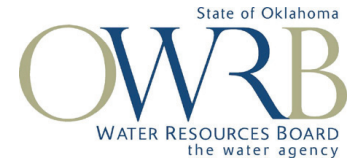


# Oklahoma Water Resources Bulletin

## & Summary of Current Conditions



September 14, 2005

### Statewide Precipitation & General Summary

Rain that fell throughout much of Oklahoma during late August significantly improved dry conditions. However, very dry conditions persist in southeast Oklahoma.

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 (14.20 inches, 13.80 inches below normal, and 51 percent of the average). The current state-averaged rainfall total is 17.35 inches—a deficit of 5.49 inches and 76 percent of normal.

Over the last 30 days (from August 13 through September 11), moisture conditions are very favorable. Two regions (West Central and Central Oklahoma) have received more than twice as much as their expected normal rainfall. However, the Southeast climate division has received only a little more than one-half of its anticipated normal precipitation over the period. The state-averaged rainfall total is 4.52 inches, 146 percent of normal.



### Preliminary Statewide Precipitation BY CLIMATE DIVISION

DIVISION (#)	Warm GROWING Season MARCH 1—SEPTEMBER 11, 2005			LAST 30 DAYS AUGUST 13—SEPTEMBER 11, 2005		
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL
Panhandle	14.11	-1.39	91	2.75	+0.52	124
North Central	17.95	-3.52	84	4.57	+1.55	152
Northeast	18.90	-6.96	73	4.50	+0.80	122
West Central	18.81	-0.91	95	5.87	+3.09	211
Central	19.46	-4.21	82	6.31	+3.19	202
East Central	18.38	-8.46	68	4.08	+0.51	114
Southwest	15.62	-4.55	77	5.03	+2.14	174
South Central	17.67	-6.55	73	5.01	+1.87	159
Southeast	14.20	-13.80	51	1.83	-1.50	55
<b>Statewide</b>	<b>17.35</b>	<b>-5.49</b>	<b>76</b>	<b>4.52</b>	<b>+1.42</b>	<b>146</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 (September 10, below), late August rains have improved drought conditions throughout much of Oklahoma. However, the Southeast climate division remains in "severe drought." The East Central climate division is also in "moderate drought." Only one of Oklahoma's nine climate divisions has undergone a PDSI moisture decrease since August 13.

The latest monthly Standardized Precipitation Index (through August, below) reflects relatively dry conditions in some southern and eastern areas of Oklahoma over the past several months. In particular, among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), "very dry" conditions persist in Southeast Oklahoma over the past 6- and 9-month periods. Considering longer periods (through six years), only the Southeast climate division reports "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 (September 12, 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 have worsened in southeast Oklahoma. Statewide, 13 Mesonet stations are currently at or above 600, generally indicative of more severe drought conditions (10 stations had a reading above 600 on August 15); six stations have a KBDI above 700. Broken Bow, in southeast Oklahoma, has the highest KBDI value (751). According to the Oklahoma Department of Agriculture, Food, and Forestry, Statewide Wildfire Preparedness is at Level 3 (high fire danger). As of September 8, **a Burning Ban has been issued for five counties in southeast Oklahoma while a Red Flag Fire Alert is in effect for five additional counties in that region.** Extended very dry conditions through June, July, and August has increased the fire danger in southern Oklahoma counties. Dry, grassy fuels will ignite easily and burn with surprising intensity.

Palmer Drought Severity Index					Standardized Precipitation Index Through August 2005			
CLIMATE DIVISION (#)	CURRENT STATUS 9/10/2005	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		9/10	8/13					
Northwest (1)	MOIST SPELL	1.59	1.77	-0.18	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
North Central (2)	MOIST SPELL	1.43	-0.17	1.60	VERY WET	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
Northeast (3)	INCIPIENT DROUGHT	-0.94	-2.09	1.15	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	UNUSUAL MOIST SPELL	2.42	0.56	1.86	VERY WET	NEAR NORMAL	MODERATELY WET	VERY WET
Central (5)	INCIPIENT DROUGHT	0.73	-1.57	2.30	VERY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MODERATE DROUGHT	-2.22	-3.08	0.86	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Southwest (7)	INCIPIENT MOIST SPELL	0.97	-0.89	1.86	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	MODERATELY WET
South Central (8)	INCIPIENT DROUGHT	-0.96	-2.50	1.54	MODERATELY WET	MODERATELY DRY	NEAR NORMAL	NEAR NORMAL
Southeast (9)	SEVERE DROUGHT	-3.45	-3.48	0.03	MODERATELY DRY	VERY DRY	VERY DRY	NEAR NORMAL

