OKLAHOMA CONSERVATION COMMISSION

Rotating Basin Site Summary
Southwestern Tablelands Level 3 Ecoregion: Greer County

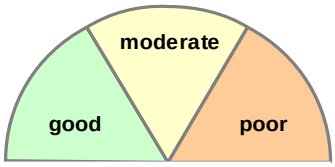
The Oklahoma Conservation Commission (OCC) has the statutory responsibility of monitoring streams across the state in order to identify healthy streams as well as those which may be impacted by non-point source (NPS) pollution. NPS pollution is pollution which runs off the land from diffuse sources rather than being discharged from a specific source. If a stream is found to be impaired by NPS pollution, the OCC may be able to implement a voluntary cost-share program to address the identified problems; however, streams must be monitored in order to select the best management practices necessary for improvement. The OCC's "Rotating Basin Monitoring Program" provides the tools to assess and then restore water quality in Oklahoma.

This leaflet gives a brief summary of the assessment results for the first cycle of the monitoring program for the only stream monitored in the Southwestern Tablelands ecoregion. The full report can be accessed online at: *http://www.ok.gov/okcc/Agency_Divisions/Water_Quality_Division/WQ_Reports/WQ_Assessment_Reports* or by calling (405) 522-4500 and requesting a copy of the "Rotating Basin Year 4 Final Report."

OCC Rotating Basin monitoring site within Southwestern Tablelands ecoregion.

Through the Rotating Basin Program, one stream in the Southwestern Tablelands ecoregion in Greer Co. was sampled approximately every five weeks from June 2004-June 2006. Nineteen water quality parameters were measured or analyzed at each site visit. In addition, OCC staff conducted one fish and habitat assessment and four macroinvertebrate collections during this time. Summer samples were also analyzed for *E. coli* and *Enterococcus* bacteria. The site was compared to "high quality" streams in the ecoregion, streams known to have high quality fish populations, benthic macroinvertebrate populations, instream and riparian habitat, and water quality. All of the data collected has been distilled into a few key components in order to produce an index score of general, overall stream health, shown on the next page.

Summary of general stream health as determined by comparison to high quality streams in the Southwestern Tablelands ecoregion and by assessment using Oklahoma State Water Quality Standards†.

	***Poor***
	Fish Creek
Overall Stream Health	**27**
Phosphorus	5
Nitrogen	5
Ammonia	5
Dissolved Oxygen	5
pH	5
Turbidity	5
Salts (chloride, sulfate, TDS)	-5
Fish	1
Macroinvertebrates	1
Instream/Riparian Habitat	5
Bacteria	-5
	Scale of 1-5 with 5 being the best

KEY: 1=significantly lower than high quality sites
5=equal to or better than high quality sites in the area
-5=impaired by state standards†

Fish Creek (OK311800-00-0130G): This stream is on the state's 303(d) list† as impaired due to high chlorides and sulfates, indicators of high mineral content, and due to high levels of bacteria, which may be associated with animal waste entering the stream. The fish community is very poor relative to high quality sites in the area. The macroinvertebrate community is moderately impaired for the ecoregion.

An earlier fish collection, performed by the OCC in 2000, had shown an excellent fish community. When the OCC saw the decline in the fish community in 2004, they worked with the Corporation Commission to investigate whether there had been any oil and gas issues in the Fish Creek watershed. Very high salts were observed in the water during the time of the newest fish collection, but the Corporation Commission did not find evidence of brine leaks. It is possible that naturally occurring high salt conditions near the stream coupled with the dry conditions may have impacted the stream and led to the extreme change in the fish community.

† The use of Oklahoma Water Quality Standards to assess streams and the 2008 results are described in the DEQ's 2008 Integrated Report, accessible online at:
http://www.deq.state.ok.us/wqdnew/305b_303d/2008_integrated_report_entire_document.pdf