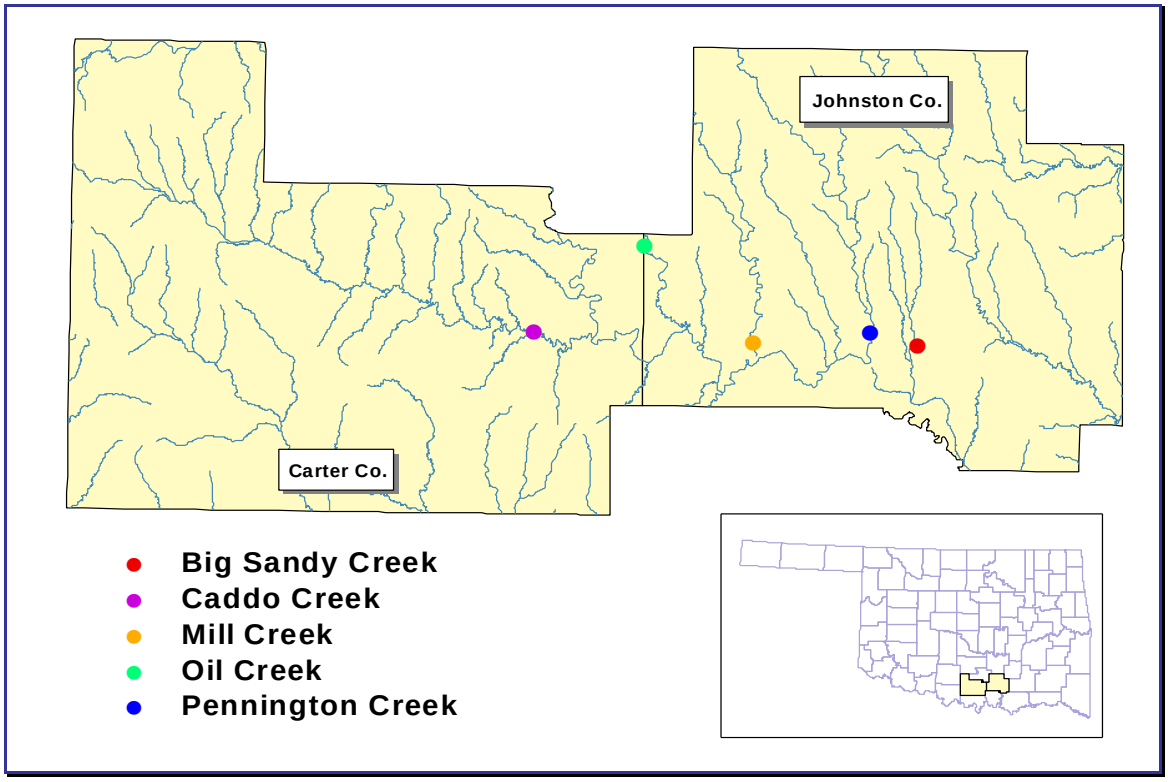
OKLAHOMA CONSERVATION COMMISSION

Rotating Basin Site Summary
Arbuckle Uplift Level 4 Ecoregion: Carter and Johnston Counties

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.

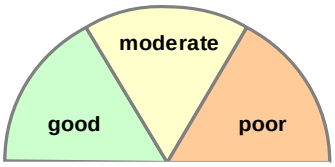
This leaflet gives a brief summary of the assessment results for the first cycle of the monitoring program for streams in Carter and Johnston Counties. The full report can be accessed online at: *http://www.ok.gov/okcc/Agency_Divisions/Water_Quality_Division/WQ_Reports/WQ_Assessment_Reports* or by calling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



OCC Rotating Basin monitoring sites within Carter and Johnston Counties.

Through the Rotating Basin Program, five streams in the Arbuckle Uplift ecoregion were 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 up to four macroinvertebrate collections during this time. 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 Arbuckle Uplift ecoregion and by assessment using Oklahoma State Water Quality Standards†.



	Good			*Moderate*	*Poor*
	Oil Creek	**Mill Creek**	**Pennington Creek**	**Big Sandy Creek**	**Caddo Creek**
Overall Stream Health	**55**	**51**	**51**	**41**	**5**
Phosphorus	5	5	5	5	1
Nitrogen	5	5	5	5	1
Ammonia	5	5	5	5	-5
Dissolved Oxygen	5	5	5	-5	5
pH	5	5	5	5	-5
Turbidity	5	1	5	5	1
Salts (chloride, sulfate, TDS)	5	5	5	5	3
Fish	5	5	5	5	5
Macroinvertebrates	5	5	5	3	3
Instream/Riparian Habitat	5	5	1	5	1
Bacteria	5	5	5	3	-5
	Scale of 1-5 with 5 being the best				

KEY: 1=significantly lower than high quality sites
3=not as good as high quality sites but not impaired
5=equal to or better than high quality sites in the area
-5=impaired by state standards

Big Sandy Creek (OK310800-01-0090G): This stream is on the state's 303(d) list† as impaired due to low dissolved oxygen. The bacteria levels were elevated but not high enough for impairment. The macroinvertebrate collections indicated "slight impairment." All other values were good.

Caddo Creek (OK310800-03-0010F): This stream is on the state's 303(d) list† as impaired for ammonia, pH, and bacteria. Significantly high levels of phosphorus and nitrogen were recorded as well. The stream also has significantly higher turbidity than high quality sites in the ecoregion and significantly poorer habitat quality. The macroinvertebrate community is slightly impaired relative to high quality sites.

Mill Creek (OK310800-01-0190G): This stream is not impaired. All values were good with the exception of turbidity, which was significantly higher than high quality streams in the ecoregion.

Oil Creek (OK310800-01-0240P): This stream is not impaired and is comparable to high quality sites in the ecoregion for all parameters.

Pennington Creek (OK310800-01-0120G): This stream is not impaired. All values were good with the exception of instream/riparian habitat, which was significantly lower than high quality sites in the ecoregion.

† 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