Oklahoma Water Resources Bulletin
& Summary of Current Conditions

SEPTEMBER 18, 2002 — OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Recent rains have done relatively little to alleviate dry conditions in western 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 from October 1, 2001, through September 15, 2002 (the current water year), remains the Northwest climate division (13.08 inches, 65 percent of normal precipitation). Only one region, the Southeast, reports a surplus of precipitation. The current state-averaged rainfall total is 30.7 inches, 88 percent of normal.

For the current calendar year (January 1 through September 15), the Northwest region has received 12.36 inches (73 percent of normal) of rainfall. Six additional regions report precipitation deficits over the period. The state-averaged rainfall total is 24.76 inches (93 percent of normal).

Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2001—SEPTEMBER 15, 2002			CALENDAR YEAR JANUARY 1— SEPTEMBER 15, 2002			RAINFALL SINCE AUGUST 21
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	13.08	-7.08	65	12.36	-4.55	73	2.45
North Central (2)	24.55	-5.53	82	22.79	-1.26	95	2.94
Northeast (3)	37.13	-2.45	94	28.61	-1.44	95	2.64
West Central (4)	20.26	-7.31	73	18.81	-3.33	85	2.75
Central (5)	30.86	-5.08	86	25.72	-1.73	94	3.64
East Central (6)	40.19	-3.42	92	28.62	-3.44	89	0.73
Southwest (7)	21.61	-7.50	74	19.14	-3.87	83	2.13
South Central (8)	37.96	-0.83	98	29.64	+0.73	103	3.77
Southeast (9)	51.24	+2.59	105	37.05	+2.50	107	1.61
STATE-AVERAGED	**30.70**	**-4.09**	**88**	**24.76**	**-1.81**	**93**	**2.62**

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.

Drought Indices

According to the latest Palmer Drought Severity Index (September 14, below), drought conditions have generally improved in many areas of Oklahoma. However, five climate divisions are still in various drought categories. **The Panhandle/Northwest region, formerly in "extreme" drought, has improved to the "severe" drought category while the West Central climate division has been downgraded to "moderate" drought.** Only three of Oklahoma's nine climate divisions have undergone PDSI moisture decreases since August 17; the greatest decrease occurred in the East Central region ("mild" drought).

The latest monthly Standardized Precipitation Index (through August, below) continues to indicate long-term dryness throughout the past year in northwest Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **the Northwest/Panhandle climate division reports "very dry" conditions throughout the last 12-month period and "moderately dry" conditions during the last 6 and 9 months.** [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (September 17, 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 generally good, although conditions have worsened somewhat in the southeast. Statewide, 12 stations are currently above 600, generally indicative of more severe drought conditions (only two stations had a reading above 600 on August 22). Idabel, in Southeast Oklahoma (689), retains the highest KBDI value, followed by Broken Bow (Southeast; 677), and McAlester (East Central; 677). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger). The Governor's Ban on Outdoor Burning remains in effect for Texas County in the Oklahoma Panhandle. Ten counties in southwest and east central/southeast Oklahoma are now under a Red Flag Fire Alert.

Palmer Drought Severity Index / Standardized Precipitation Index (Through August 2002)

Climate Division (#)	Current Status 9/14/2002	Value 9/14	Value 8/17	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	SEVERE DROUGHT	-3.26	-4.45	**1.19**	NEAR NORMAL	MODERATELY DRY	MODERATELY DRY	VERY DRY
North Central (2)	NEAR NORMAL	-0.44	-1.43	**0.99**	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	MILD DROUGHT	-1.31	-0.35	**-0.96**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MODERATE DROUGHT	-2.30	-3.12	**0.82**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Central (5)	NEAR NORMAL	-0.12	-0.68	**0.56**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MILD DROUGHT	-1.79	-0.76	**-1.03**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	INCIPIENT DROUGHT	-0.70	-1.22	**0.52**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	NEAR NORMAL	0.33	0.06	**0.27**	MODERATELY WET	MODERATELY WET	MODERATELY WET	MODERATELY WET
Southeast (9)	MILD DROUGHT	-1.70	-0.69	**-1.01**	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 9/17/2002
Idabel	McCurtain	Southeast	689
Broken Bow	McCurtain	Southeast	677
McAlester	Pittsburg	East Central	677

12 total stations above 600

Anticipated Impact

600-800: often associated with more severe drought; increased wildfire occurrence; intense deep burning fires with significant downwind spotting; live fuels also expected to burn actively.

400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.

