

Mooser Creek: Pepsi
NE SW NE Section 35-19N-12E
Tulsa County
Lat N 36° 05' 8.1"
Long W 95° 59' 56.8"
WBID#: OK 120420-010070B

Mooser Creek is in the city of Tulsa and flows east from the Turner Turnpike to the Arkansas River. The north side of the creek is highly populated with commercial properties, industrial businesses and a few residential homes. The south side of the creek is mostly undeveloped and is a natural habitat. The site on Mooser Creek is behind the Pepsi bottling plant at the end of Lawton Avenue under an abandoned bridge. There is always water, though at times it is pooled or very low flow. There is a quite a diversity of wildlife due to natural habitat to the south of the creek. Mooser Creek is in both the Central Irregular Plains and Cross Timbers ecoregions, but most of the watershed is in the Cross Timbers ecoregion.

Habitat assessments were conducted on November 7, 1997, and on August 6, 2003, to help assess the creek's health from a biological point of view. Mooser Creek has good pool variability with both deep and shallow pools, canopy cover shading from trees hanging over the water to help keep it cooler, and streamside cover. There is little channel alteration with very little sediment in the streambed. It has a moderate amount of instream cover needed by the fish and macroinvertebrates, the pool bottom substrate is stable, there are rocky runs and riffles, and banks are quite stable. Mooser Creek has low flow, is not very sinuous, and bank vegetation is limited. Some of this is because there are beautiful rock bluffs on the south side of the creek. The habitat in Mooser Creek is better than the average Cross Timbers high quality reference site.

Fish were collected from a 400 meter reach of Mooser Creek on August 6, 2003, the same day as the habitat assessment. There were 247 individuals of 11 species of fish including 5 different species of sunfish: green sunfish, bluegill sunfish, longear sunfish, spotted bass and largemouth bass. Most of the species collected are tolerant, though the spotted bass and central stoneroller have an intermediate tolerance value. The collection is missing darters and other sensitive benthic species and insectivorous cyprinids (the dominant minnows in North American streams that disappear as the quality of the food base deteriorates.) The fish collection at Mooser Creek is only 55% of the collection expected from average high quality Cross Timbers reference conditions.

Benthic macroinvertebrates have been collected in winter and summer index periods since the summer of 2000. There was no flow during the summers of 2001 and 2002 so there were no collections. The summer 2004 collection did not pass quality assurance

requirements: it has been re-picked but the results are not yet back. When compared with the average high quality reference conditions for the ecoregion, both summer and winter collections show reduced numbers of taxa, especially the Ephemeroptera (mayflies), Plecoptera (stoneflies) and Trichoptera (caddisflies) which are more sensitive to pollution than any other groups. Mooser Creek gets a rating of B for both summer and winter macroinvertebrate collections.

Water chemistry has been tested monthly since the summer of 2001. Mooser Creek has chronic problems with low levels of dissolved oxygen (the amount of oxygen available in the water for aquatic life) which has been less than 50% saturation 18% of the time and less than 80% saturation 61% of the time. There are very low levels of nutrients in the water. The soluble nitrogen has never been significant. The orthophosphate phosphorus has been above 0.1 mg/L three times: 0.107 mg/L on 3/28/2003, 0.12 mg/L on 10/28/2004 and 0.13 mg/L on 6/28/2005. The chloride spikes during the winter when there is ice and snow on the roads.

Mooser Creek is an urban stream with commercial and industrial landuses on the north side of the creek and a natural habitat on the south side of the creek. The habitat in the creek is excellent, better than reference conditions for the ecoregion. The biological collections show a stream in trouble. The fish collection is only 55% of what would be expected for the habitat and the lack of insectivorous cyprinids may indicate a deteriorating foodbase, though chemical testing indicates a chronic problem with enough oxygen available in the water for aquatic life. Benthic macroinvertebrate collections indicate a loss of the most sensitive groups, also indicating deteriorating water quality. It may be that we are documenting the effects of very low flow due to drought conditions in the watershed.