



Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

South Fabius River

Water Body Segment at a Glance:

Counties:	Knox/Marion
Nearby Cities:	Newark, Emerson
Length of impaired segment:	61.5 miles
Pollutant:	Bacteria
Source:	None given
Water Body ID:	0071



State Map Showing Location of Watershed

Scheduled for TMDL development: 2014

Description of the Problem

Designated beneficial uses of South Fabius River

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

Use that is impaired

- Whole Body Contact Recreation – Category B

Standards that apply

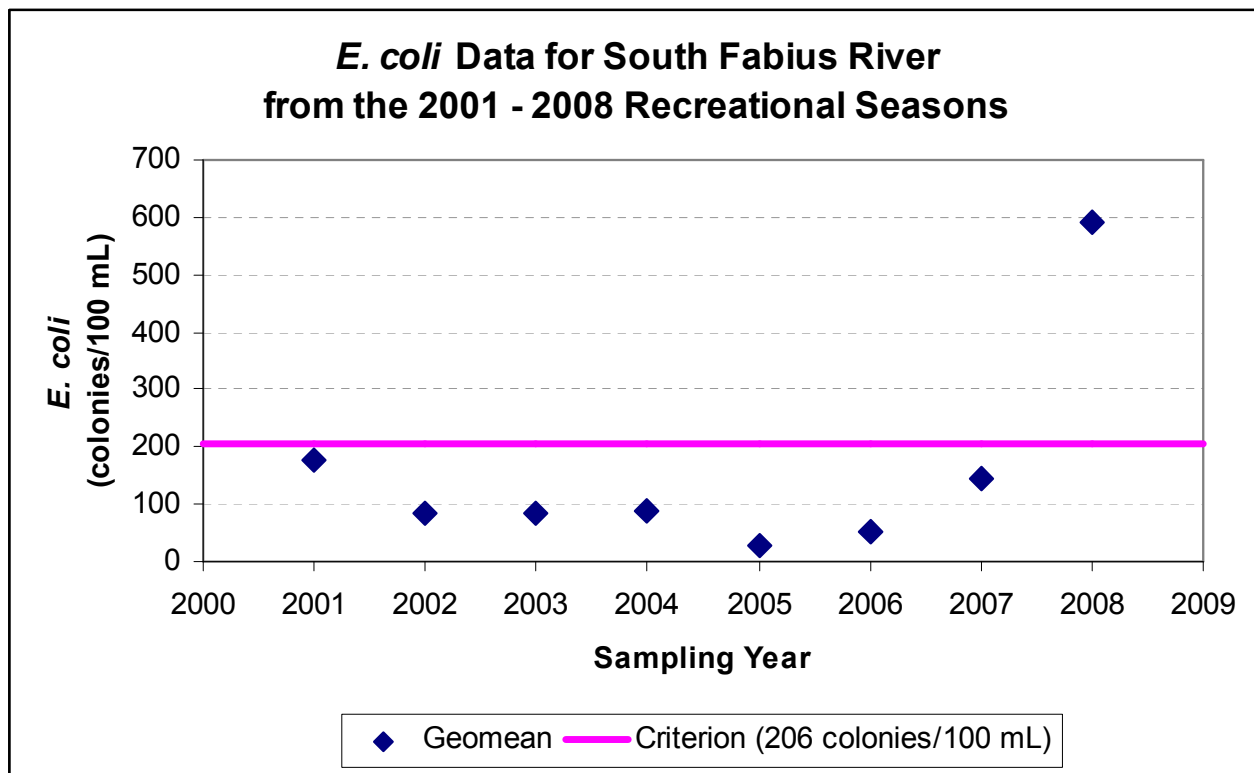
- Missouri's Water Quality Standards at 10 CSR 20-7.031(4)(C) state that the *E. coli* bacteria count shall not exceed 126 colonies per 100 milliliters of water (126 col/100 mL) for Category A and 206 col/100 mL for Category B waters. This count is the geometric mean during the recreational season (April 1- October 31) in waters designated for whole body contact recreation.

Background information and water quality data

In northeast Missouri, the South Fabius joins the North Fabius to form the Fabius River, which is a tributary to the Mississippi. They are typical prairie streams, with muddy, rather than rocky, bottoms. The South Fabius River is designated as Category B for 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.

Excessive amounts of fecal bacteria in surface water used for recreation are an indication of 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. *Escherichia coli*, or *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. The harmless strains are part of the normal flora of the intestines, and can benefit their hosts by preventing the establishment of pathogenic bacteria within the intestine^{1,2}. Missouri's bacteria criteria are based on specific levels of risk of acute gastrointestinal illness. The levels of risk correlating to these criteria are no more than eight illnesses per 1,000 swimmers in fresh water.