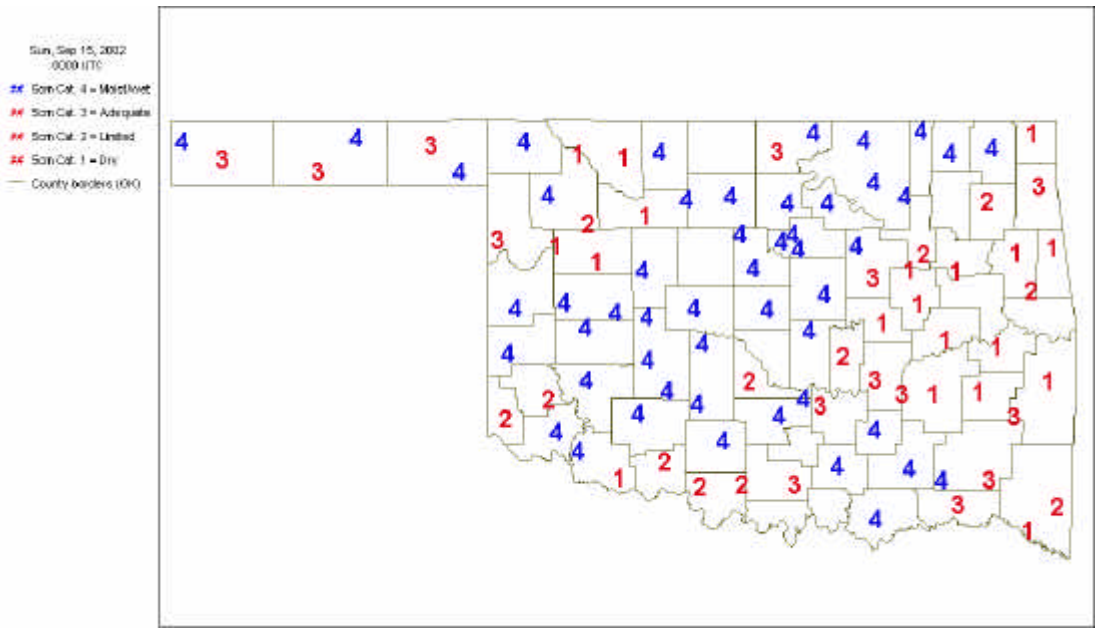
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

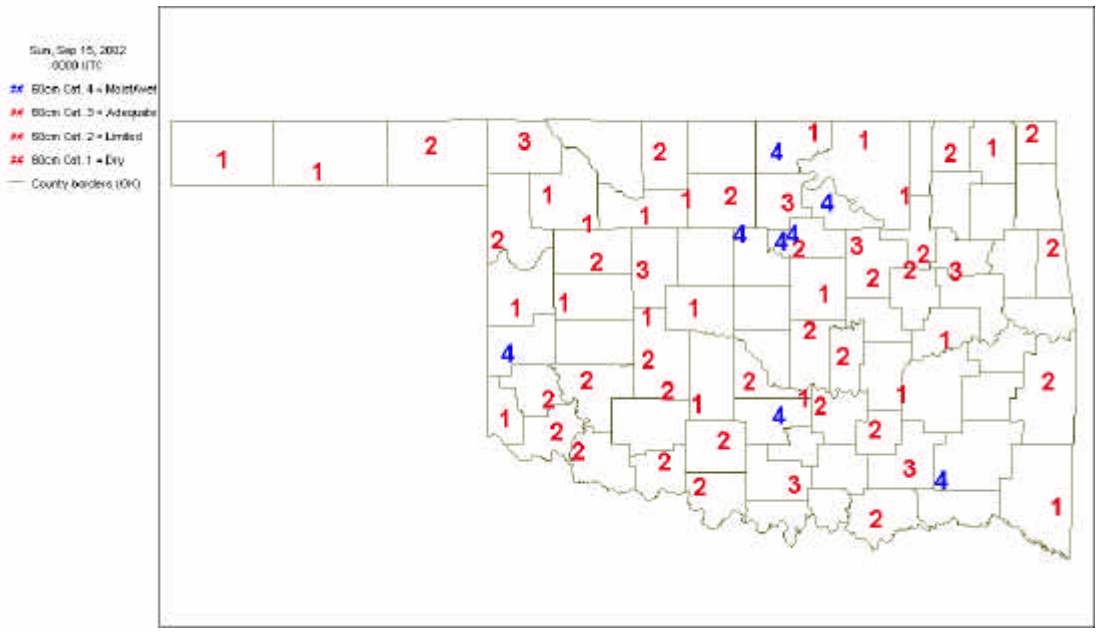
September 15, 2002

(courtesy Oklahoma Climatological Survey)