### Keetch-Byram DROUGHT FIRE INDEX

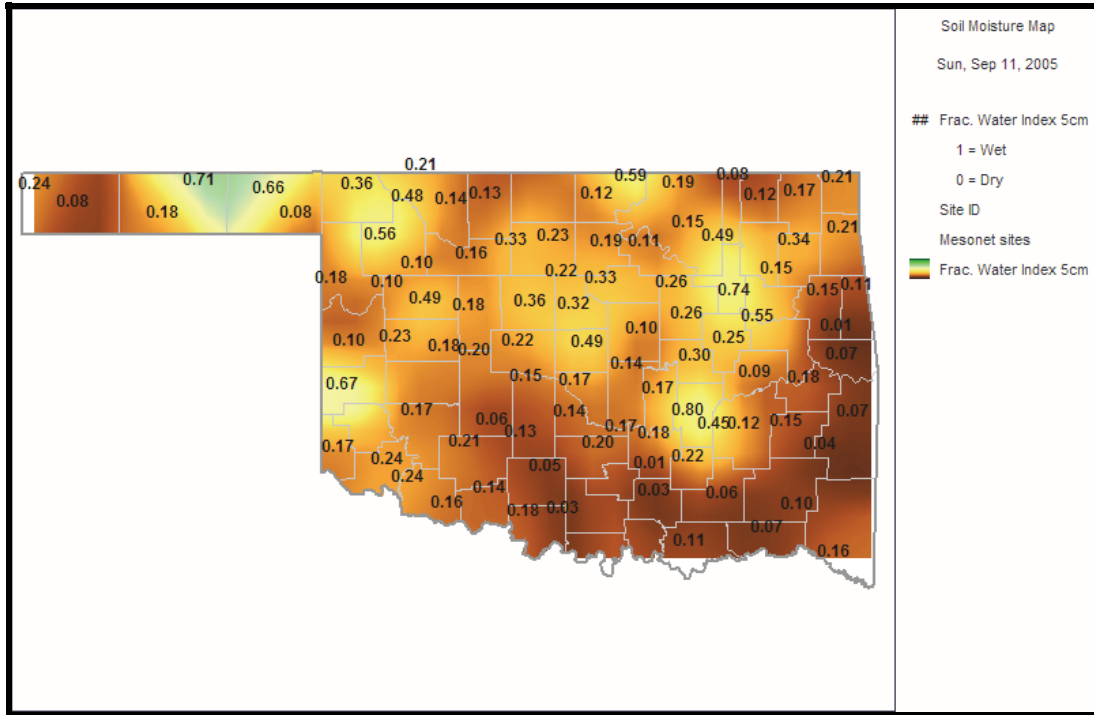
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 9/12/2005	ANTICIPATED IMPACT
Broken Bow	McCurtain	Southeast	751	<b>600-800:</b> often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn 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.
Idabel	McCurtain	Southeast	733	
Mt. Herman	McCurtain	Southeast	731	

