

Mooser Creek: South Haven Data Report

SE NE SW
Section 33-19N-12E
Tulsa County
Latitude N 36° 4' 50"
Longitude W 96° 2' 15"
WBID OK 120420-01-007P

Blue Thumb Volunteer Monitoring Data Review - December 7, 2006

Description of Watershed and Monitoring Site:

Mooser Creek: South Haven is a stream that is located primarily in the southwest portion of Tulsa in northeast Oklahoma. It flows from west to east through an urban area of the city of Tulsa and joins the Arkansas River. The land use in the upper reaches of the watershed is primarily industrial and commercial. The lower reaches are low to moderate income residential. Mooser Creek is in the Cross Timbers ecoregion in the Arkansas River watershed. The monitoring site is located at a bridge where South Haven crosses the creek in an older, established, low income residential area. The stream is narrow and susceptible to very low flows during the winter and summer months.

Stream Condition & Habitat Overview

This stream was compared to reference streams in the ecoregion that were known to be high quality. The habitat of Mooser Creek above the bridge was better than reference conditions. Except for the lower reach where the stream banks are mowed to water's edge, the banks are fairly stable with thick vegetation and tree coverage. The habitat is fairly healthy. Most of the channel is not altered by humans. The water is clear and the bottom is rocky. It is a low flow stream and has low sinuosity. The lower portion of the stream flows through South Haven public housing project. Most of the creek is ankle deep, with the deepest parts being around 0.5 meter (knee deep.) Out of the sampling length of 400 meters, over 70% of the stream was pooled, 8% was run and 21% was riffle.

Biological Conditions

Fish

The fish community is poor. In both fish collections, conducted in 1998 and 2003, only 3 species of fish were found (19 species is the average in the high quality reference conditions.) In addition, the numbers of fish were low. The 2003 collection had 36 individuals compared with 594 individuals in reference conditions. Pollution tolerant fish species were dominant (red shiner and green sunfish) with one species found of

intermediate tolerance (central stoneroller). Metric calculations indicate that the 2003 collection from Mooser Creek is 36% of the quality of an average high quality Cross Timbers ecoregion stream. The condition gets an E - rating on a scale of A to E for biological sampling.

Benthic Macroinvertebrates (bugs)

Macroinvertebrate collections were attempted in the winter and summer index periods, but the flow at this site is very low and only one summer collection was procured in 2003. Metric calculations indicate that this collection was 27% as good as reference conditions. It was missing the Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) that are more sensitive than any other groups.

Winter collections were made every year except 2003. They were better than the summer collection with limited numbers of the sensitive EPT taxa. Metric calculations show that the average winter collection at Mooser Creek is 54% of reference conditions.

Bacteria Testing

Water from Mooser Creek was tested for Bacteria during the months of May through September. The scores on *Escherichia coli* were very high. Of the 22 data points gathered, 6 were greater than or equal to 2400 colonies per 100 mL. Six additional data points were less than 2400 but greater than 1000 colonies per 100 mL. The source of the bacteria is unknown.

Chemical Testing

Chemical data were collected monthly between 7/1/2001 and 11/19/2005.

DO Dissolved oxygen saturation shows when there are problems with the amount of oxygen available in the water for aquatic life. Too little or too much are indicators of problems. Chemical data show that the level of dissolved oxygen at Mooser Creek was in the ideal range only 7% of the time, was at a critically low level 36% of the time, and below ideal 75% of the time. These levels of oxygen may have been caused by the low flow levels in the creek.

Ph Ph was consistently in a normal range.

Nitrogen An estimate of soluble nitrogen is made by adding the amounts of ammonia-nitrogen and nitrate/nitrite-nitrogen found in the water. Levels of soluble nitrogen were very low except on 7/11/2003 when it was 0.9 mg/L and in August, September and October 1995 when the levels were near 1.0 mg/L N.

Phosphorus Orthophosphate - Phosphorus has been very low with average concentrations below 0.05 mg/L P except for the summer of 2003. On 7/11/2003 the result was 1.667 mg/L P.

Chloride Chloride levels at Mooser Creek are normal with spikes during ice and snow events.

Except for pathogens, chemical results for the parameters analyzed do not represent a threat to the stream.

Synopsis

Mooser Creek at South Haven is a typical urban stream with a fairly healthy habitat and a moderately healthy macroinvertebrate community. However, it is showing signs of degradation. Each of the two fish collections had small numbers of individuals and small numbers of taxa that are predominantly tolerant to poor water quality. There appears to be a problem with *E. coli*. This site is in the upper reaches of the watershed and limited amounts of flow may be affecting the biological community.