5 cm



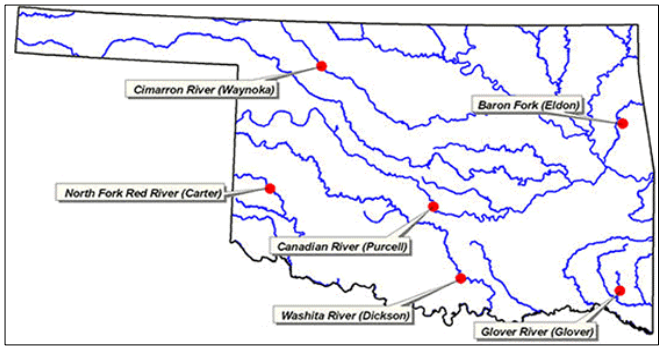
60 cm



Category Description		Depth -- Metric Conversion
Category 4	Moist/wet	5 cm = 2 inches
Category 3	Adequate	*corresponds to the approximate depth of grass roots
Category 2	Limited	60 cm = 23.6 inches
Category 1	Dry	*corresponds to the approximate root depth of the majority of Oklahoma crops

Streamflow Conditions

For the current water year, flows in many state rivers and streams remain generally low but have recently improved in some areas. Considering overall trends as well as current flows, the most recent data (September 17, 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, 2001, compared to long-term, normal/median daily discharges) indicate **much below average flow** in *northwest* (Cimarron River, Woods County) and *southeast* (Glover River, McCurtain County) Oklahoma; and **near average flow** in *south central* (Washita River, Carter County), *northeast* (Baron Fork, Cherokee County), *central* (Canadian River, McClain County) and *southwest* (North Fork/Red River, Beckham County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (September 24-30) calls for above normal precipitation for all but the Panhandle region of Oklahoma, where normal rainfall is anticipated. Below normal temperatures are expected for all but the general southeast and east central areas, where normal temperatures should prevail throughout the period.

Models continue to indicate gradual warming of equatorial Pacific Ocean waters and relatively weak El Niño conditions (especially compared to the very strong 1997-98 El Niño) are forecasted to develop through the end of 2002 and early 2003. The impacts that this warming will have on global temperature and precipitation patterns depend to a large degree on its intensity. 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 15—A cool front entered the state late in the week triggering widespread showers and dropping temperatures substantially. The rain was good news for producers waiting on moisture to start seeding their small grains. Oklahoma could see significant gains in seedings over the next week. Rainfall amounts were impressive, with many western counties averaging over an inch. Soil moisture supplies improved some in most areas, but there are parts of the southeast and southwest that could use more to keep pastures from deteriorating. Farmers had 5.5 days suitable for fieldwork during the week.

Many producers were busy planting small grains early in the week despite dry conditions, and late week rains should increase the planting momentum over the next week. Crop insect activity was rated 6 percent none, 36 percent light, 42 percent moderate, and 16 percent heavy. Nowata County reported fall army worms beginning to appear, and Dewey County reported a new batch of grasshoppers. Corn turning mature increased 12 percentage points to 85 percent of the crop and harvest was nearing the halfway mark. Nearly all sorghum has headed, and more than three-fourths has turned color. Fifty-six percent of the sorghum was mature and 35 percent was harvested. Soybeans were developing rapidly with 48 percent mature by week's end. Soybeans harvested increased 8 percentage points to 22 percent by Sunday. Forty-four percent of this year's peanut crop was mature, and isolated fields had been dug by week's end. Cotton with bolls opening increased 7 percentage points to 40 percent, and a few fields were being harvested. Row crops continued to be rated in mostly fair or good condition. Fourth cutting of alfalfa was running well ahead of normal at 91 percent complete. The fifth cutting was well underway at 25 percent complete. Other hay harvest increased just 4 percentage points from the previous week, but was still well ahead of last year and the average pace. Both alfalfa and other hay continued to be rated in mostly fair or good condition.

Livestock conditions continued to be rated in mostly fair or good condition. Range and pasture conditions did not change appreciably from the previous week with most continuing to be rated in fair or good condition. Texas County reported the western two-thirds of the county was seeing tremendous plant growth, but the remainder of the county continues to be very dry. LeFlore County, in the southeast, reported pasture conditions deteriorating dramatically over the past couple of weeks.