Total stations above 600 = 13

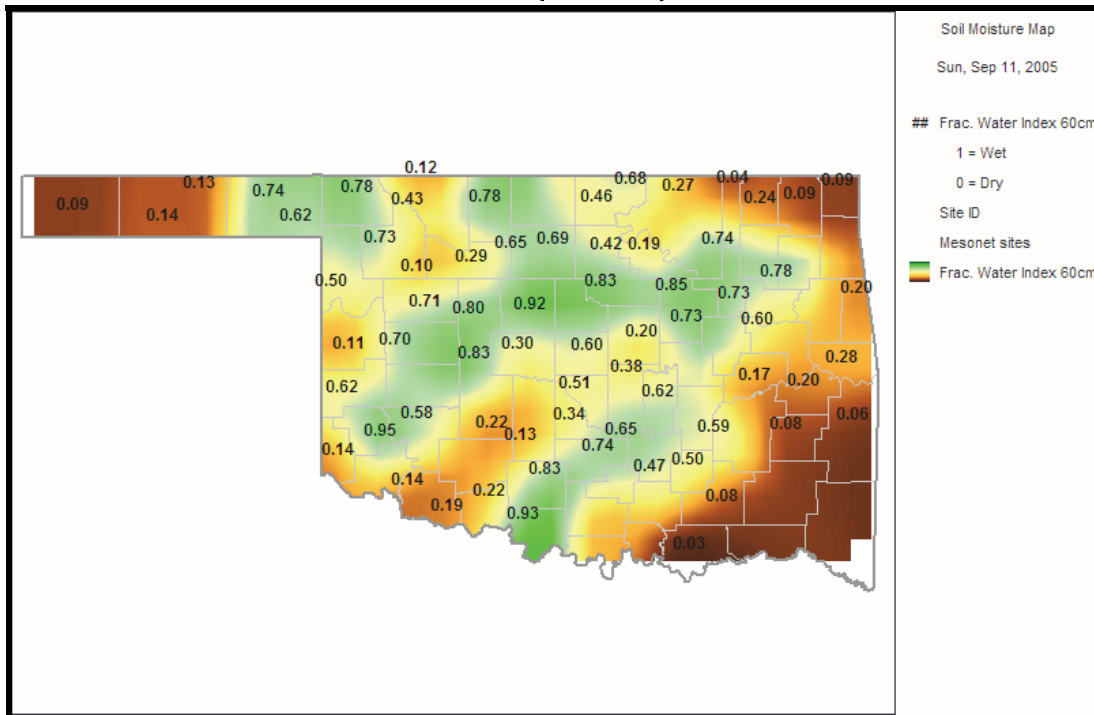
*The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides 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**  
September 11, 2005  
(Courtesy Oklahoma Climatological Survey)

**5 CM (~2 INCHES)**



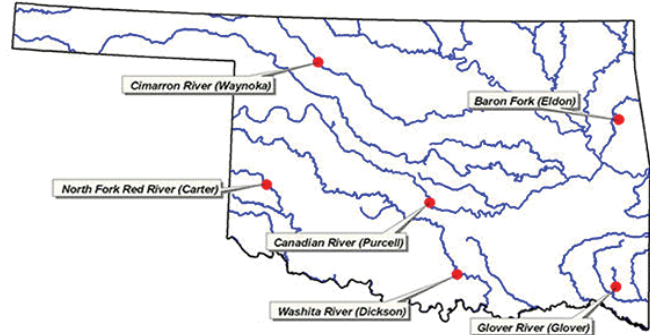
**60 CM (~2 FEET)**



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

Flows in most state rivers and streams are generally adequate, although streamflow remains a concern in southeast Oklahoma due to the recent dry weather. Considering overall trends as well as current flows, the most recent data (September 12, 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) Oklahoma; **below average flow** in the *northeast* (Baron Fork, Cherokee County) region; **near average flow** in *central* (Canadian River, McClain County) and *south central* (Washita River, Carter County) Oklahoma; and **above average flow** in the *northwest* (Cimarron River, Woods County) and *southwest* (North Fork/Red River, Beckham County).



### Weather Forecast

The National Weather Service 8- to 14-day outlook (September 20-26) calls for below normal precipitation and above normal temperatures for the all of Oklahoma.

Although much uncertainty exists, 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

September 12 – Temperatures once again averaged in the upper-seventies and rainfall remained sparse throughout Oklahoma. However, row crops remain in mostly good condition. Soil moisture levels dropped slightly for the second straight week leaving all nine districts behind normal in rainfall. There were 6.4 days suitable for field work last week.

