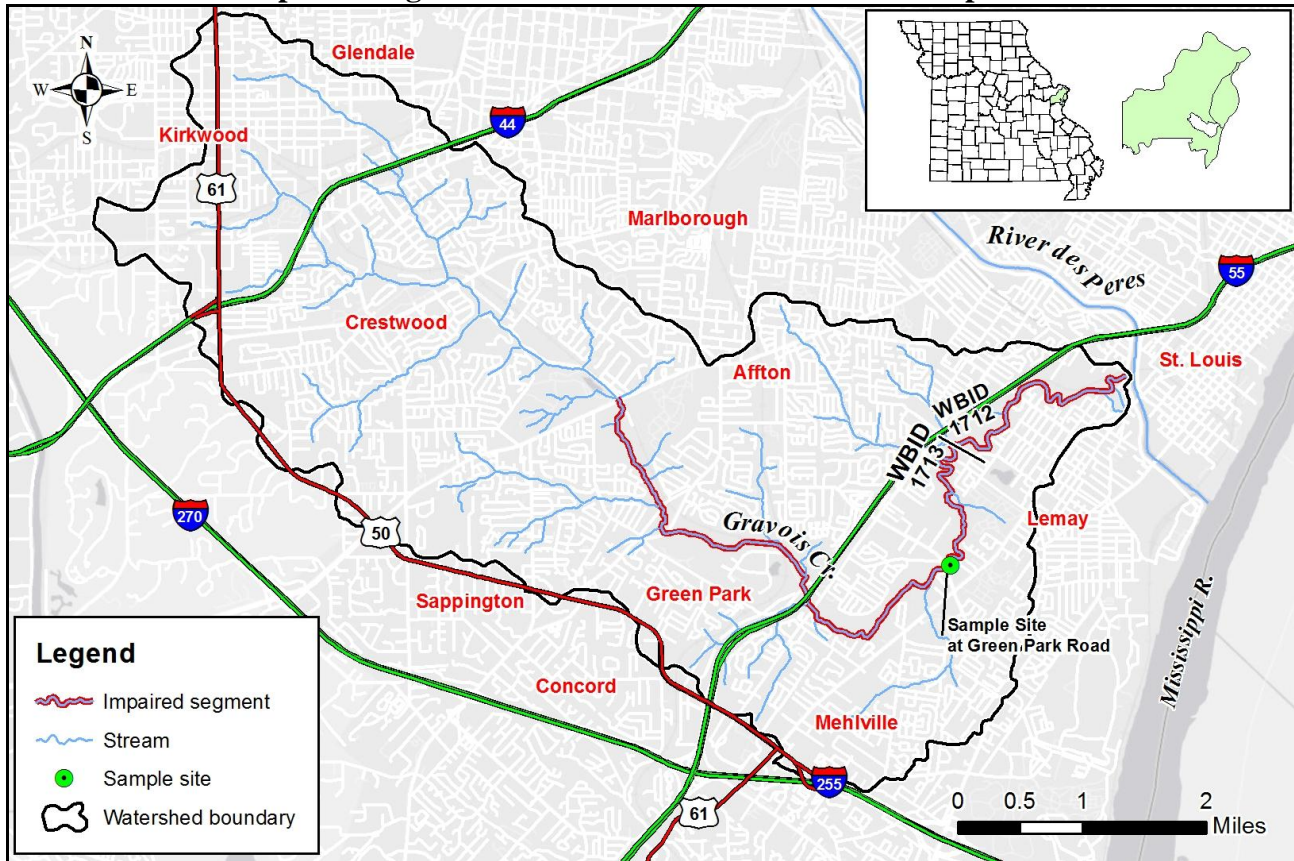


Figure 3

### Map Showing the Gravois Creek Watershed and Sample Site



**Note:**

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

**For TMDL status or additional information, please contact:**

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P.O. Box 176, Jefferson City, MO 65102-0176  
1-800-361-4827 or 573-751-1300 office  
73-522-9920 fax  
Program Home Page: [dnr.mo.gov/env/wpp/index.html](http://dnr.mo.gov/env/wpp/index.html)