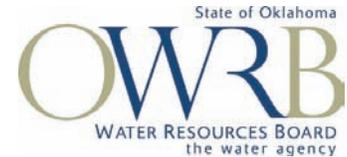


# Oklahoma Water Resources Bulletin

## & Summary of Current Conditions



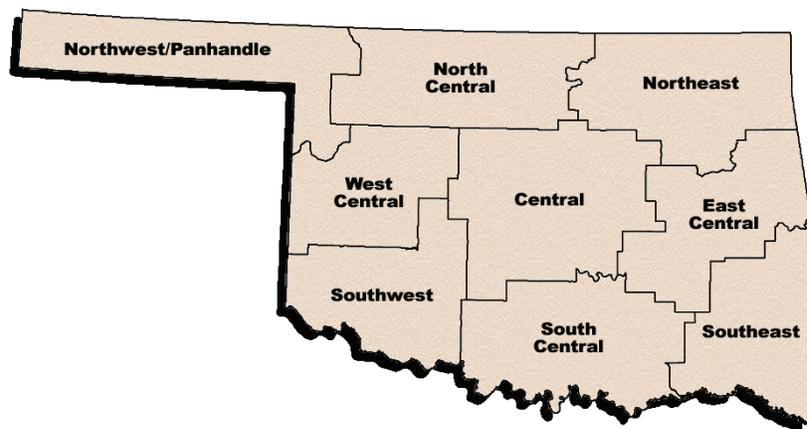
August 17, 2005

### Statewide Precipitation & General Summary

Rainfall over the past several days has significantly improved dry conditions throughout the state, although southeast Oklahoma remains relatively dry.

According to preliminary Mesonet weather station data provided by the Oklahoma Climatological Survey and National Weather Service (see below), the area receiving the lowest percent of normal rainfall for the warm growing season, which began March 1, remains the Southeast climate division (12.73 inches, 52 percent of normal). The current state-averaged rainfall total is 14.69 inches—a deficit of 5.33 inches and 73 percent of normal.

Over the last 30 days (from July 17 through August 15), moisture conditions are much more favorable and variable. Six regions have received more than their expected normal rainfall. However, three regions—the Panhandle, North Central and Southeast climate divisions—have received little more than one-half of their anticipated normal precipitation. The state-averaged rainfall total is 3.14 inches, 118 percent of normal.



### Preliminary Statewide Precipitation BY CLIMATE DIVISION

DIVISION (#)	Warm Growing Season MARCH 1—AUGUST 15, 2005			LAST 30 DAYS JULY 17—AUGUST 15, 2005		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	11.70	-1.82	87	1.30	-1.13	53
North Central	14.07	-4.69	75	1.55	-1.37	53
Northeast	16.93	-5.54	75	3.46	+0.39	113
West Central	14.52	-2.68	84	2.91	+0.56	124
Central	15.75	-5.07	76	3.86	+1.35	153
East Central	16.46	-7.08	70	3.99	+1.16	141
Southwest	12.64	-4.90	72	3.09	+0.73	131
South Central	16.23	-5.09	76	5.89	+3.43	240
Southeast	12.93	-11.99	52	1.63	-1.41	54
<b>Statewide</b>	<b>14.69</b>	<b>-5.33</b>	<b>73</b>	<b>3.14</b>	<b>+0.47</b>	<b>118</b>

Information and data contained in this update of Oklahoma's water resource conditions are courtesy of the National Weather Service, Climate Prediction Center, Oklahoma Climatological Survey, State Department of Agriculture, Oklahoma Forestry Services, Agricultural Statistics Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture/Forest Service, U.S. Geological Survey, Western Drought Coordination Council and National Drought Mitigation Center. This publication is issued weekly during times of specific concern regarding statewide or regional water situations and periodically—biweekly or monthly—the remainder of the year. **For more information, visit <http://www.owrb.state.ok.us/features/drought.html> and <http://climate.ocs.ou.edu/drought/>.**

## Drought Indices

According to the latest Palmer Drought Severity Index (August 13, below), five regions in Oklahoma are currently experiencing drought conditions, including the Southeast and East Central climate divisions, which are in "severe drought." The South Central and Northeast climate divisions are in "moderate drought" while the Central region is in "mild drought." Five of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since July 23. The greatest decrease occurred in the North Central climate division.