Seedbed preparations and small grain planting continued to progress nicely throughout the week. Unfortunately, some respondents felt planting may be halted if substantial rainfall is not received in the near future. Wheat seedbed preparations were ahead of normal by 3 points at 81 percent. Twelve percent of the wheat was planted by week's end. Oats seedbed preparations were 60 percent complete and oat planting was just underway at 1 percent. Seventy-four percent of the rye seedbed preparations were complete and 31 percent of rye was planted.

Corn reaching maturity increased 6 points to 65 percent complete. Respondents in the Panhandle indicated that the dry days have actually helped dry the corn plants and speed up the maturity of grain sorghum. Thirty-nine percent of the corn was harvested. The Panhandle, Oklahoma's largest corn district, had 8 percent of corn harvested by week's end. Sorghum headed increased 3 points to 91 percent while sorghum turning color was 1 point ahead of normal at 68 percent. Sorghum reaching maturity and harvested at 26 and 12 percent, respectively, were both slightly behind normal. At 97 and 92 percent, soybeans blooming and setting pods, respectively, were both 2 points ahead of normal. Soybeans reaching maturity increased 10 points to 38 percent. Fifteen percent of the soybeans were harvested. Peanuts reaching maturity and cotton bolls opening were still well behind normal.

Both alfalfa and other hay conditions were mostly good to fair. The fourth cutting of alfalfa was at 92 percent and the fifth cutting reached the halfway mark. The second cutting of other hay was up 6 points to 70 percent complete. Watermelon harvest was slowly nearing completion. Pecan condition was mostly fair to good and the nut set was rated as light to average. At this point, respondents reported that there may be wide variations in expected production because some trees were loaded with nuts while others remained sparse.

Overall, pasture and range conditions were mostly good to fair, but pasture conditions in southeast Oklahoma are rated very poor because they have not received the rainfall in the last month that other parts of Oklahoma have received. Livestock conditions were mostly good. Livestock marketings were rated as average. Death loss of cattle was mostly light to average. Livestock insect activity was mostly light.

### Reservoir Storage

Lake storage in Oklahoma remains generally adequate. As of September 12, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 89.9 percent full, a 1 percent increase from that recorded on August 16, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-one reservoirs have experienced lake level decreases since that time; 21 reservoirs are currently operating at less than full capacity (compared to 22 four weeks ago). Two reservoirs—Lugert-Altus, only 36 percent full; and Tom Steed, 71.6 percent—remain below 80 percent capacity.