Reservoir Storage

Reservoir storage levels in Oklahoma remain generally good, although they continue to drop in most areas, especially in the southwest. As of September 16, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 91.8 percent full, a 1.8 percent decrease from that recorded on August 21, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-seven reservoirs have experienced lake level decreases since that time. Twenty-five reservoirs are currently operating at less than full capacity (compared to 22 two weeks ago). Two reservoirs (**Lugert-Altus, only 10.6 percent**; and Tom Steed, 55.6 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
09/16/2002

Climate Division / *Lake or Reservoir*	*Conservation Storage* (acre-feet)	*Present Storage* (acre-feet)	*Percent of Storage* conservation	flood
North Central				
Fort Supply	13,900	13,730	98.8	0.00
Great Salt Plains	31,420	31,420	100.0	0.38
Kaw*	375,160	375,160	100.0	0.41
Regional Totals/Averages	**420,480**	**420,310**	**100.0**	**0.26**
Northeast				
Birch	19,225	16,697	86.9	0.00
Copan	43,400	40,809	94.0	0.00
Fort Gibson	365,200	344,880	94.4	0.00
Grand	1,672,000	1,482,239	88.7	0.00
Hudson	200,300	200,300	100.0	0.23
Hulah	25,100	25,100	100.0	1.03
Keystone	568,507	535,544	94.2	0.00
Oologah	552,210	534,691	96.8	0.00
Skiatook	322,700	288,195	89.3	0.00
Regional Totals/Averages	**3,768,642**	**3,468,455**	**92.0**	**0.14**
West Central				
Canton	111,310	96,297	86.5	0.00
Foss	165,480	153,162	92.6	0.00
Regional Totals/Averages	**276,790**	**249,459**	**90.1**	**0.00**
Central				
Arcadia	27,520	27,520	100.0	1.50
Heyburn	7,105	6,727	94.7	0.00
Thunderbird	119,600	112,150	93.8	0.00
Regional Totals/Averages	**154,225**	**146,397**	**94.9**	**0.50**
East Central				
Eufaula*	2,260,943	1,978,345	87.5	0.00
Tenkiller	654,100	639,893	97.8	0.00
Regional Totals/Averages	**2,915,043**	**2,618,238**	**89.8**	**0.00**
Southwest				
Fort Cobb	80,010	76,148	95.2	0.00
Lugert-Altus	132,830	14,014	10.6	0.00
Tom Steed	88,970	49,449	55.6	0.00
Regional Totals/Averages	**301,810**	**139,611**	**46.3**	**0.00**
South Central				
Arbuckle	72,400	72,400	100.0	3.91
McGee Creek	113,930	110,657	97.1	0.00
Texoma*	2,539,946	2,521,349	99.3	0.00
Waurika*	190,200	183,333	96.4	0.00
Regional Totals/Averages	**2,916,476**	**2,887,739**	**99.0**	**0.98**
Southeast				
Broken Bow*	958,180	803,015	83.8	0.00
Hugo*	158,617	145,417	91.7	0.00
Pine Creek*	61,188	57,588	94.1	0.00
Sardis	274,330	270,045	98.4	0.00
Wister	60,162	52,539	87.3	0.00
Regional Totals/Averages	**1,512,477**	**1,328,604**	**87.8**	**0.00**
State Totals	**12,265,943**	**11,258,813**	**91.8**	**0.24**

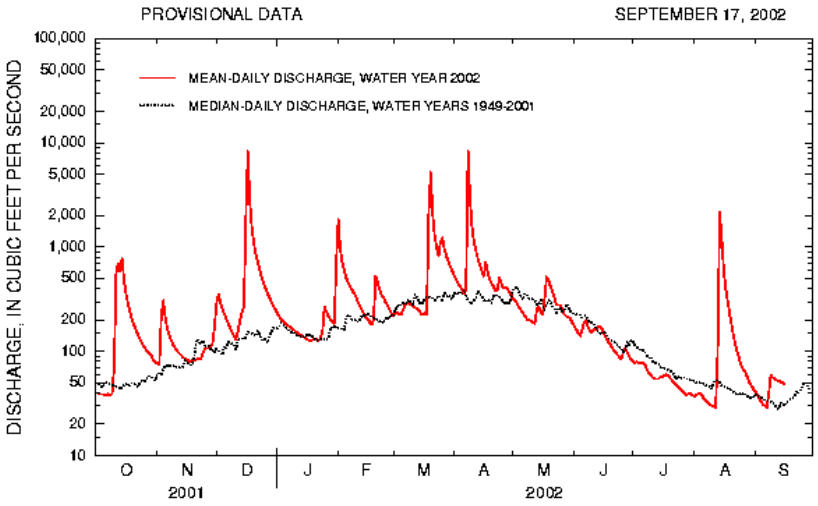
* indicates seasonal pool operation; actual storage figures/percentages may vary.