The latest monthly Standardized Precipitation Index (through July, below) continues to reflect relatively dry conditions in Oklahoma over the past several months. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "very dry" conditions persist in Southeast Oklahoma over the past 3- and 6-month periods. The South Central and Southeast climate divisions also indicate "very dry" conditions over the past 6 months. Considering longer periods (through six years), the Southeast and East Central climate division report "moderately dry" conditions over the past 30 and 36 months. [SPI updates are available around the 10<sup>th</sup> of each month.]

The latest Keetch-Byram Drought Index (August 15, below), which measures the state of near-surface soil moisture (within the uppermost eight inches of soil) as well as the amount of fuel available for fires, indicates that drought-related fire conditions remain of concern in southeast Oklahoma. Statewide, 10 Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (five stations had a reading above 600 on July 25). Idabel, in southeast Oklahoma, has the highest KBDI value (731). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 3 (high fire danger). As of August 3, **a Red Flag Fire Alert is in effect for 10 counties in southeast and east central Oklahoma.** Extended very dry conditions through June and July has increased the fire danger in southern Oklahoma counties. Dry, grassy fuels will ignite easily and burn with surprising intensity; state fire officials ask citizens to avoid burning anything outdoors when winds exceed 20 miles per hour.

Palmer Drought Severity Index					Standardized Precipitation Index Through July 2005			
CLIMATE DIVISION (#)	CURRENT STATUS 8/13/2005	VALUE 8/13	VALUE 7/23	CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
Northwest (1)	MOIST SPELL	1.77	2.22	<b>-0.45</b>	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
North Central (2)	NEAR NORMAL	-0.17	0.41	<b>-0.58</b>	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MODERATE DROUGHT	-2.09	-1.75	<b>-0.34</b>	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
West Central (4)	INCIPIENT MOIST SPELL	0.56	-0.13	<b>0.69</b>	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Central (5)	MILD DROUGHT	-1.57	-2.07	<b>0.50</b>	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
East Central (6)	SEVERE DROUGHT	-3.08	-2.76	<b>-0.32</b>	MODERATELY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL
Southwest (7)	INCIPIENT DROUGHT	-0.89	-1.92	<b>1.03</b>	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	MODERATE DROUGHT	-2.50	-2.84	<b>0.34</b>	NEAR NORMAL	VERY DRY	NEAR NORMAL	NEAR NORMAL
Southeast (9)	SEVERE DROUGHT	-3.48	-3.13	<b>-0.35</b>	VERY DRY	VERY DRY	NEAR NORMAL	NEAR NORMAL