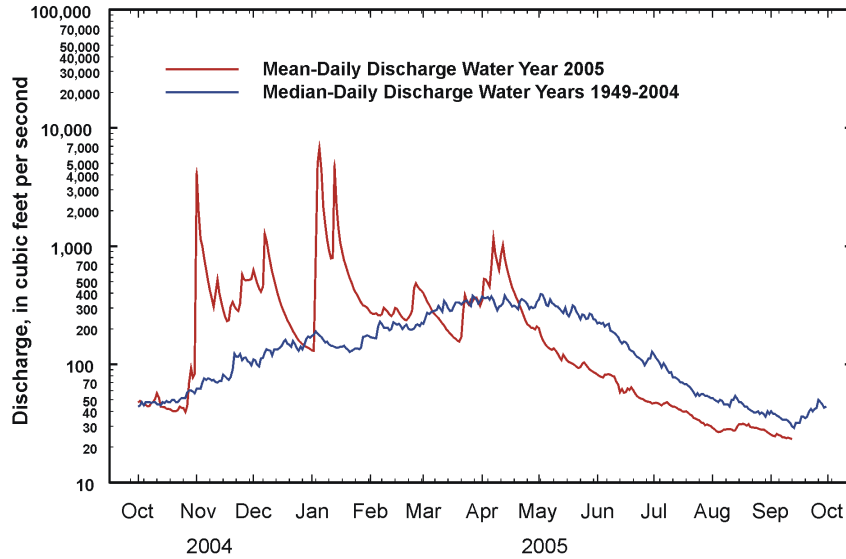
<b>Storage in Selected Oklahoma Lakes &amp; Reservoirs</b>			
<b>09/12/2005</b>			
<b>Climate Division Lake or Reservoir</b>	<b>Conservation Storage (acre-feet)</b>	<b>Present Storage (acre-feet)</b>	<b>Percent of Conservation Storage</b>
<b>North Central</b>			
Fort Supply	13,900	12,707	91.4
Great Salt Plains	31,420	31,420	100.0
Kaw*	375,160	375,160	100.0
<b>Regional Totals/Averages</b>	<b>420,480</b>	<b>419,287</b>	<b>99.7</b>
<b>Northeast</b>			
Birch	19,225	16,048	83.5
Copan	43,400	42,226	97.3
Fort Gibson	365,200	365,200	100.0
Grand	1,672,000	1,519,371	90.9
Hudson	200,300	200,300	100.0
Hulah	25,100	25,100	100.0
Keystone	510,059	510,059	100.0
Oologah	552,210	552,210	100.0
Skiatook	322,700	296,118	91.8
<b>Regional Totals/Averages</b>	<b>3,710,194</b>	<b>3,526,632</b>	<b>95.1</b>
<b>West Central</b>			
Canton	111,310	110,913	99.6
Foss	165,480	156,791	94.7
<b>Regional Totals/Averages</b>	<b>276,790</b>	<b>267,704</b>	<b>96.7</b>
<b>Central</b>			
Arcadia	27,520	27,520	100.0
Heyburn	7,105	7,026	98.9
Thunderbird	119,600	112,208	93.8
<b>Regional Totals/Averages</b>	<b>154,225</b>	<b>146,754</b>	<b>95.2</b>
<b>East Central</b>			
Eufaula*	2,260,943	1,882,587	83.3
Tenkiller	654,100	536,499	82.0
<b>Regional Totals/Averages</b>	<b>2,915,043</b>	<b>2,419,086</b>	<b>83.0</b>
<b>Southwest</b>			
Fort Cobb	80,010	80,010	100.0
Lugert-Altus	132,830	47,836	36.0
Tom Steed	88,970	63,685	71.6
<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	107,747	94.6
Texoma*	2,539,946	2,477,487	97.5
Waurika*	190,200	186,956	98.3
<b>Regional Totals/Averages</b>	<b>2,916,476</b>	<b>2,844,590</b>	<b>97.5</b>
<b>Southeast</b>			
Broken Bow*	958,180	771,077	80.5
Hugo*	158,617	145,613	91.8
Pine Creek*	61,570	56,921	92.4
Sardis	274,330	258,351	94.2
Wister	60,162	48,183	80.1
<b>Regional Totals/Averages</b>	<b>1,512,859</b>	<b>1,280,145</b>	<b>84.6</b>
<b>State Totals</b>	<b>12,207,877</b>	<b>10,977,883</b>	<b>89.9</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

SEPTEMBER 12, 2005



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

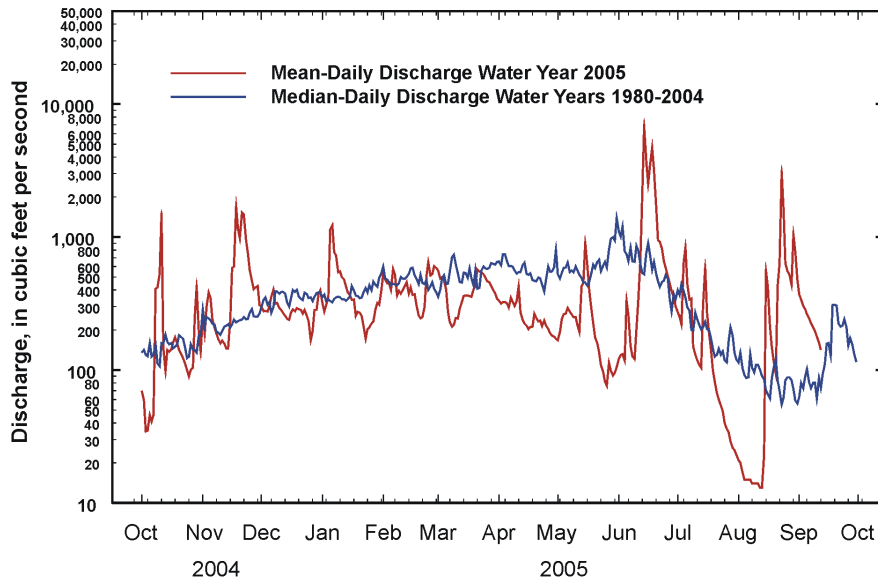
*Data from U.S. Geological Survey*

**Canadian River at Purcell**

*Canadian River at Purcell, Oklahoma*  
 Station No. 07229200 Central Oklahoma  
 Drainage Area 25,939 square miles

