

Missouri Department of Natural Resources

## Total Maximum Daily Load Information Sheet

### Long Branch

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#### Water Body Segment at a Glance:

<b>County(ies):</b>	Pettis and Johnson
<b>Nearby cities:</b>	Knob Noster
<b>Length of segment:</b>	4.5 miles
<b>Pollutants:</b>	Unknown
<b>Source:</b>	Not stated
<b>Water body ID:</b>	857



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

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#### Description of the Problem

##### Designated Beneficial uses of Long Branch

- 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 (WQS), 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 may apply to Long Branch 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.

### **Background information and water quality data**

Long Branch 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 Long Branch include observations of low biodiversity, significant amounts of filamentous algae, and elevated specific conductance measurements (indicating the presence of excessive dissolved minerals).

A biological assessment survey to determine if an impairment of Long Branch does indeed exist was completed in fall 2007 and spring 2008. The survey compared species and numbers of aquatic macroinvertebrates (animals without backbones and can be seen without magnification) from Long Branch 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.

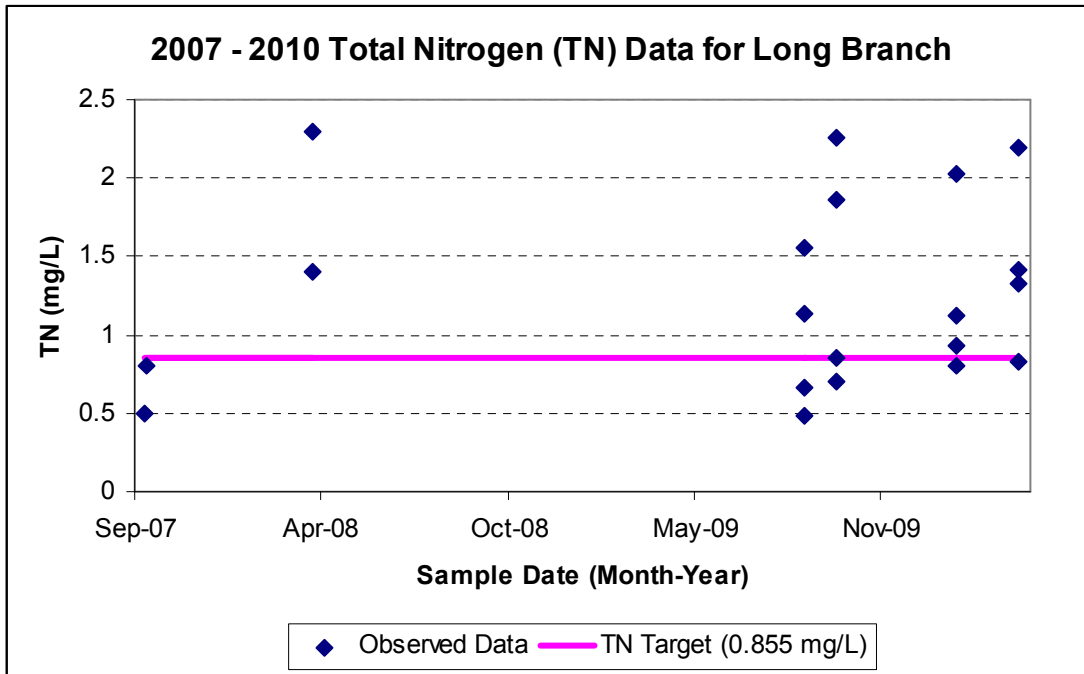
**Table 1. Long Branch Macroinvertebrate Scores**

<b>Site</b>	<b>Site Description</b>	<b>Sampling Date</b>	<b>Score</b>
2	Whiteman AFB rd crossing	Fall 2007	10
2	Whiteman AFB rd crossing	Spring 2008	12
4	Thompson Road crossing	Fall 2007	16
4	Thompson Road crossing	Spring 2008	10

