

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Total Maximum Daily Load Information Sheet

Turkey Creek (Water Body IDs: 3216 & 3217) and tributaries (Water Body IDs: 3983, 3984 and 3985)

Water Body Segment at a Glance:

County: Jasper
Nearby City: Joplin
Turkey Creek Length: 7.7 miles (3216)
 6.1 miles (3217)
Tributaries Length: 2.9 miles (3983)
 2.2 miles (3984)
 1.6 miles (3985)
Pollutants: Cadmium, Lead and Zinc
 (in sediment and water)
Source: Tri-State Mining District



State map showing location of watershed

Schedule for TMDL development:

TMDL development schedules are subject to change.

The most current schedule for TMDL development is available on the department's website at dnr.mo.gov/env/wpp/tmdl/wpc-tmdl-progress.htm

Other TMDLs:

The U.S. Environmental Protection Agency approved a TMDL for zinc in 2006.

At the time of this writing, a TMDL to address bacteria (*E. coli*) in Turkey Creek is being developed as part of a larger TMDL plan for the Spring River watershed.

Description of the Problem

A water body is considered impaired when it fails to meet applicable water quality standards. Water quality standards consist of designated uses, water quality criteria, an antidegradation policy and implementation procedures. Turkey Creek and its tributaries are impaired due to exceedances of state water quality criteria that protect aquatic life designated uses.

Designated uses of Turkey Creek and its tributaries*

Warm Water Habitat (WWH)	Human Health Protection (HHP)
Whole Body Contact Recreation A (WBC-A) (Water body 3217 only)	Irrigation (IRR)
Whole Body Contact Recreation B (WBC-B) (Water body 3216 and tributaries)	Livestock and Wildlife Protection (LWP)
Secondary Contact Recreation (SCR)	

*In addition to these specific uses, all waters of the state are protected by the general water quality criteria that are specified in the state's Water Quality Standards at 10 CSR 20-7.031(4).

Designated uses that are impaired

- Warm Water Habitat (WWH)
- General Criteria

Criteria that apply

- Missouri Water Quality Standards found in 10 CSR 20-7.031(5)(B)1 state:
Water contaminants shall not cause the criteria in Tables A and B to be exceeded. Concentrations of these substances in bottom sediments or waters shall not harm benthic organisms and shall not accumulate through the food chain in harmful concentrations, nor shall state and federal maximum fish tissue levels for fish consumption be exceeded.
- Table A of the Water Quality Standards contains dissolved metals criteria for the protection of aquatic life designated use. These criteria are hardness dependent and are calculated from the formulas provided in Table A.
- Missouri streams are also protected by the general criteria found at 10 CSR 20-7.031(4). The particular general criteria that apply to Turkey Creek and its tributaries 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.
- Missouri has no criteria for metals in sediment. Likewise, the U.S. Environmental Protection Agency has not yet established federal guidelines for toxic chemicals in stream or lake sediments. In lieu of such criteria, Probable Effect Concentrations, or PECs, suggested by McDonald, et. al¹, are used. PECs are the concentrations at which some toxic effect on aquatic life is likely.

Assessment and water quality data

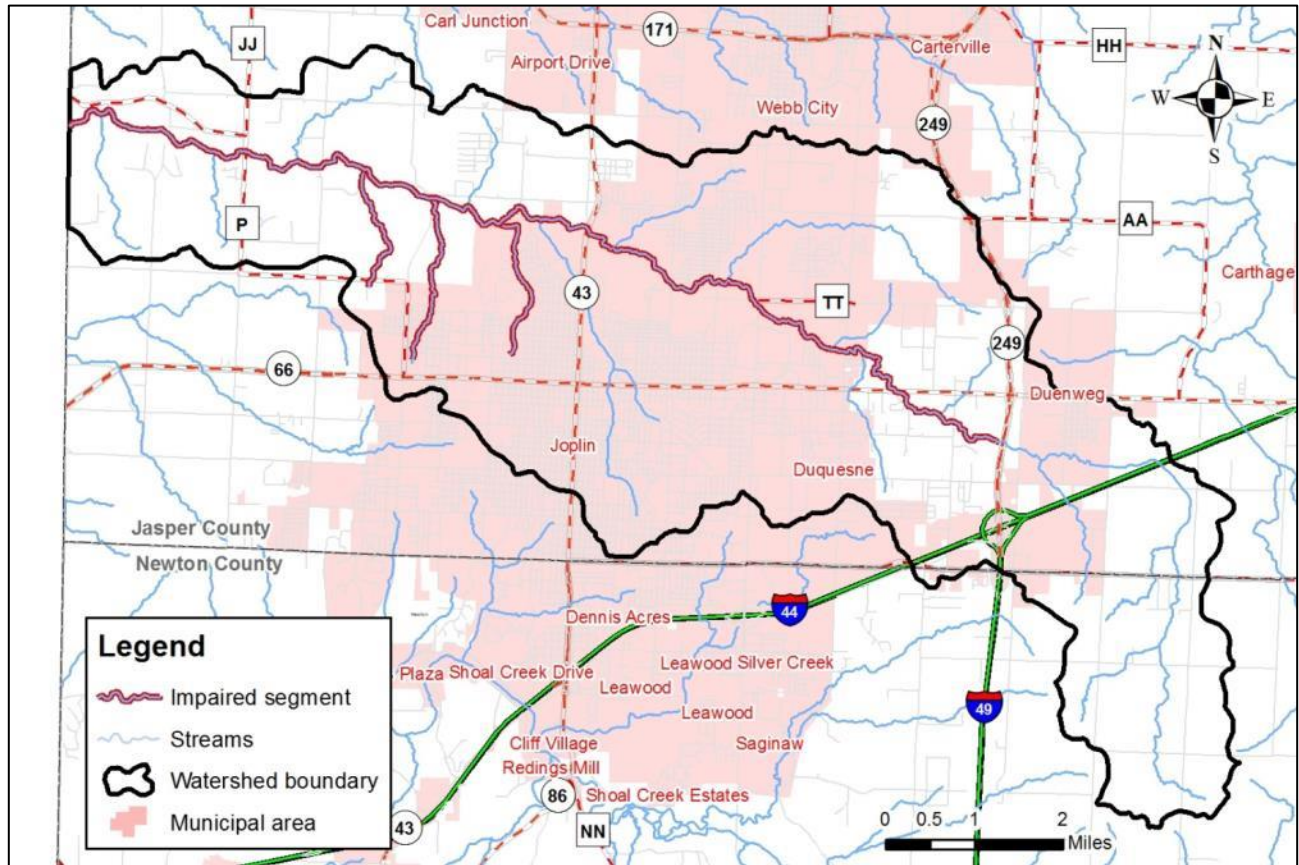
For toxics such as cadmium, lead and zinc, the department judges a stream to be impaired if there is more than one exceedance of the water quality criteria in any of the last three years of available data during stable flow conditions. For metals in sediment, the department judges a stream to be impaired if the recommended PEC values are exceeded by 150 percent or more. The department's listing methodology document and assessment worksheets are available online at dnr.mo.gov/env/wpp/waterquality/303d.htm.

TMDLs for Turkey Creek

The Turkey Creek TMDL will calculate the maximum amount of each listed pollutant that the streams can receive and still meet water quality standards. The TMDL will also identify all potential or suspected pollutant sources in the watershed and distribute the allowable pollutant loads among those various sources. When developed, the Turkey Creek TMDL will use the most current and available data. For this reason, the final TMDL may present information that differs from that contained in this information sheet.

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

Map of the Turkey Creek watershed



For more information call or write:

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