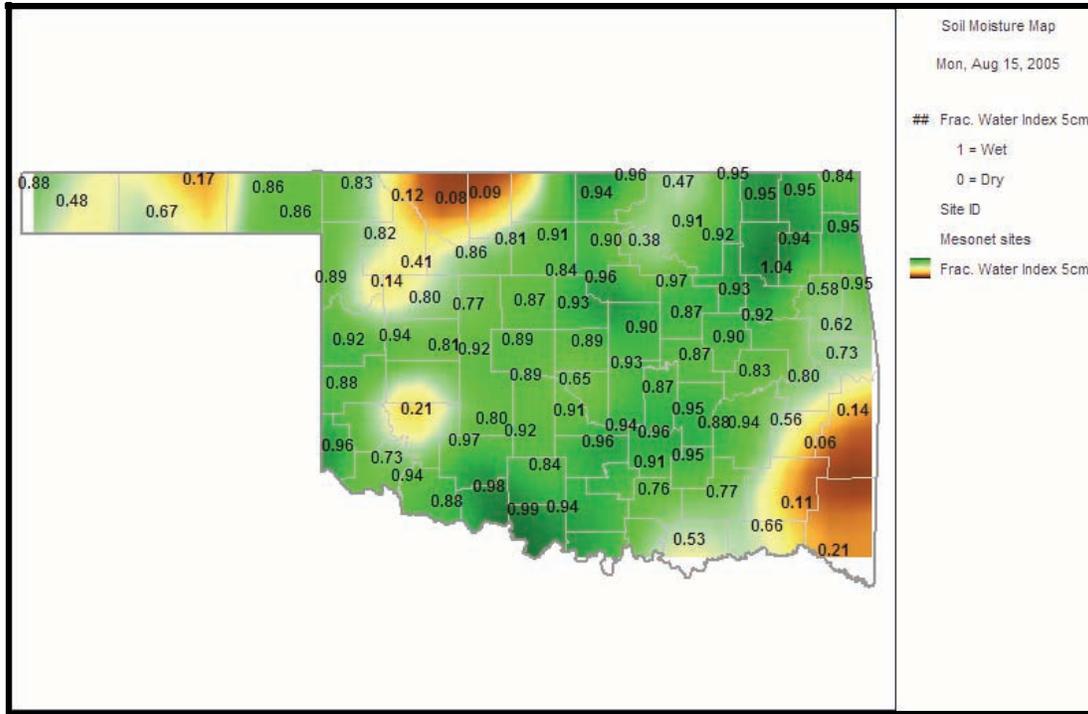
### Keetch-Byram DROUGHT FIRE INDEX

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 8/15/2005	ANTICIPATED IMPACT
Idabel	McCurtain	Southeast	731	<b>600-800:</b> often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.  <b>400-600:</b> lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Talihina	McCurtain	Southeast	721	
Broken Bow	McCurtain	Southeast	712	

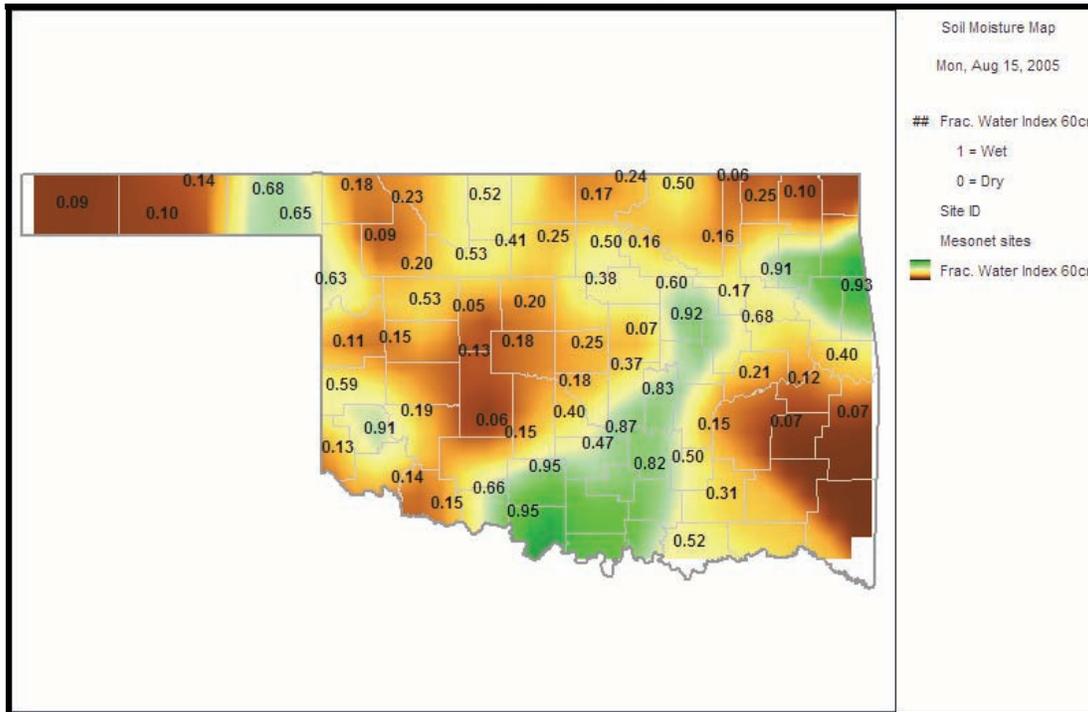
Total stations above 600 = 10

*The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides a seasonal estimation of precipitation while the 6-month SPI can be very effective in showing precipitation over distinct seasons. The Keetch-Byram Drought Index provides a gauge of dead fuel currently available for potential fires.*

