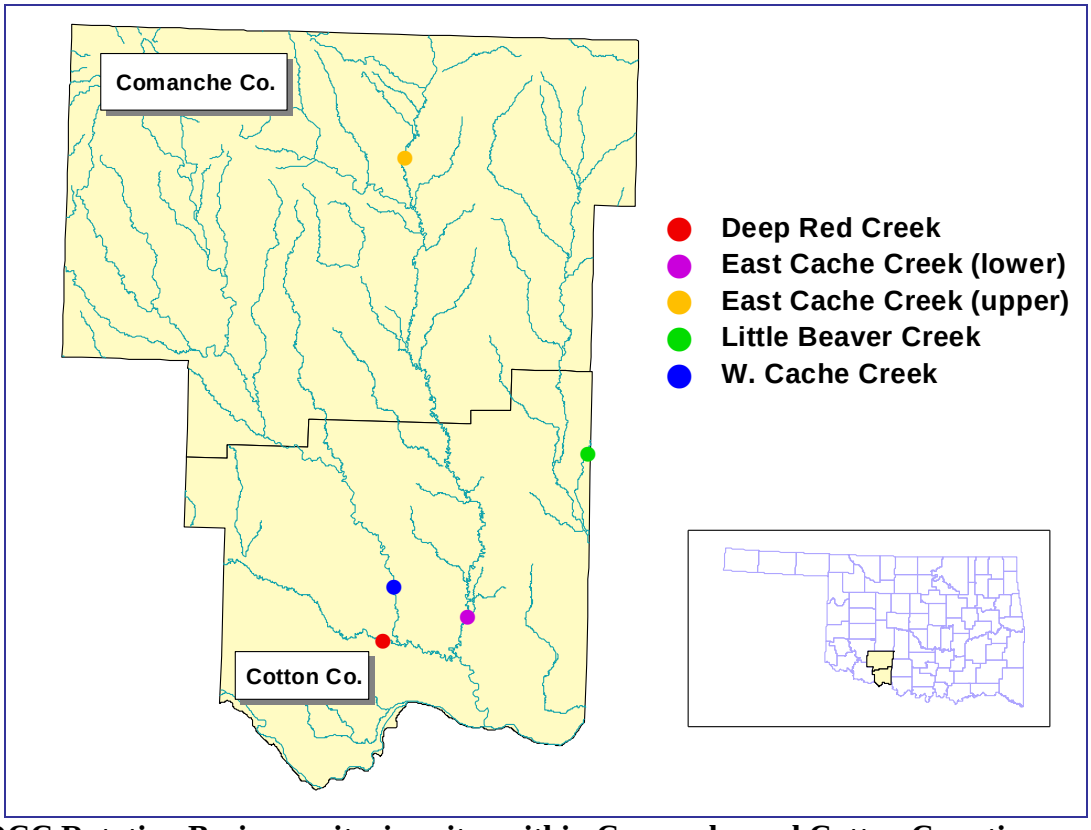
OKLAHOMA CONSERVATION COMMISSION

Rotating Basin Site Summary
Central Great Plains Level 3 Ecoregion: Comanche and Cotton 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 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.

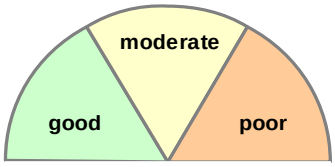
This leaflet gives a brief summary of the assessment results for the first cycle of the monitoring program for streams in Comanche and Cotton Counties. The full report can be accessed online at: *http://www.ok.gov/okcc/Agency_Divisions/Water_Quality_Division/WQ_Reports/WQ_Assessment_Reports* or by calling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



OCC Rotating Basin monitoring sites within Comanche and Cotton Counties.

Through the Rotating Basin Program, one stream in Comanche Co. and four streams in Cotton Co. 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 Central Great Plains ecoregion and by assessment using Oklahoma State Water Quality Standards†.

	*Moderate*			*Poor*	
	Little Beaver Creek	**East Cache Creek (lower)**	**West Cache Creek**	**East Cache Creek (upper)**	**Deep Red Creek**
Overall Stream Health	**43**	**31**	**29**	**23**	**11**
Phosphorus	5	5	5	5	5
Nitrogen	5	3	5	5	5
Ammonia	5	5	5	5	5
Dissolved Oxygen	5	5	5	-5	-5
pH	5	5	5	-5	5
Turbidity	5	-5	-5	5	-5
Salts (chloride, sulfate, TDS)	5	-5	-5	-5	-5
Fish	5	5	5	5	3
Macroinvertebrates	5	5	5	5	3
Instream/Riparian Habitat	3	5	1	5	5
Bacteria	-5	3	3	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

Deep Red Creek (OK311310-03-0010D): This stream is on the state's 303(d) list† as impaired due to low dissolved oxygen, sulfates, chloride, total dissolved solids, turbidity, and bacteria. Both the macroinvertebrate and the fish communities are slightly impaired relative to high quality sites in the ecoregion.

East Cache Creek Lower (OK311300-01-0020G): This stream is on the state's 303(d) list† as impaired for turbidity and total dissolved solids. Nitrogen and bacteria levels were higher than high quality sites in the ecoregion but not significantly so. All other values were good.

East Cache Creek Upper (OK311300-02-0010M): This stream is on the state's 303(d) list† as impaired for low dissolved oxygen, pH, sulfates, and total dissolved solids. Bacteria levels were higher than high quality sites in the ecoregion, but the stream is not impaired for bacteria at this time.

Little Beaver Creek (OK311210-00-0050D): This stream is on the state's 303(d) list† as impaired for bacteria, as are many streams across the state. The instream habitat is lower than high quality sites in the ecoregion. All other values were good.

West Cache Creek (OK311310-02-0010M): This stream is on the state's 303(d) list† as impaired for turbidity, chloride, and total dissolved solids. Bacteria levels were higher than high quality sites in the ecoregion, but the stream is not impaired for bacteria at this time. The instream habitat is significantly poorer than high quality sites in the ecoregion. All other values were good.

† 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