PROVISIONAL DATA

SEPTEMBER 12, 2005

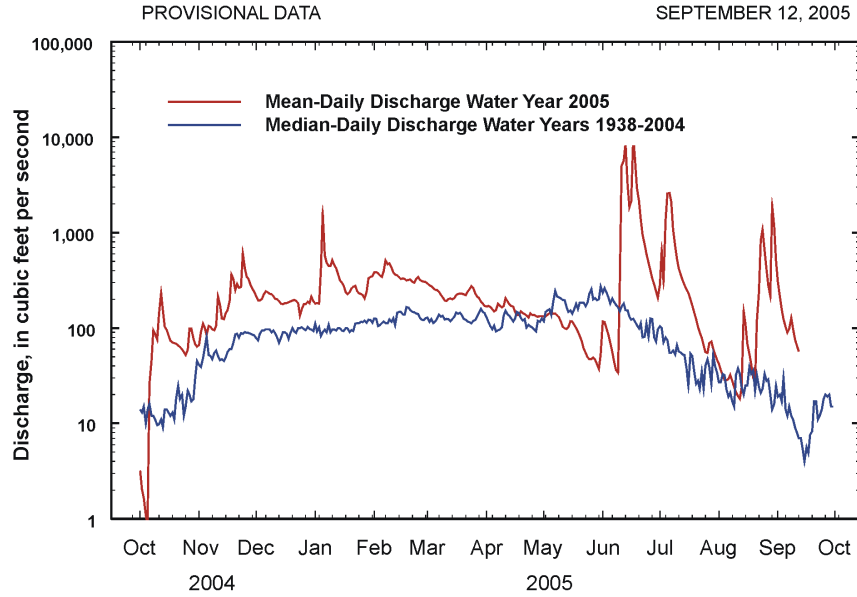


*Comparison of daily discharges for water year 2005 and period of record*

*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

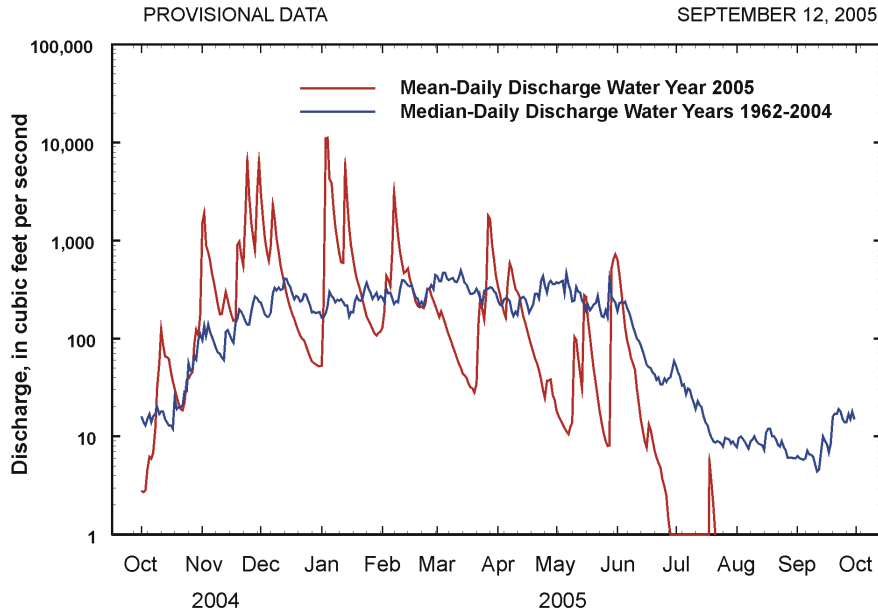


*Comparison of daily discharges for water year 2005 and period of record*

*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



*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

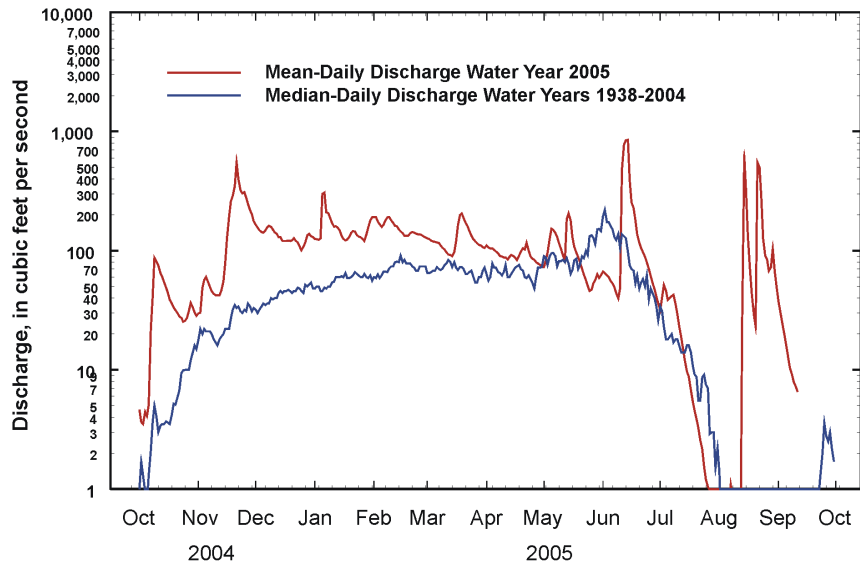
North Fork of the Red River near Carter, Oklahoma

