

# **Little Sandy Creek: Chamber Loop**

SW SE SE Section 28-4N-6E

Pontotoc County

Latitude N 34° 46' 58.7"

Longitude W 96° 40' 20.9"

WBID#: OK520600-03-0020W

Blue Thumb Volunteer Monitoring Data Review – 5 November 2007

Written by: Ambrie Walker

## **Description of Watershed and Monitoring Site:**

Little Sandy Creek is located in southeast Oklahoma in the City of Ada. The creek flows northeast from the headwaters in downtown Ada. The monitoring site is on the Chickasaw Nation Headquarters campus at the Chamber Loop Street bridge. From here Little Sandy Creek flows northeast out of the city about 3 miles then gently curves northwest to flow into Canadian Sandy Creek which empties into the Canadian River about 5.5 miles north of Ada. Little Sandy Creek is in the Cross Timbers ecoregion.

## **Stream Condition & Habitat Overview**

The physical habitat of Little Sandy Creek at Chamber Loop Street was assessed on August 20, 2006 for 400 meters starting from the bridge and going downstream. The first third of this section had been scraped of trees and a dam recently constructed to slow the flow for a construction project. The remaining part of the section was more natural and tree lined creating a shady canopy over the creek to help cool the water. These trees also help protect the banks from eroding, reducing the sediment load into the creek. Little Sandy in general is a very shallow creek but there were a couple of moderately deep pools. Instream and streamside cover such as grasses, woody debris and rocks were present in moderation to supply habitat and be a food source for fish and aquatic insects. There is very little flow and the bottom of the creek is quite sandy making it an unstable habitat for fish to spawn. Since this habitat assessment, the rest of the 400 meter section has drastically been transformed; all the trees have been removed, banks covered with cement rock and the creek in general has been straightened. All of these factors will hamper the development and overall health of the stream.

## **Biological Conditions**

### **Fish**

Fish were collected on August 20, 2006 for the entire 400 meter section. Only 2 species of fish (mosquito fish and black bullhead catfish) were collected. This is really poor when compared to an average of 19 species from high quality streams in the Cross Timbers ecoregion. Both of these species are tolerant to pollutants and sediment. This

fish collection gets the lowest score of an E due to lack of diversity and no sunfish nor sensitive species.

### **Benthic Macroinvertebrates (bugs)**

Benthic macroinvertebrates (bugs) live on the stream bottom and on debris found in the creek. They are a link in the aquatic food chain as both consumers of nutrients and food for fish. Several are intolerant of pollution or poor water quality and, as such, are good indicators of stream condition.

Bugs were collected from rocky riffles at Little Sandy Creek in the winter from 2004 to 2007 and one summer collection in 2004. (Lack of flow has prevented summer collections.) When compared to the high quality streams in the Cross Timbers ecoregion, Little Sandy Creek consistently has half as many different species. All of the winter collections contained only species that were tolerant to pollution. The summer collection contained one individual caddisfly, a *Hydroptila* of moderate sensitivity, whereas the high quality streams averaged 5 sensitive species. Little Sandy at Chamber Loop receives a low C score due to the lack of diversity, no sensitive bug population and few bug taxa represented.

### **Bacteria Testing**

Bacteria testing is performed to assess the amount of *E. Coli* and Fecal Coliform that is in the water. Little Sandy was tested for bacteria during the summer of 2007 and had high amounts of bacteria (> 6,000 CFU/100 ml *E. Coli*). People that get into the water should use caution. These types of bacteria are indicators for pathogens that could be harmful to humans.

### **Chemical Testing**

Chemical data were collected monthly between January 2004 and October 2007.

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| 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 Little Sandy Creek is in the normal range.   |
| pH       | pH is on a scale of 1 – 14 and measures the concentration of hydrogen ions. Low numbers are acidic, neutral is 7 and high numbers are basic. Little Sandy Creek is in the normal range.   |
| Nitrogen | Nitrogen is a nutrient and can be an indicator for fertilizer being overused and running off into the streams. 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 are in the cautionary levels for Little Sandy Creek. |

Phosphorus Little Sandy Creek is in a cautionary state for phosphorous levels. Phosphorous can also be an indicator of fertilizer runoff. The level at Little Sandy Creek averages 0.64 mg/L P. (The limit for Oklahoma's scenic rivers is 0.037 mg/L P.) Further investigation is needed.

Chloride Chloride is the measure of the amount of salts in a creek. Little Sandy Creek is in a normal range.

### **Synopsis**

Little Sandy Creek begins in the City of Ada and flows north eventually ending in the Canadian River. The sampling site at the Chickasaw Nation Headquarters campus has been altered greatly due to the bank stabilization technique where the trees and grasses that filter the water was removed and replaced with large cement rocks. These rocks are effective to hold the bank in place but the natural filters for the water have disappeared. This loss of natural habitat will impact the already poor fish and bug population here at Chamber Loop Street. The chemical nutrient levels are in the cautionary range and may indicate runoff from someplace. Further investigation is needed. This level of nutrients is what is supporting a large amount of algal growth here. Little Sandy Creek is a struggling creek in desperate need of some tender loving care to give it a chance to try and heal itself.