**Soil Moisture  
Fractional Water Index**  
August 15, 2005  
(Courtesy Oklahoma Climatological Survey)  
**5 CM (~2 INCHES)**



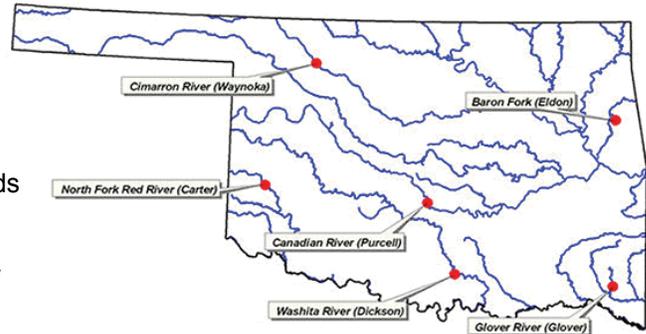
**60 CM (~2 FEET)**



FWI Value Soil Wetness Conditions			
1.0 – 0.8	Enhanced Growth (~Field Capacity)	0.5 – 0.3	Plants Dying
0.8 – 0.5	Limited Growth	< 0.1	Barren Soil

### Streamflow Conditions

Although recent rains have swelled many rivers and streams in Oklahoma, flows remain a concern due to the recent dry weather. Considering overall trends as well as current flows, the most recent data (August 15, attached) from the six U.S. Geological Survey/OWRB stream gage sites selected to monitor the general condition of Oklahoma streams (daily streamflow since October 1, 2004, compared to long-term, normal/median daily discharges) indicate **much below average flow** in *southeast* (Glover River, McCurtain County) and *northwest* (Cimarron River, Woods County) Oklahoma; **below average flow** in the *central* (Canadian River, McClain County) and *northeast* (Baron Fork, Cherokee County) regions; and **near average flow** in *southwest* (North Fork/Red River, Beckham County) and *south central* (Washita River, Carter County) Oklahoma.



### Weather Forecast

The National Weather Service 8- to 14-day outlook (August 22-28) calls for below normal precipitation for the western half of Oklahoma; normal rainfall is expected in the east. Below normal temperatures are forecasted for the entire state throughout the period.

A majority of the statistical and coupled model forecasts indicate that near neutral El Niño Southern Oscillation (ENSO) conditions will continue throughout the next three to six months. El Niños, warm water patterns that increase the chances for generally cooler, wetter conditions in the southern U.S. (including Oklahoma), occur about every two to seven years.

### Crop Report

August 15 – Weekend rainfall was what producers needed to stimulate pasture growth and boost row crop conditions. Topsoil moisture improved greatly with 35 percent rated as adequate to surplus compared to last week where the same two categories recorded a mere 17 percent. Subsoil moisture made a slight improvement, but was still mostly short to very short by week's end. There were 5.7 days suitable for field work last week.

Seedbed preparations for the 2006 small grain crops were underway, but still well behind normal. Wheat plowed was at 94 percent and seedbed prepared was at 17 percent. Eight percent of the seedbeds for oats were prepared and 13 percent of rye seedbeds were prepared. Last week's rains should provide many producers the moisture they needed to prepare for small grain planting. Row crops remain in mostly good condition despite the extreme hot and dry weather received over the past few weeks. Corn conditions continue to flourish as 72 percent of the crop was in good to excellent condition. Corn silking was winding down at 92 percent. Thirty-two percent of the corn crop was mature which was only 1 point behind normal. Corn harvest got underway with 5 percent of the crop harvested. Sorghum headed increased 14 points to 67 percent and sorghum coloring jumped 4 points to 23 percent. Sorghum reaching maturity was just beginning with 3 percent of the crop mature by week's end. Soybeans blooming was at 81 percent and 59 percent of the soybeans were setting pods. Like sorghum, soybeans reaching maturity was just underway at 3 percent. Peanuts pegging was virtually completed. Peanuts setting pods and reaching maturity were advancing nicely with 77 percent and 7 percent completed, respectively. Ninety-six percent of all cotton was squaring and 75 percent was setting bolls.