Station No. 07301500 Southwest Oklahoma

Drainage Area 2,337 square miles

PROVISIONAL DATA

SEPTEMBER 12, 2005



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

Data from U.S. Geological Survey

### Washita River near Dickson

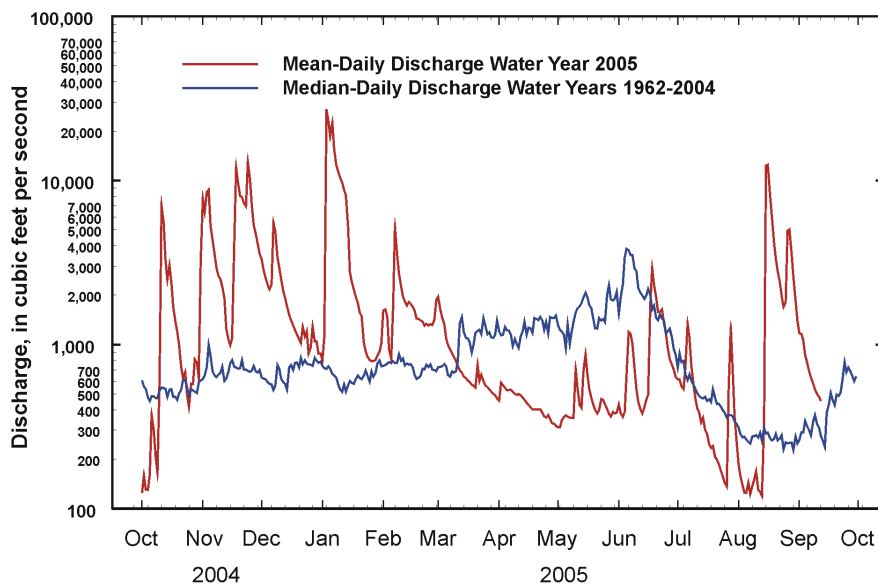
Washita River near Dickson, Oklahoma

Station No. 07331000 South-Central Oklahoma

Drainage Area 7,202 square miles

PROVISIONAL DATA

SEPTEMBER 12, 2005



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

Data from U.S. Geological Survey