Missouri Department of Natural Resources

Total Maximum Daily Load Information Sheet

Niangua River and Dousinbury Creek

Water Body Segment at a Glance:

County: Webster, Dallas
Nearby Cities: Buffalo
Length of impaired segment:
Niangua River: 51 miles
Dousinbury Creek: 3.5 miles
Pollutant: Bacteria
Source: Rural Nonpoint Source
Water Body IDs:
Niangua River: 1170
Dousinbury Creek: 1180


State Map Showing Location of Watershed

Scheduled for TMDL development: 2012

Description of the Problem

Beneficial uses of Niangua River and Dousinbury Creek

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)
- Whole Body Contact Recreation – Category A (Niangua); Category B (Dousinbury)
- Secondary Contact Recreation (Niangua River)
- Cool Water Fishery (Niangua River)

Use that is impaired

- Whole Body Contact Recreation

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

The Niangua River is a rural Ozark stream that flows north to the Lake of the Ozarks. Dousinbury Creek lies between Buffalo and Phillipsburg in southwest Dallas County and flows northwest to join the Niangua River. For whole body contact recreation waters, Category A means there are

swimming areas which are open to and fully accessible by the public. Category B waters have 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. *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 bacteria impairment in the Niangua River is based on U.S. Geological Survey data from 1991-1995. The *E. coli* criterion 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 adequate data is available. The only years with adequate *E. coli* data were 1994 and 1995. In 1994, the geometric mean exceeded the water quality criteria of 126 col/100 mL) for Category A waters. USGS data for Dousinbury Creek were gathered in 1994-1996. While only one exceedance of the geomean constitutes an impairment, the recreation season samples in that data set show that the geometric mean for Dousinbury Creek exceeded the water quality criteria of 206 col/100 mL for Category B waters in every year in that time frame.

People can protect themselves from waterborne illness by avoiding contact with contaminated water. However, when swimming anywhere, it is wise to take common sense precautions. These include washing hands before eating, showering after swimming and avoiding exposure to questionable water if you have open cuts or wounds.

E. coli data for Niangua River and Dousinbury Creek

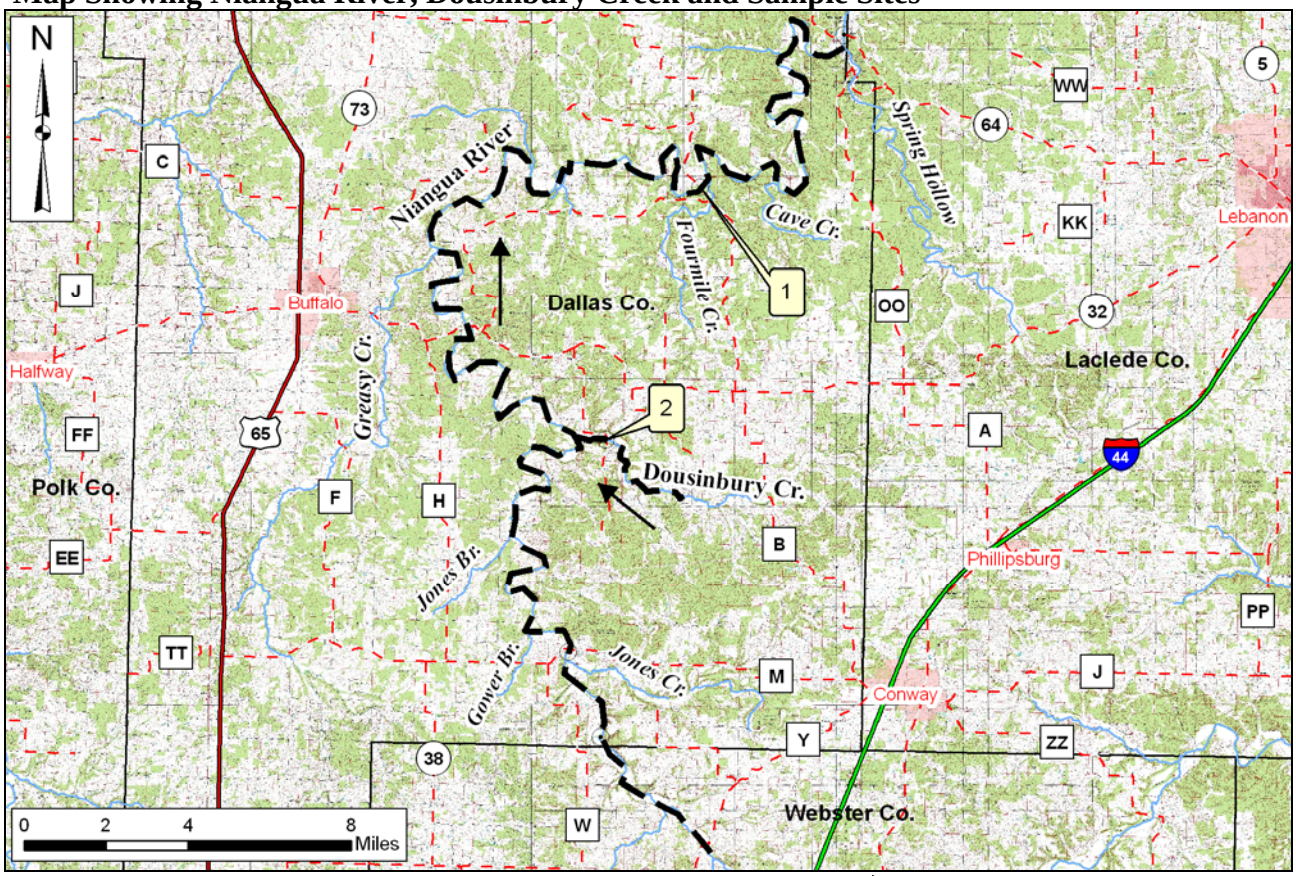
Stream Name	***Sampling Year***	***E. coli* Geomean***	***E. coli Criterion***
Niangua R	1994	187	126
Niangua R	1995	82	126
Dousinbury Cr	1994	506	206
Dousinbury Cr	1995	644	206
Dousinbury Cr	1996	509	206
**E. coli* in colonies/100 mL			

Shading denotes exceedance of criterion

[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 Niangua River, Dousinbury Creek and Sample Sites



Sample Sites
1 – Niangua R. at State Highway K
2 – Dousinbury Cr. at State Highway JJ

For more information call or write:
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