Hay conditions remained mostly fair to good. Hay supplies were rated at 24 percent below average, 66 percent average and 10 percent above average. The fourth cutting of alfalfa was 52 percent complete and the fifth cutting was just getting underway. The second cutting of other hay was 46 percent complete. Sixty-nine percent of the watermelon crop has been harvested. Watermelon conditions were mostly fair to good.

Many operators were still supplementing cattle due to poor grass conditions. The recent rains should help stimulate pasture growth. Pasture conditions remain virtually unchanged from last week and were still rated as mostly fair to good. Livestock marketings were rated as average. Death loss of cattle was mostly light to average. Livestock insect activity was also light to moderate.

### Reservoir Storage

Lake storage in Oklahoma remains generally adequate. As of August 16, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 88.9 percent full, a 2.1 percent decrease from that recorded on July 25, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-two reservoirs have experienced lake level decreases since that time; 22 reservoirs are currently operating at less than full capacity (compared to 20 three weeks ago). Two reservoirs—Lugert-Altus, only 41 percent full; and Tom Steed, 67.3 percent—remain below 80 percent capacity.

<b>Storage in Selected Oklahoma Lakes &amp; Reservoirs</b>			
<b>08/16/2005</b>			
<b>Climate Division Lake or Reservoir</b>	<b>Conservation Storage (acre-feet)</b>	<b>Present Storage (acre-feet)</b>	<b>Percent of Conservation Storage</b>
<b>North Central</b>			
Fort Supply	13,900	13,559	97.5
Great Salt Plains	31,420	30,750	97.9
Kaw*	375,160	375,160	100.0
<b>Regional Totals/Averages</b>	<b>420,480</b>	<b>419,469</b>	<b>99.8</b>
<b>Northeast</b>			
Birch	19,225	17,125	89.1
Copan	43,400	42,567	98.1
Fort Gibson	365,200	365,200	100.0
Grand	1,672,000	1,518,510	90.8
Hudson	200,300	200,300	100.0
Hulah	25,100	25,100	100.0
Keystone	510,059	503,706	98.8
Oologah	552,210	538,015	97.4
Skiatook	322,700	304,417	94.3
<b>Regional Totals/Averages</b>	<b>3,710,194</b>	<b>3,514,940</b>	<b>94.7</b>
<b>West Central</b>			
Canton	111,310	111,310	100.0
Foss	165,480	161,873	97.8
<b>Regional Totals/Averages</b>	<b>276,790</b>	<b>273,183</b>	<b>98.7</b>
<b>Central</b>			
Arcadia	27,520	27,217	98.9
Heyburn	7,105	6,658	93.7
Thunderbird	119,600	112,904	94.4
<b>Regional Totals/Averages</b>	<b>154,225</b>	<b>146,779</b>	<b>95.2</b>
<b>East Central</b>			
Eufaula*	2,260,943	1,948,956	86.2
Tenkiller	654,100	560,976	85.8
<b>Regional Totals/Averages</b>	<b>2,915,043</b>	<b>2,509,932</b>	<b>86.1</b>
<b>Southwest</b>			
Fort Cobb	80,010	78,187	97.7
Lugert-Altus	132,830	54,470	41.0
Tom Steed	88,970	59,920	67.3
<b>Regional Totals/Averages</b>	<b>301,810</b>	<b>73,685</b>	<b>24.4</b>
<b>South Central</b>			
Arbuckle	72,400	72,400	100.0
McGee Creek	113,930	110,414	96.9
Texoma*	2,596,562	2,252,615	86.8
Waurika*	190,200	190,200	100.0
<b>Regional Totals/Averages</b>	<b>2,973,092</b>	<b>2,625,629</b>	<b>88.3</b>
<b>Southeast</b>			
Broken Bow*	958,180	798,041	83.3
Hugo*	158,617	158,617	100.0
Pine Creek*	61,570	61,570	100.0
Sardis	274,330	263,216	95.9
Wister	60,162	53,580	89.1
<b>Regional Totals/Averages</b>	<b>1,512,859</b>	<b>1,335,024</b>	<b>88.2</b>
<b>State Totals</b>	<b>12,264,493</b>	<b>10,898,641</b>	<b>88.9</b>

