

Feather Creek: Old Hwy 51
SW SW SE
Section 9-19N-4E
Payne County
N 36° 7' 51.2"
W 96° 52' 48.7"
WBID#: OK620900-02-0060C

Blue Thumb Volunteer Monitoring Data Report - March 2012
Written by Rebecca Chavez

Description of Watershed and Monitoring Site

Feather Creek is monitored about 10 miles east of Stillwater (north central Oklahoma) where the bridge on old Hwy 51 crosses the creek. It is a 2nd order stream that begins about 4 miles southeast of Glencoe and flows south, ending in Council Creek. Feather Creek drains approximately 6 square miles of agricultural land, both farming and pasture land. Feather Creek is in the Central Great Plains ecoregion.

Stream Condition and Habitat Overview

Feather Creek has excellent stream habitat and received a score of 79.5, better than reference conditions for this ecoregion which averaged 77.6. However, it was slightly lower than the previous score of 82.2 from the August 2005 survey. The canopy cover from the trees and vegetation at the water edge of the creek is good and helps shade the water. In the creek, there is good in-stream cover (root wads, woody debris, and vegetation) with just a few rocky riffles. There is one deep pool area about 1 m deep, but the depth in the rest of the creek is about 0.5 m. The banks of Feather Creek are moderately covered with vegetation to help with bank stability, but there is an erosion problem and this sediment has collected on the bottom of the creek. This sediment along with the muddy bottom of the creek makes it a bit unstable for the fish and bugs.

Biological Conditions

Fish

Using the average of high quality reference streams in this ecoregion as the benchmark, Feather Creek ranks below average scoring 58% in 2009 and 75% in 2005. Fish were collected from Feather Creek on July 2, 2009. There were 12 different species found in both collections and the reference streams averaged 13 species. Of the 12 species, 6 were from the sunfish family. The proportion of tolerant individuals (to pollution/sediment) increased from 77% in 2005 to 90% in 2009. In 2005 there were two species of intermediate tolerance (central stoneroller, redear sunfish) and one intolerant specie (suckermouth minnow) while there was only one intermediately tolerant species found (redear sunfish) in 2009. There were no sensitive benthic species found in either collection. Insectivorous cyprinids (minnows that eat bugs) created a very small amount of the total population in 2005 and none were found in 2009.

Benthic Macroinvertebrates (bugs)

Benthic macroinvertebrates were collected from rocky riffles in winter and summer in 2004, 2005 and 2009. Feather Creek's winter and summer collection scores surpassed the reference scores in this ecoregion. The bug populations were nicely distributed among the numerous species found, creating well balanced samples.

Chemical Conditions

Water chemistry was tested 27 times between November 19, 2003 and March 6, 2010.

Dissolved Oxygen

Oxygen saturation levels generally followed the summer/winter undulations. The amount of dissolved oxygen in the water was well within normal levels (80%-130%), with the exception of 76% on July 4, 2009 and 148% on June 24, 2005.

pH

pH ranged from 6.0 to 8.3. All data were within normal levels.

Nitrate Nitrogen

Nitrate nitrogen was consistently below the detection limits of the testing procedure except on February 6, 2010 the concentration was 1mg/L N which caused this point to be in the caution range.

Ammonia Nitrogen

Ammonia nitrogen was below detection limits for over the majority of the samples collected except for 0.10mg/L N on November 19, 2003 and 0.20 mg/L N on May 11, 2004. All readings are well within the normal range.

Orthophosphate Phosphorus

Orthophosphate readings above the normal range (0.05mg/L P) were measured 6 of the 26 times samples were analyzed. These were all from early on in the testing, since September 6, 2008 all the readings have been well within the normal range.

Chloride

Chloride levels ranged from 15mg/L Cl to 80mg/L Cl. There was no easily detectible pattern in chloride levels.

Coliforms

Samples were analyzed for E. coli and other coliforms four times between May 9, 2009 and September 5, 2009. During this time, E. coli ranged from 0-966 CFU's, and total coliforms ranged from 473-11,066 CFU's. The high E. coli measurement of 966 CFU occurred on June 6, 2009. There is a lot of wildlife in this area due to the very nice habitat and there are cattle in the watershed so nothing definitive can be said about these four readings.

Synopsis

In summary, the physical habitat of Feather Creek is better than the reference conditions. There is some erosion and sediment collecting at the bottoms of the pools, though there is good canopy

cover for shade and nice streamside vegetation. The fish collection is missing sensitive species, insectivorous cyprinid individuals, and sensitive benthic species. This is a sign that the quality of the food base is low, perhaps due to the erosion, lack of rocky riffles along with other factors. The benthic macroinvertebrates collections are excellent with nice diversity and sensitive species represented. Water chemistry indicates decreased nutrient levels over the few years analysis has been conducted. Overall, Feather Creek appears to be in good condition.