

Mill Creek: McClure Park

SW SW SE

Section 2-19N-13E

Tulsa County

Latitude: N 36° 08' 58.1"

Longitude: W 95° 53' 38.0"

WBID#: OK121300-01-0050G

Blue Thumb Volunteer Monitoring Data Review – 2 February 2009

Written by:

Description of the Watershed and Monitoring Site

The watershed of Mill Creek includes around four square miles of urban Tulsa. Land use within the watershed is a mixture of residential and commercial with the headwaters located at the eastern edge of the city fairgrounds. A large water park and shopping center are located directly over the creek near these headwaters. The stream runs east-northeast from its origin until contributing to Mingo Creek near 11th Street and Mingo Road. The creek is located in the Central Irregular Plains ecoregion.

Stream Condition and Habitat Overview

Contributions to the stream come from a decidedly urban area with a high concentration of residential areas with large amounts of pavement and landscaped vegetation. Much of the channel is located underground with flow coming in from storm-water drainage. The portion of Mill Creek that is monitored passes through McClure Park, an urban green space surrounded by neighborhoods and commercial land use. The park is maintained regularly up to the edge of the water, eliminating riparian vegetation for this segment of the stream. The creek has also been transformed into a largely straight channel with banks reinforced by large limestone blocks and very little vegetation stability. Tree cover is sparse near the actual stream with any trees within the park contributing little to the shading of the creek. Walking paths line the stream on either side in segments and pedestrian bridges span the creek at a few points.

The stream substrate consists of moderate amounts of sedimentation throughout and flat rock in areas. Pool variability in the monitoring area is very low with pool substrate consisting of moderate sedimentation underlain with flat rock. Flow through the stream is generally low under normal conditions. Instream cover is generally moderate, consisting of cobble sized rocks or larger near the banks and a low concentration of in stream vegetation. Rocky runs and riffles in the stream are also moderate in number.

This habitat has been evaluated three times with assessment points totaling 52.3, 79 and 51.6 in 1998, 2002 and 2007 respectively. The reference average for this ecoregion is 86.8 and the assessment of 2002 is suspect because of the use of a different form than that used for the other two assessments.

Biological Conditions

Fish

Fish were collected from the creek on three occasions. On June 5, 1998, August 19, 2002 and July 23, 2007 the total number of species collected were 2, 1 and 3 respectively. The reference average for the Central Irregular Plains ecoregion is 86.8. Species collected for the creek on the three occasions included the green, bluegill and longear sunfish. 2007 was the only year when all three species documented with green and longear sunfish being found in 1998 and only the green sunfish found in 2002. On all three occasions there were no sensitive benthic species or intolerant species found compared to 6 and 3 respectively for the ecoregion's reference average. The total metric scores for the site were 8, 6 and 8 for the sampling years in succession, only 36% of the reference condition for the metric scores of 8 and 27% of the reference for a score of 6. The scores of all three cases gave a stream condition rating of "E". Characteristics of an "E" grade stream are "Few species and individuals present; tolerant species dominant; diseased fish frequent."

The average total number of fish collected under reference conditions for the Central Irregular Plains ecoregion is 555. Only one of the three collection events found a number of fish approaching this given standard. The number of fish collected for the June, 1998 event totaled 391 with a steep drop in population in the following collections. During the period between 1998 and 2002 there was a documented fish kill event that reduced diversity and collection totals by very large numbers. This drop from 391 fish collected to 6 during the following event is a striking measurement of the magnitude with which a contamination can reduce fish populations.

Benthic Macroinvertebrates (bugs)

Bacteria Testing

Chemical Testing

Synopsis