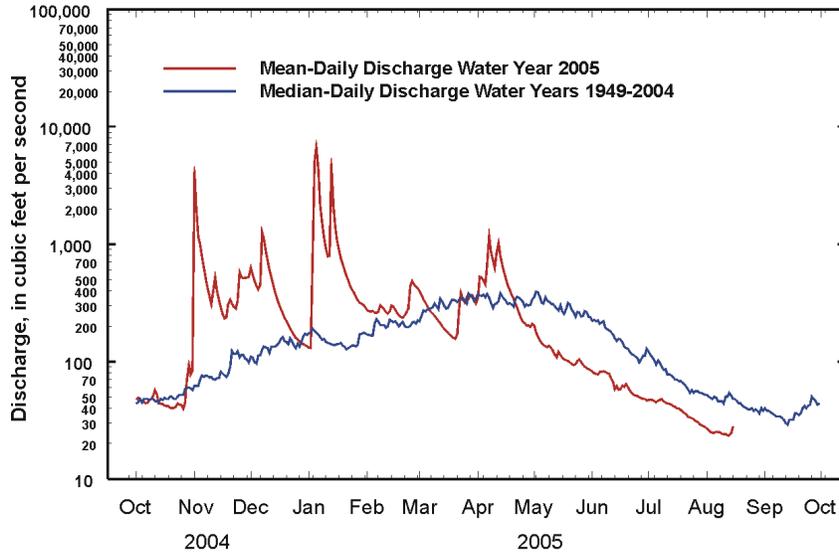
\* indicates seasonal pool operation; actual storage figures/percentages may vary.

