

Missouri Department of Natural Resources
Total Maximum Daily Load Information Sheet

Stockton Branch

Water Body Segment at a Glance:

County: Cedar
Nearby Cities: Stockton
Pollutant: Low Dissolved Oxygen
Length of impaired segment: 5 miles
Source: Stockton Wastewater Treatment Plant (WWTP)
Water Body ID: 1361



State map showing location of watershed

Scheduled for TMDL Development: 2016

Prior TMDL: A permit-in-lieu of a TMDL for VSS was accepted by EPA in 2005

Description of the Problem

Designated beneficial uses of Stockton Branch

- Livestock and Wildlife Watering
- Protection of Warm Water Aquatic Life
- Protection of Human Health (Fish Consumption)

Use that is impaired

- Protection of Warm Water Aquatic Life

Standards that apply

- In Missouri's n Water Quality Standards found in 10 CSR 20-7.031 Table A, the criterion for dissolved oxygen, or DO, in streams is a minimum of 5 mg/L (milligrams per liter or parts per million).

Background information and water quality data

History and VSS:

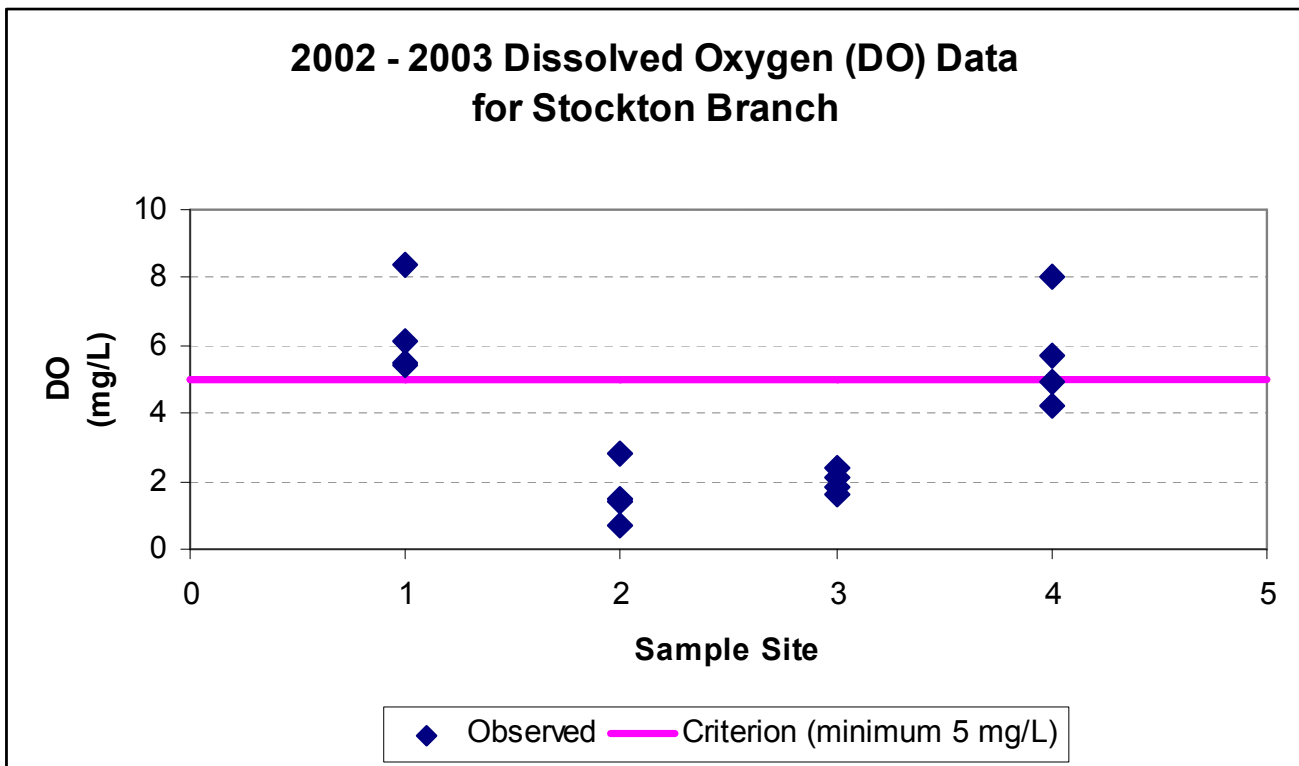
Stockton Branch flows north out of the town of Stockton in Cedar County, Mo. In a stream survey by the department in 1993, Stockton Branch showed excessive suspended algae, excessive deposition of solids and reduced diversity of aquatic invertebrates (like crayfish and water insects) downstream from the Stockton Wastewater Treatment Plant, or WWTP. Volatile suspended solids, also known as organic sediment, refer to particles that are suspended in water, like algae, or those that settle out, like sewage sludge. Suspended algae contribute to water quality problems. Besides being unsightly and smelly, they block sunlight in the stream and reduce dissolved oxygen in the water. Many aquatic organisms require high levels of oxygen to survive. In addition, these solids can settle onto the

streambeds where they smother natural substrates (stream bottom), aquatic invertebrate animals (like crayfish and water insects) and fish eggs.

