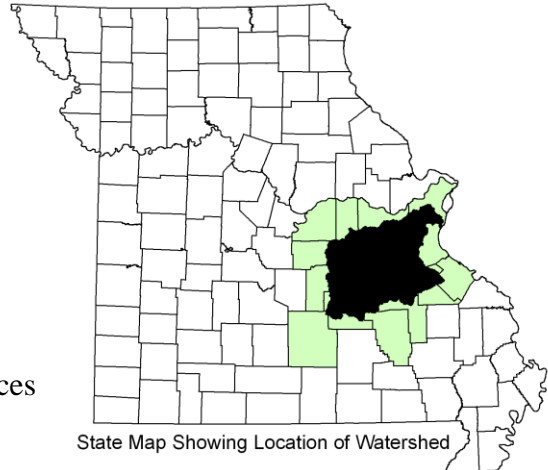


Meramec River

Water Body Segment at a Glance:

Counties:	St. Louis and Jefferson
Nearby Cities:	Pacific and Arnold
Water Body IDs:	2183 (22.8 miles) 2185 (15.7 miles)
Pollutant 1:	Lead in sediment
Pollutant 2:	Bacteria (2183 only)
Source 1:	Abandoned mill tailings
Source 2:	Point sources and Urban and rural nonpoint sources



State Map Showing Location of Watershed

Scheduled for TMDL development: 2012 for Lead in sediment and 2014 for Bacteria

Description of the Problem

Designated beneficial uses of Meramec River

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Cool Water Fishery (2185 only)
- Protection of Human Health (Fish Consumption)
- Industrial
- Drinking Water Supply
- Whole Body Contact Recreation – Category A
- Secondary Contact Recreation
- Industrial

Use that is impaired

- Protection of Warm Water Aquatic Life (Lead in sediment impairment)
- Whole Body Contact Recreation – Category A (Bacteria impairment)

Standards that apply

- There are no specific sediment toxicity criteria in Missouri's Water Quality Standards, however all Missouri water bodies are protected by the general (narrative) criteria found at 10 CSR 20-7.031(3). The particular general criteria that apply to the Meramec River's lead in sediment impairment include:

(D) Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.

(G) Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

- For Bacteria, Missouri's Water Quality Standards at 10 CSR 20-7.031(4)(C), states that the *E. coli* bacteria count shall not exceed 126 colonies per 100 milliliters of water (126 col/100mL) for Category A and 206 col/100mL 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

Lead in Sediment

This part of the Meramec River flows north, east and then south to join the Mississippi River south of St. Louis, Mo. The lead in sediment impairment starts where the Big River enters the Meramec, bringing contaminated lead mining tailings eroded from huge tailings piles in Bonne Terre, Desloge and Leadwood in St. Francis County. Contamination of stream sediments has led to the contamination of fish and other aquatic life. New studies are showing that the lead and other metals in these tailings are toxic to mussels, crayfish and other small invertebrates that inhabit the bottom of the river. It is already known that lead bioaccumulates in the bodies of aquatic creatures. This has been documented in the levels of lead in fish in Big River. The impairment is based on data collected by the department in 1998, 1999, 2006 and 2007. Eight of eight sediment samples exceeded 150% of the probable effect concentrations, or PECs, recommended by McDonald, et. al¹ to assess sediment toxicity (Figure 1). PECs are the concentrations at which some toxic effect on aquatic life is likely. For lead, that number is 128 mg/kg (milligrams per kilograms or parts per million).

Bacteria

Both segments of the Meramec River are designated for category A whole body contact use. Waters designated for the category A use are waters where there are established public swimming areas and existing whole body contact recreational uses. Water body 2183 is listed as impaired by bacteria based on measurements of *Escherichia coli*, or *E. coli*, bacteria recorded in 2008 that show exceedances of the whole body contact category A criterion (Figure 2). 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 A criterion is no more than 8 illnesses per 1,000 swimmers in fresh water (0.8 percent).

¹ *Development and Evaluation of Consensus-Based Sediment Quality Guidelines for Freshwater Ecosystems*, D. MacDonald, et al., 2000