**Baron Fork at Eldon**  
*Baron Fork at Eldon, Oklahoma*

Station No. 07197000 Northeast Oklahoma  
 Drainage Area 307 square miles

PROVISIONAL DATA

AUGUST 15, 2005



*Comparison of daily discharges for water year 2005 and period of record*

*Data from U.S. Geological Survey*

**Canadian River at Purcell**

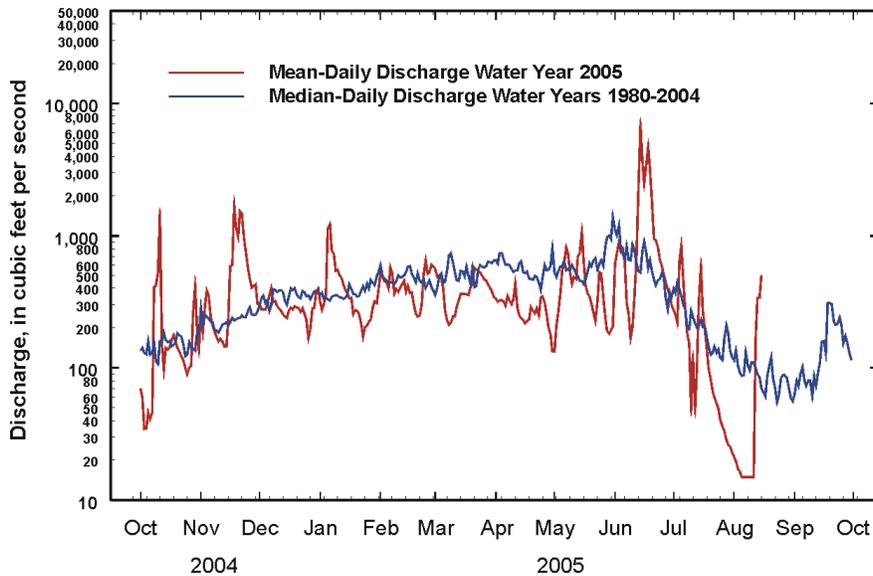
*Canadian River at Purcell, Oklahoma*

Station No. 07229200 Central Oklahoma

Drainage Area 25,939 square miles

PROVISIONAL DATA

AUGUST 15, 2005



*Comparison of daily discharges for water year 2005 and period of record*

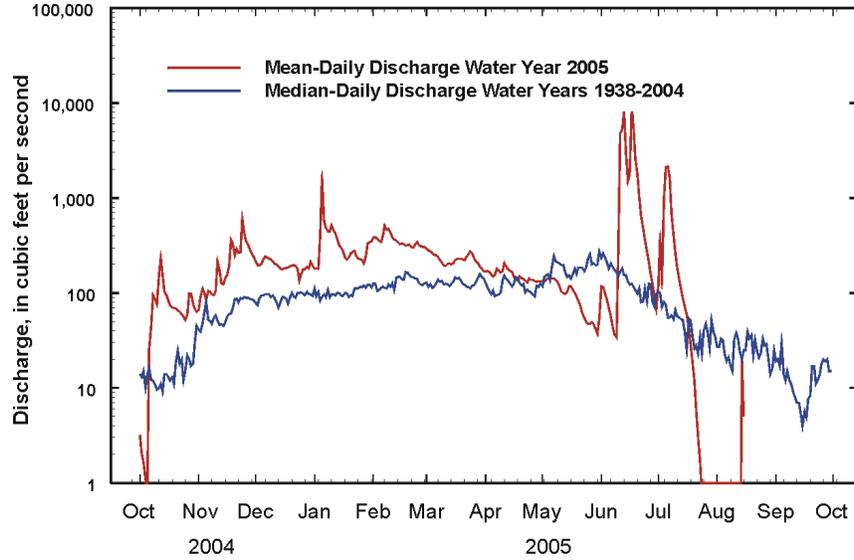
*Data from U.S. Geological Survey*

### Cimarron River near Waynoka

Cimarron River near Waynoka, Oklahoma  
Station No. 07158000 Northwest Oklahoma  
Drainage Area 13,334 square miles

PROVISIONAL DATA

AUGUST 15, 2005



Comparison of daily discharges for water year 2005 and period of record

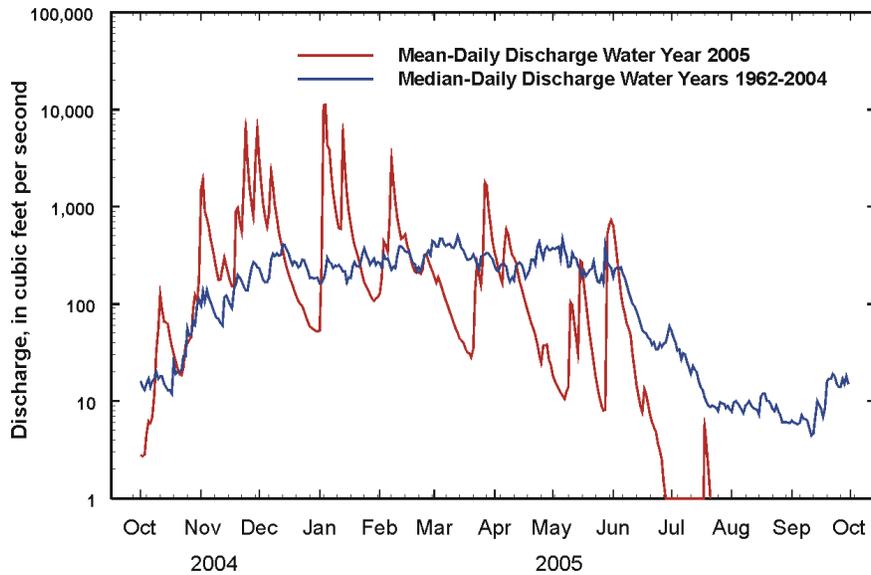
Data from U.S. Geological Survey

### Glover River near Glover

Glover River near Glover, Oklahoma  
Station No. 07337900 Southeast Oklahoma  
Drainage Area 315 square miles