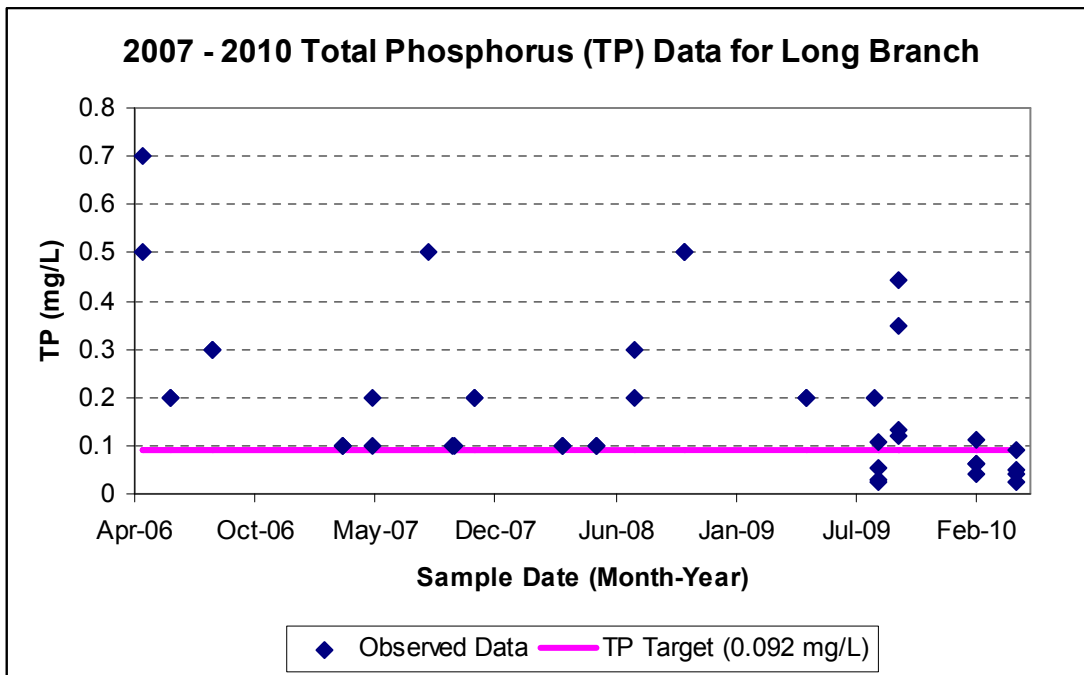
In order to determine the pollutant or pollutants causing the impairment, EPA conducted additional water quality testing in the summer, fall, and winter of 2009 as well as spring 2010. Due to Long Branch's proximity to the Whiteman Air Force base and the Johnson County Egg Farm, tests for commonly used airport chemicals, as well as various nutrients, were included. See the map on the last page for locations of sampling sites.

Sampling results show high levels of nutrients and excessive sedimentation in Long Branch. For these reasons, TMDLs will be developed for total suspended solids, total nitrogen and total phosphorus. Missouri does not have numeric criteria for these pollutants, therefore nutrient targets will be based on EPA-recommended Ecoregion 40 criteria, which are 0.855 mg/L for total nitrogen and 0.092 mg/L for total phosphorus. The total suspended solids TMDL target will be based on targeting the 25<sup>th</sup> percentile of total suspended solids data collected within the geographical region in which Long Branch is located. The resulting total suspended solids target is 17 mg/L. Figures 1 through 3 summarize these data.

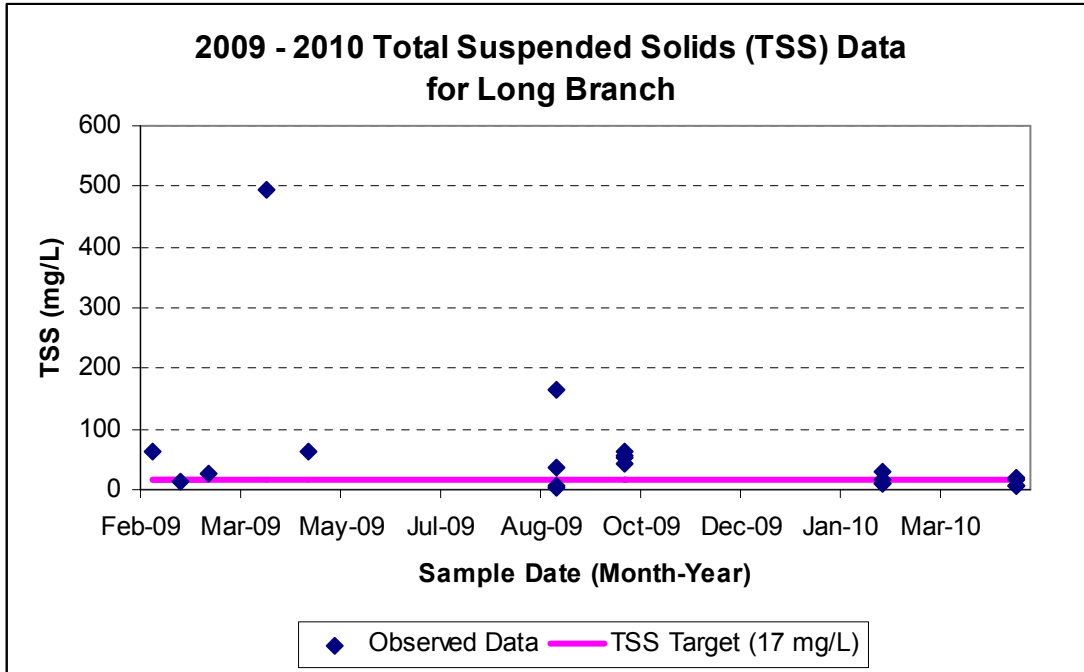
The TMDL was established by EPA on Dec. 20, 2010.