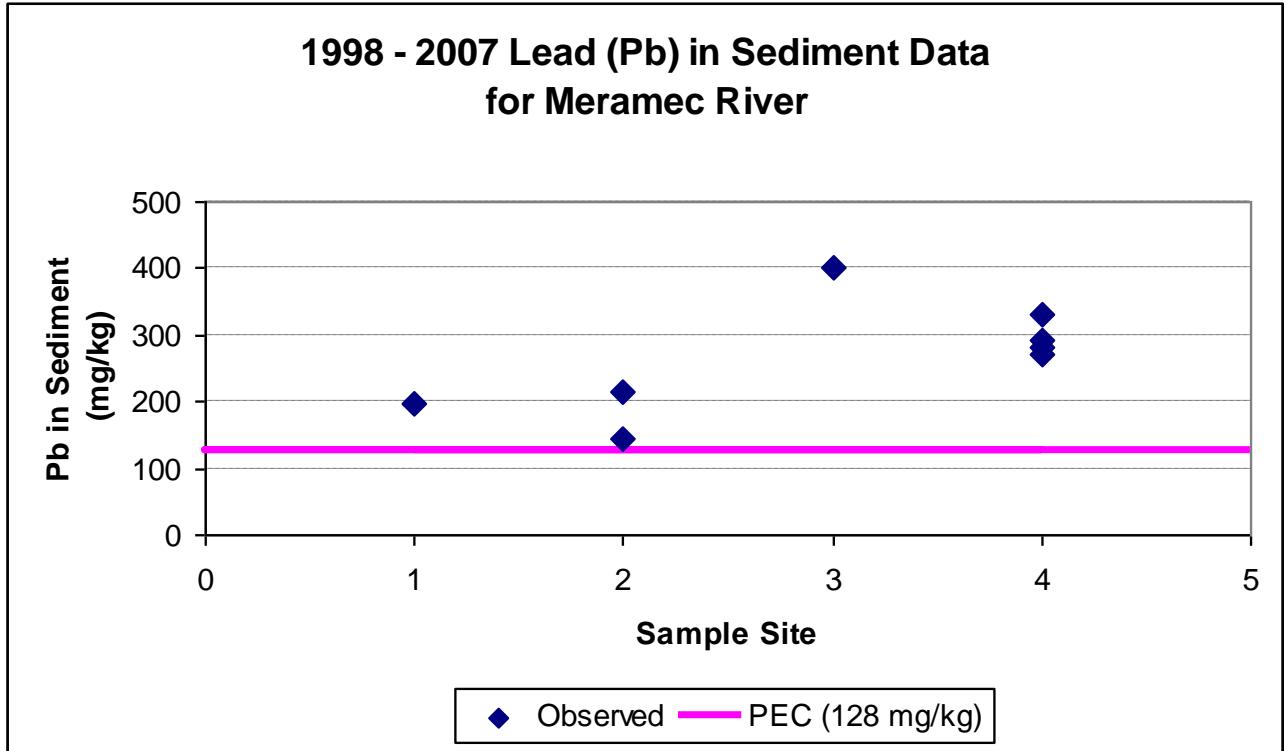


Figure 1.