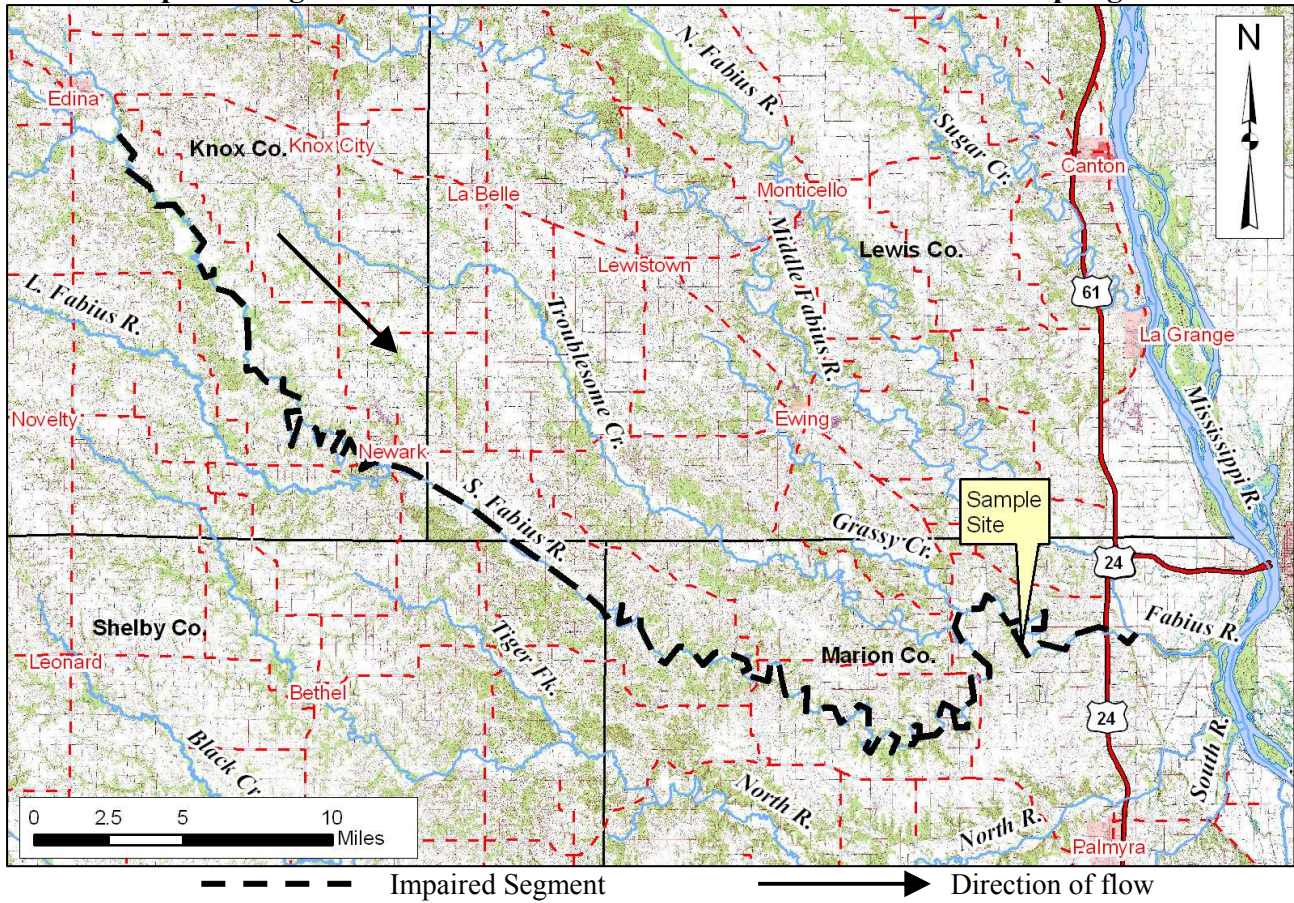
The U.S. Geological Survey collected bacteria data in the South Fabius from 2006-2008. The *E. coli* criterion of 206 col/100 mL for Category B waters is interpreted as the geometric mean of at least five samples collected during the recreational season (April 1 through October 31) of any of the last three years for which data are available. This criterion was exceeded in South Fabius River in 2008. The source of the bacteria is not known.



¹ Hudault S, Guignot J, Servin AL (July 2001). ["Escherichia coli strains colonising the gastrointestinal tract protect germfree mice against Salmonella typhimurium infection"](#). *Gut* **49** (1): 47–55

² Reid G, Howard J, Gan BS (September 2001). "Can bacterial interference prevent infection?". *Trends Microbiol.* **9** (9): 424–8.

Map Showing South Fabius River in northeastern Missouri and Sampling Site



Sample Sites
South Fabius River near Taylor, Mo.

The final South Fabius River TMDL will be based on the most current available data and information. For TMDL status or additional information, please contact the Water Protection Program.

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