PROVISIONAL DATA

AUGUST 15, 2005



Comparison of daily discharges for water year 2005 and period of record

Data from U.S. Geological Survey

**North Fork of the Red River near Carter**

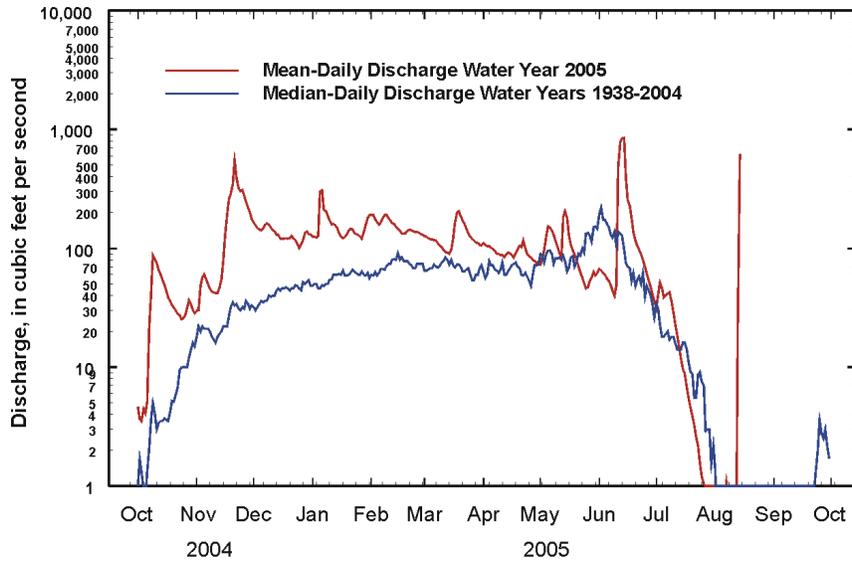
*North Fork of the Red River near Carter, Oklahoma*

Station No. 07301500 Southwest Oklahoma

Drainage Area 2,337 square miles

PROVISIONAL DATA

AUGUST 15, 2005



*Comparison of daily discharges for water year 2005 and period of record*

*Data from U.S. Geological Survey*

**Washita River near Dickson**

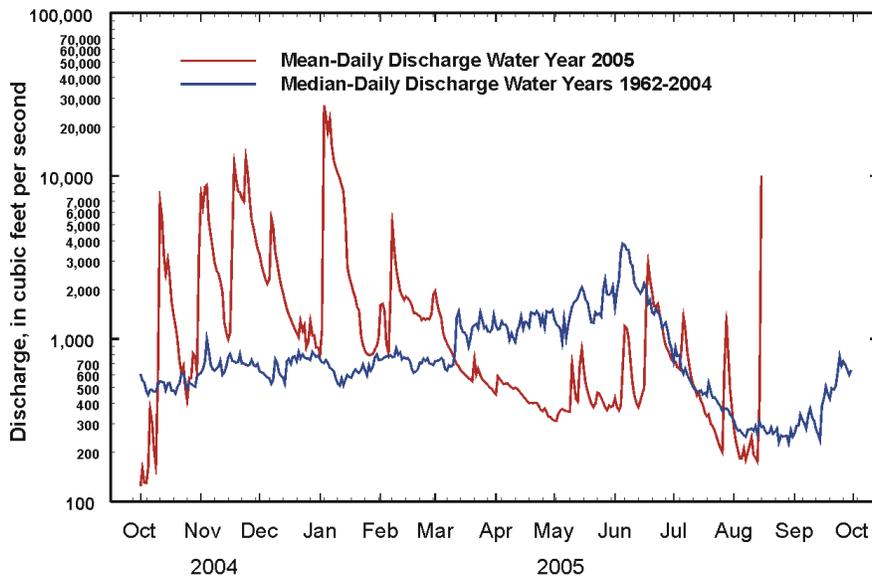
*Washita River near Dickson, Oklahoma*

Station No. 07331000 South-Central Oklahoma

Drainage Area 7,202 square miles

PROVISIONAL DATA

AUGUST 15, 2005



*Comparison of daily discharges for water year 2005 and period of record*

*Data from U.S. Geological Survey*