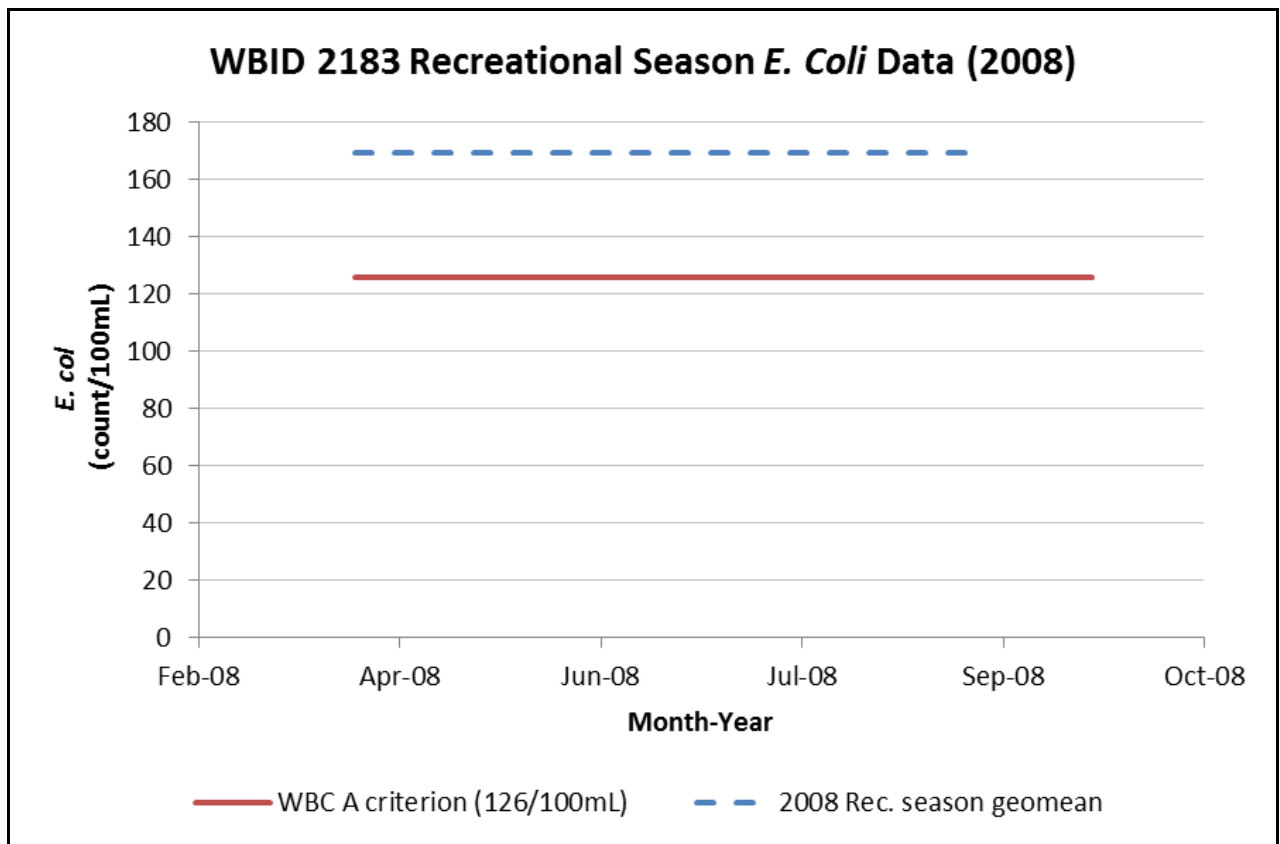
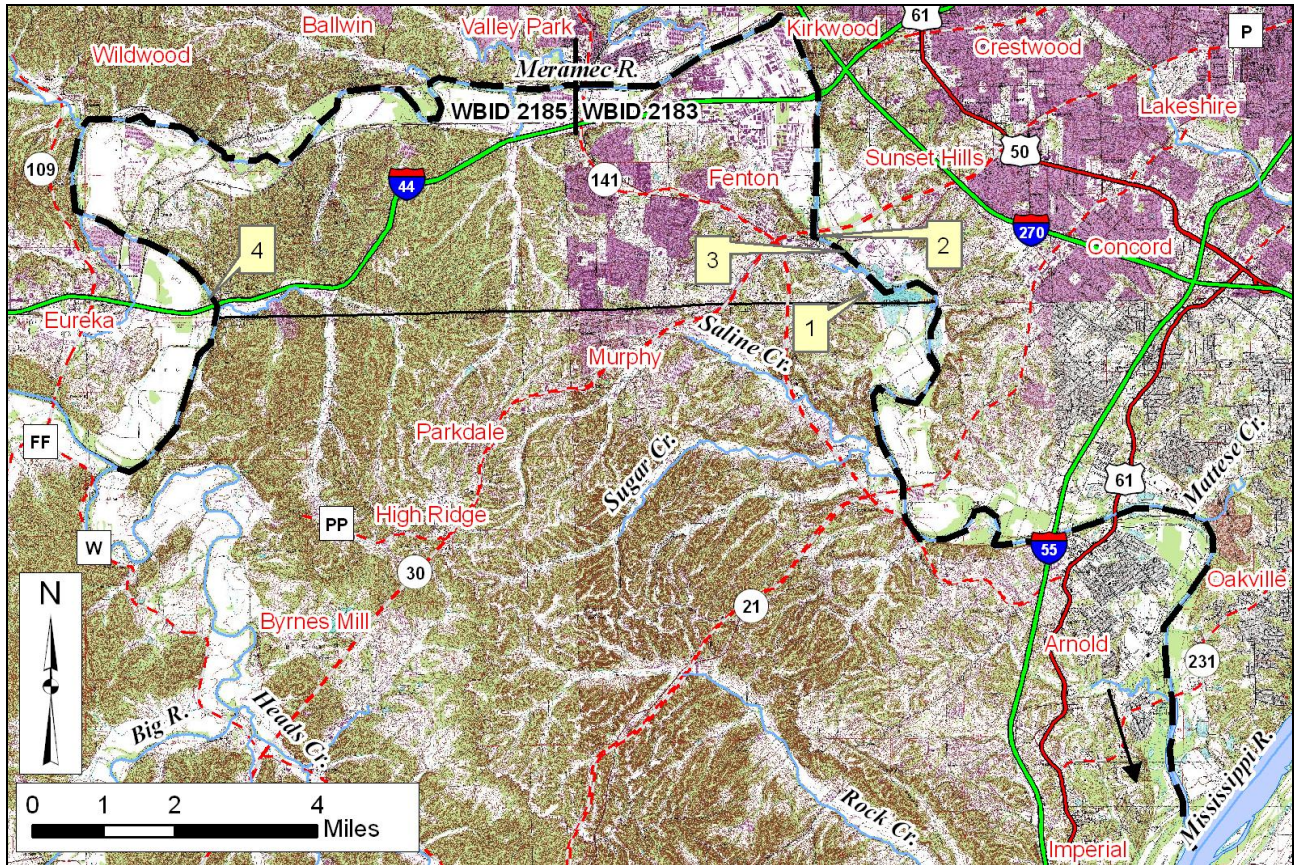


Figure 2.

Map showing the impaired segments of the Meramec River and sampling sites



Impaired Segment

 Direction of flow

Sample Sites

1 – Meramec River at George Winter Park
 2 – Meramec River at State Highway 30
 3 – Meramec River near State Highway 30 bridge
 4 – Meramec River near Eureka

For more information call or write:
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 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