Like all wastewater discharges in Missouri, the Stockton WWTP has to meet the requirements of a discharge permit issued by Missouri Department of Natural Resources. The city upgraded their wastewater treatment program in 2002-3, but part of their new construction was destroyed when a tornado struck Stockton in the spring of 2003. The city had to reconstruct the damaged parts and their “new” operating permit was reissued March 10, 2005. The U.S. Environmental Protection Agency accepted the permit-in-lieu of a TMDL on June 16, 2005.

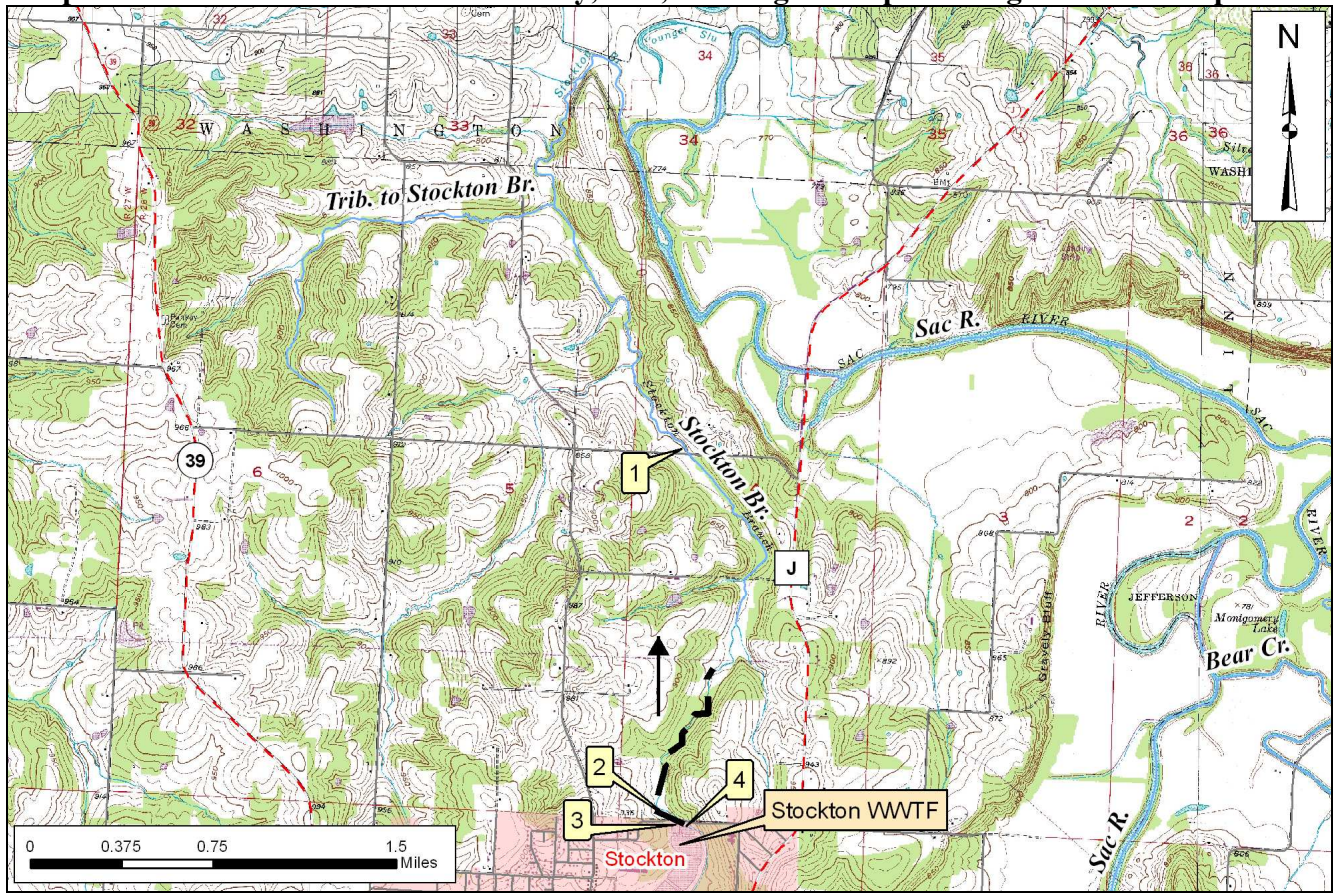
Low dissolved oxygen:

The low dissolved impairment is based on water quality data gathered by the department through a study of Stockton Branch in 2002-03. It showed that the water in Stockton Branch was low in DO and therefore not protective of aquatic life. Dissolved oxygen is important for aquatic organisms to survive. For dissolved oxygen, if more than 10 percent of measurements in a water body fail to meet the water quality criterion, that water body is judged to be impaired. In the case of Stockton Branch, six of 12 samples (50 percent) did not meet the water quality criterion (Figure 1). The department gathered additional data in 2009. Sixteen of the 17 samples were above the criterion of 5 mg/L and the 17th was at the criterion. The department will request Stockton Branch be delisted from the 303(d) List at the next opportunity.



A map of Stockton Branch showing the sampling sites is on the next page.

Map of Stockton Branch in Cedar County, Mo., showing the impaired segment and sample sites



--- Impaired Segment → Direction of Flow

- Sample Sites**
- 1 – Stockton Br. 1.7 miles below WWTF*
 - 2 – Stockton Br. 40 yards below WWTF
 - 3 – Stockton WWTP effluent
 - 4 – Stockton Br. 0.1 mi ab. WWTF

*WWTF = wastewater treatment facility

For more information call or write:
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