**Figure 1.**



**Figure 2.**



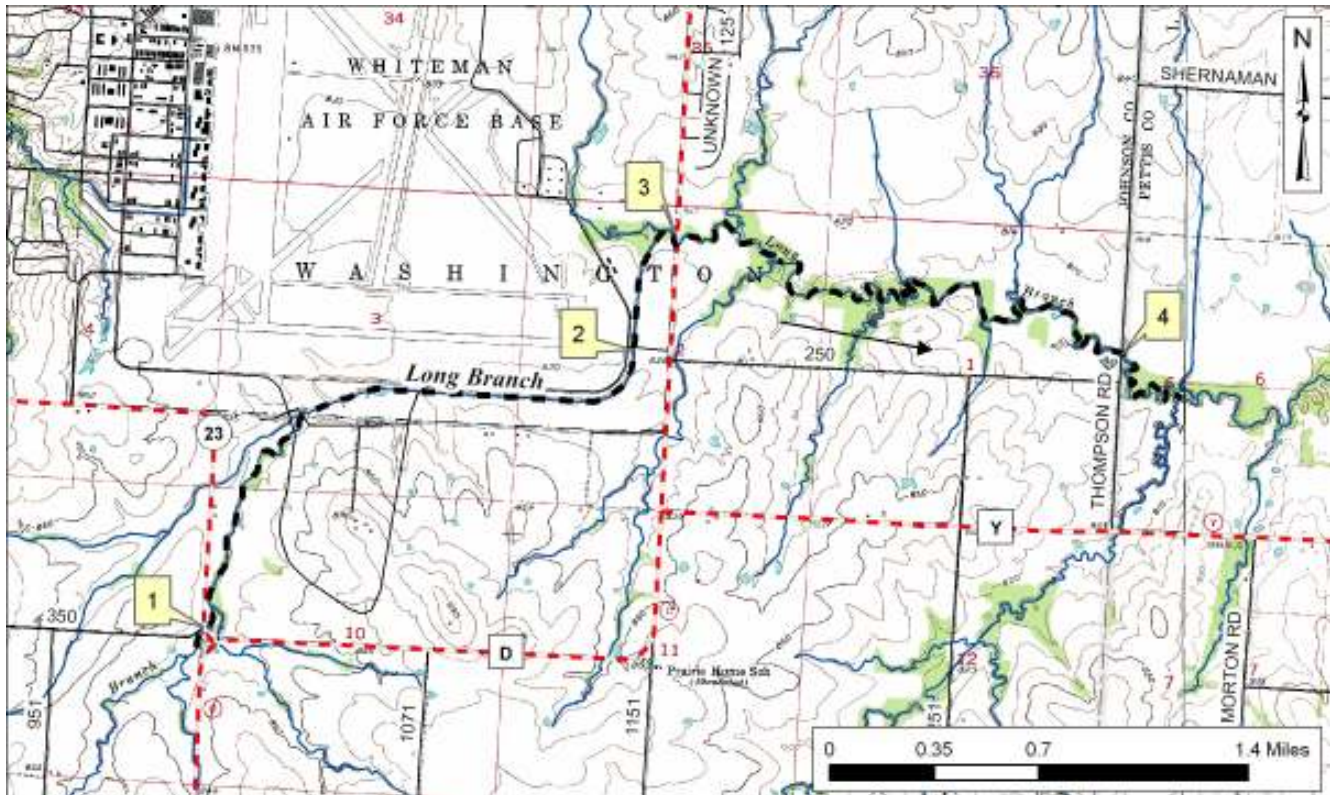
**Figure 3.**

Four sampling sites were used to collect the data presented in the preceding figures and are presented below. A map on the following page shows the locations of these sites.

**Sample Sites for Long Branch**

- 1 – Highway 23 crossing
- 2 – Whiteman Air Force Base road crossing
- 3 – Highway D crossing
- 4 – Thompson Road crossing

## Impaired Segment and Sampling Locations for Long Branch in Pettis and Johnson Counties



----- Impaired Segment      —————> Direction of flow

**For more information call or write:**  
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