

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Sandy Creek

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#### Water Body Segment at a Glance:

|                           |                        |
|---------------------------|------------------------|
| <b>County:</b>            | Putnam                 |
| <b>Nearby cities:</b>     | Livonia and Unionville |
| <b>Length of segment:</b> | 3.0 miles              |
| <b>Pollutants:</b>        | Unknown                |
| <b>Source:</b>            | Not stated             |
| <b>Water body ID:</b>     | 0652                   |



State Map Showing Location of Watershed

**Scheduled for TMDL Development:** Established by EPA 2010

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#### Description of the Problem

##### Beneficial uses of Sandy Creek

- Livestock and wildlife watering
- Protection of warm water aquatic life
- Protection of human health (fish consumption)
- Whole body contact recreation

##### Use that is impaired

- Protection of warm water aquatic life

##### Standards that apply

All water bodies in Missouri are protected by the general (narrative) criteria contained in Missouri's Water Quality Standards, 10 CSR20-7.031(3). These criteria do not contain specific numerical limits, but provide conditions that are applicable to all waters of the state at all times. Some points from this rule that apply to Sandy Creek are (3)(A), (D) and (G):

- Waters shall be free from substances in sufficient amounts to cause the formation of putrescent, unsightly or harmful bottom deposits or prevent full maintenance of beneficial uses.
- Waters shall be free from substances or conditions in sufficient amounts to result in toxicity to human, animal or aquatic life.
- Waters shall be free from physical, chemical or hydrologic changes that would impair the natural biological community.

Additionally, recent water quality sampling completed on Sandy Creek show exceedances of the states numeric criterion for dissolved iron, which is 1,000 micrograms per liter, or µg/L. This criterion is found in Table A of Missouri’s water quality standards, 10 CSR20-7.031.

**Background Information and Water Quality Data**

Sandy Creek is one of ten streams originally listed by the U.S. Environmental Protection Agency, or EPA, for inclusion on the Missouri 2002 303(d) list for an impairment caused by unknown pollutants and sources. Specific reasons cited for these listings of Sandy Creek include observations of rocks darkened by manganese, (indicating periods of low dissolved oxygen) and elevated specific conductance measurements (indicating the presence of excessive dissolved minerals).

In fall 2007 and spring 2008, the department completed a biological habitat assessment survey, to determine if an impairment of Sandy Creek’s aquatic community does indeed exist. The survey compared species and numbers of aquatic macroinvertebrates (animals without backbones that can be seen without magnification) from Sandy Creek to the aquatic macroinvertebrate communities of ecologically similar reference streams. With the information collected from the surveys, scores were assigned to determine impairment (see Table 1). Scores of 16 or more are considered to reflect an unimpaired macroinvertebrate community while scores less than 16 show an impaired condition.

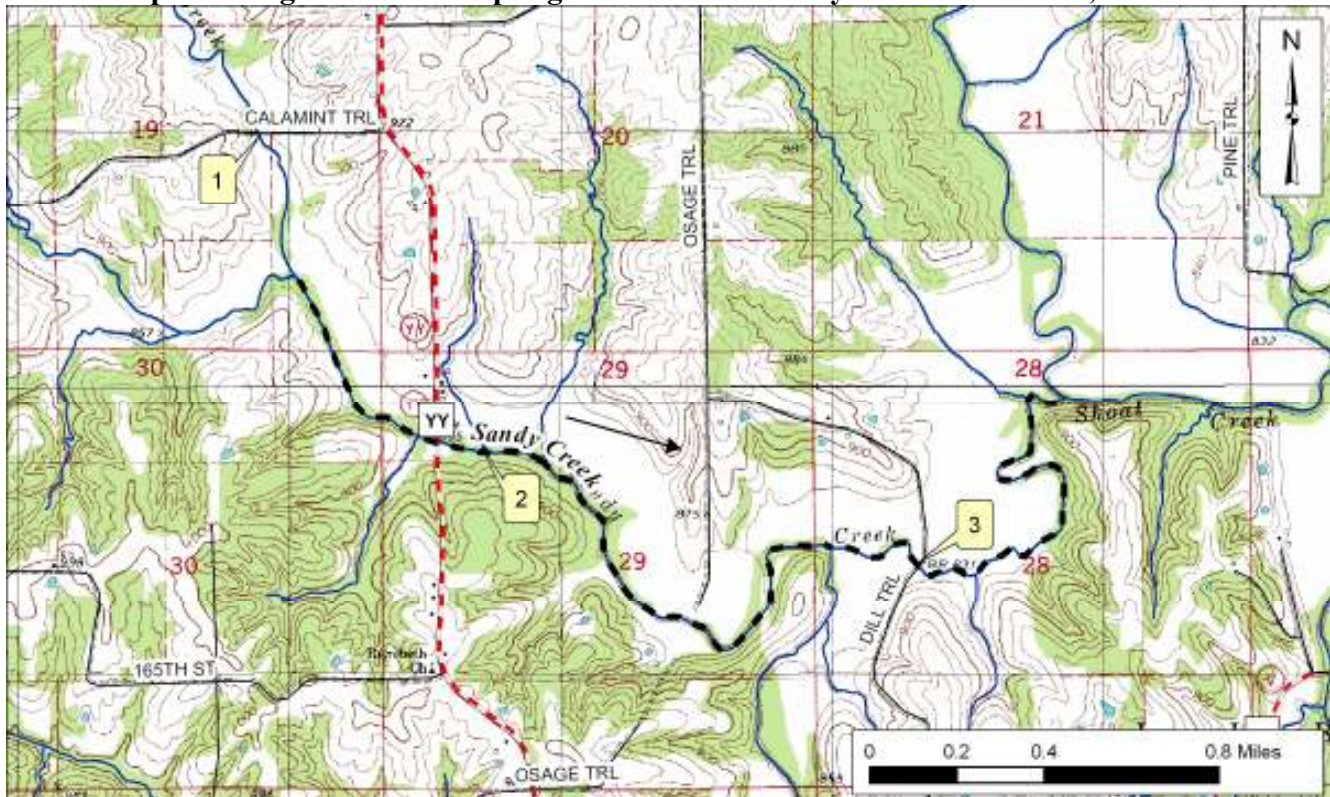
**Table 1. Sandy Creek Macroinvertebrate Scores**

| Site | Site Description         | Sampling Date | Score |
|------|--------------------------|---------------|-------|
| 1    | Calamint Trail crossing  | Fall 2007     | 12    |
| 2    | Downstream of Highway YY | Fall 2007     | 14    |
| 1    | Calamint Trail crossing  | Spring 2008   | 12    |
| 2    | Downstream of Highway YY | Spring 2008   | 14    |

Table 1, shows that scores from all sampling dates and locations are less than 16, thus indicating an impairment. In fall 2009 and spring 2010, the EPA conducted water sampling and testing to determine what pollutants are contributing to the impairment. The results of these additional samples showed high amounts of sedimentation and exceedances of the states water quality criterion for dissolved iron, which is 1,000 µg/L. For these reasons, a TMDL is being established by EPA with targets for total suspended solids and dissolved lead. See the map on the following page for sampling sites.

The EPA established TMDLs for this water body on Dec. 20, 2010.

## Impaired Segment and Sampling Locations for Sandy Creek in Putnam, Missouri



--- Impaired Segment      → Direction of flow

### Sample Site Index for Sandy Creek

- 1 – Calamint Trail crossing
- 2 – Downstream of Highway YY
- 3 – Dill Trail crossing

### For more information call or write:

Missouri Department of Natural Resources

Water Protection Program

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