Baron Fork at Eldon

Baron Fork at Eldon, Oklahoma

Station No. 07197000
Northeast Oklahoma

Drainage Area 307 square miles



Comparison of daily discharges for water year 2002
and period of record for Baron Fork at Eldon, Oklahoma.

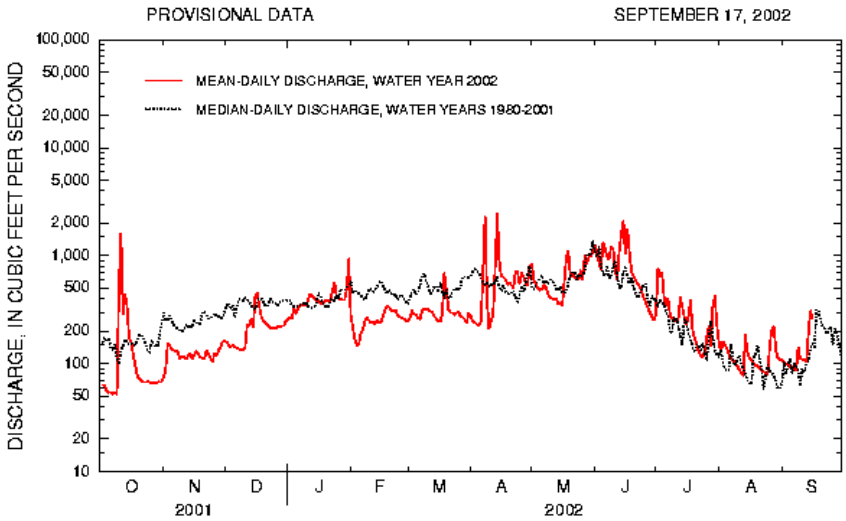
Data from U.S. Geological Survey

Canadian River at Purcell

Canadian River at Purcell, Oklahoma

Station No. 07229200
Central Oklahoma

Drainage Area 25,939 square miles



Comparison of daily discharges for water year 2002
and period of record for Canadian River at Purcell, Oklahoma.

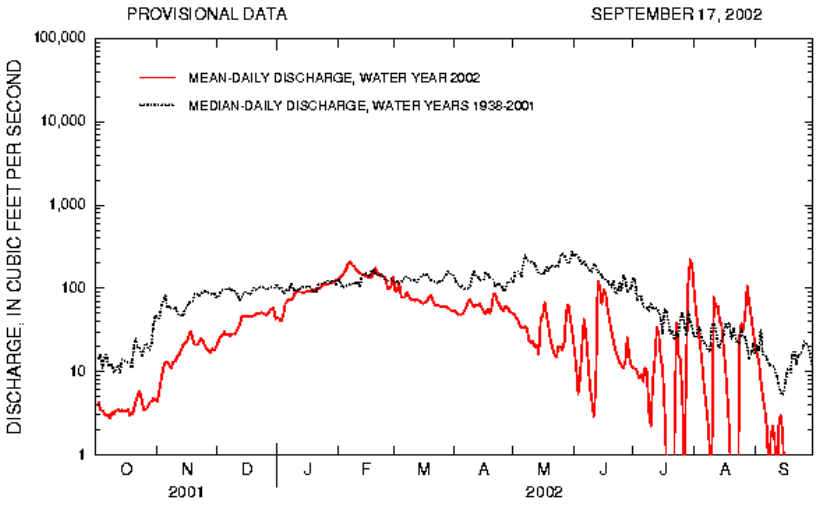
Data from U.S. Geological Survey

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 2002
and period of record for Cimarron River near Waynoka, Oklahoma.

