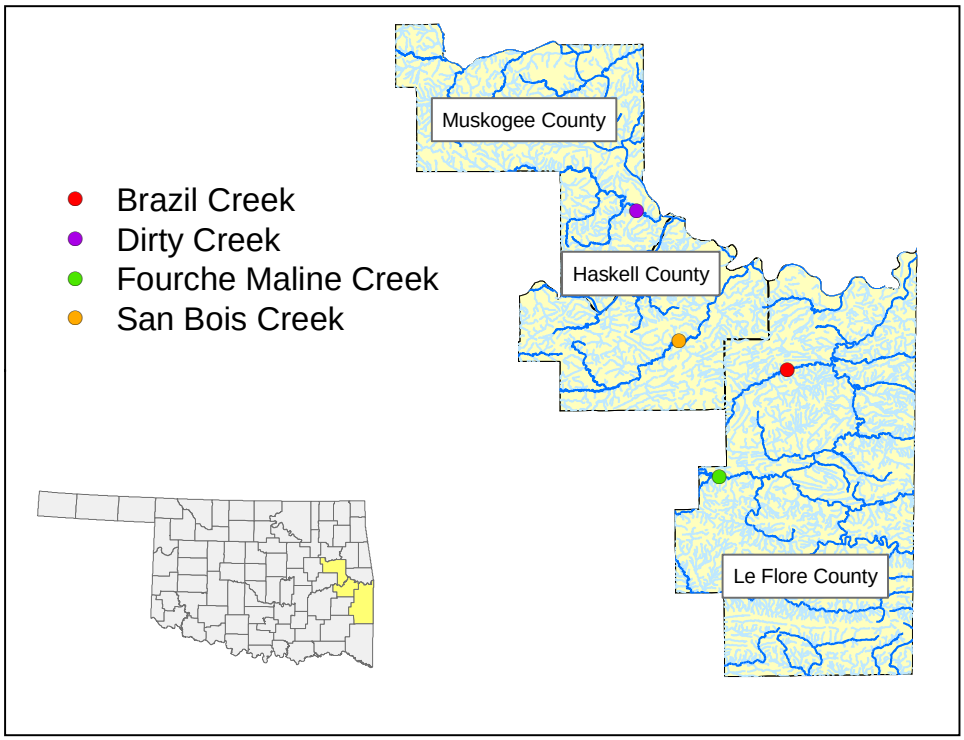
OKLAHOMA CONSERVATION COMMISSION

Know Your Stream: Rotating Basin Site Summary

Muskogee, Haskell & Le Flore Counties, Arkansas Valley Level 3 Ecoregion

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 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.

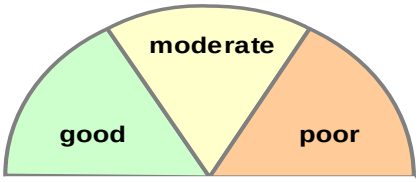
This leaflet gives a brief summary of the assessment results for the second 2-year cycle of the monitoring program for streams in Muskogee, Haskell & Le Flore Counties. The full report can be accessed online at: http://www.ok.gov/conservation/Agency_Divisions/Water_Quality_Division/WQ_Monitoring/WQ_Assessment_Rotating_Basin_Monitoring_Program.html or by calling (405) 522-4500 and requesting a copy of the "Rotating Basin Group 3, Cycle 2 Final Report."



OCC Rotating Basin monitoring sites within Muskogee, Haskell & Le Flore Counties.

Through the Rotating Basin Program, four streams in Muskogee, Haskell & Le Flore Counties were sampled approximately every five weeks from June 2008-May 2010. Eighteen water quality parameters were measured or analyzed at each site visit. In addition, OCC staff conducted one fish and habitat assessment and up to four macroinvertebrate collections. Summer samples were also analyzed for *E. coli* and *Enterococcus* bacteria. Each 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 Arkansas Valley ecoregion and by assessment using Oklahoma State Water Quality Standards†.

	***Good***	***Moderate***		***Poor***
	Brazil Creek	**Dirty Creek**	**Fourche Maline Creek**	**San Bois Creek**
Overall Stream Health	**41**	**30**	**29**	**21**
Phosphorus	3	5	1	3
Nitrogen	5	5	5	5
Ammonia	5	5	5	5
Dissolved Oxygen	5	5	-5	-5
pH	5	5	5	5
Turbidity	3	5	3	5
Salts (chloride, sulfate, TDS)	5	5	5	-5
Fish	5	*	5	5
Macroinvertebrates	5	*	5	3
Instream/Riparian Habitat	5	*	5	5
Bacteria	-5	-5	-5	-5
	Scale of 1-5 with 5 being the best			

KEY: 1 = Significantly worse than high quality sites
3 = Not as good as high quality sites but not impaired
5 = Equal to or better than high quality sites
-5 = Impaired by state standards

Note: Most streams in Oklahoma are classified as impaired by at least one type of bacteria.

Brazil Creek (OK220100-03-0010G): This stream is impaired by state standards for bacteria. All other parameters are comparable to high quality streams in the ecoregion except for slightly elevated phosphorus and turbidity concentrations.

Dirty Creek (OK120400-02-0010F): This stream is impaired by state standards for bacteria. All other parameters are comparable to high quality streams in the ecoregion. ***** This site was dropped prior to fish collection & habitat assessment. Macroinvertebrate collections were also incomplete due to site being dropped.

Fourche Maline Creek (OK220100-04-0020H): This stream is impaired by state standards for bacteria and dissolved oxygen. Phosphorus levels were significantly elevated and turbidity levels were slightly elevated compared to high quality streams within the ecoregion.

San Bois Creek (OK220200-04-0010G): This stream is impaired by state standards for bacteria, dissolved oxygen and salts. Phosphorus levels were slightly elevated compared to high quality sites. The macroinvertebrate community was of slightly lower quality compared to high quality streams within the ecoregion.

† The use of Oklahoma Water Quality Standards to assess streams and the 2010 results are described in the DEQ's 2010 Integrated Report, accessible online at:
http://www.deq.state.ok.us/wqdnew/305b_303d/2010_integrated_report_entire_document.pdf