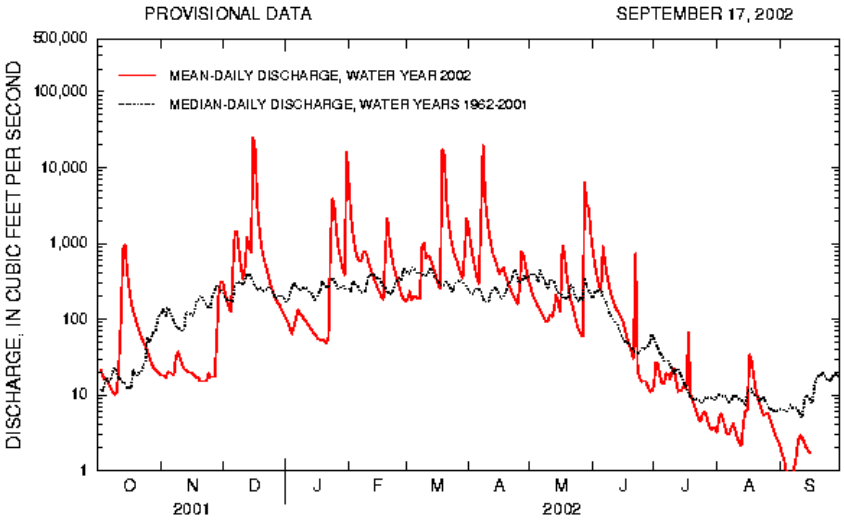
Data from U.S. Geological Survey

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 2002
and period of record for Glover River near Glover, Oklahoma.

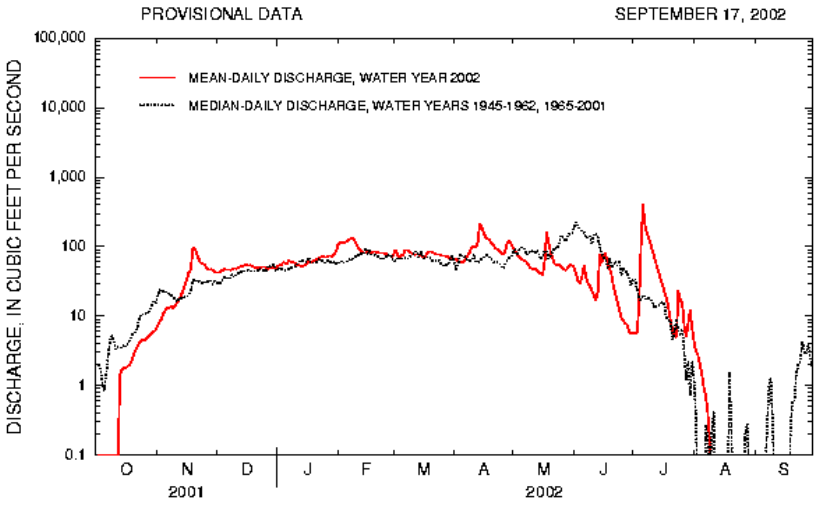
Data from U.S. Geological Survey

North Fork of the Red River near Carter

North Fork Red River near Carter, Oklahoma

Station No. 07301500
Southwest Oklahoma

Drainage Area 2,337 square miles



Comparison of daily discharges for water year 2002
and period of record for North Fork Red River near Carter, Oklahoma.

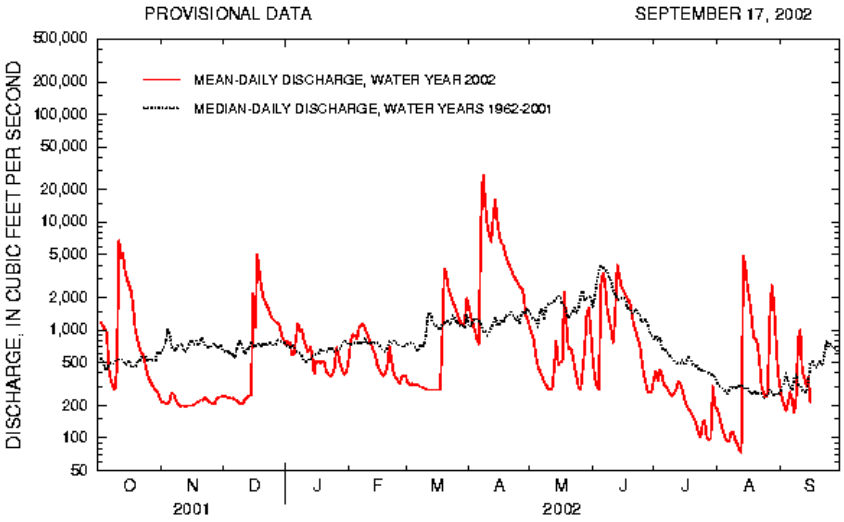
Data from U.S. Geological Survey

Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331000
South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2002
and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey