

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



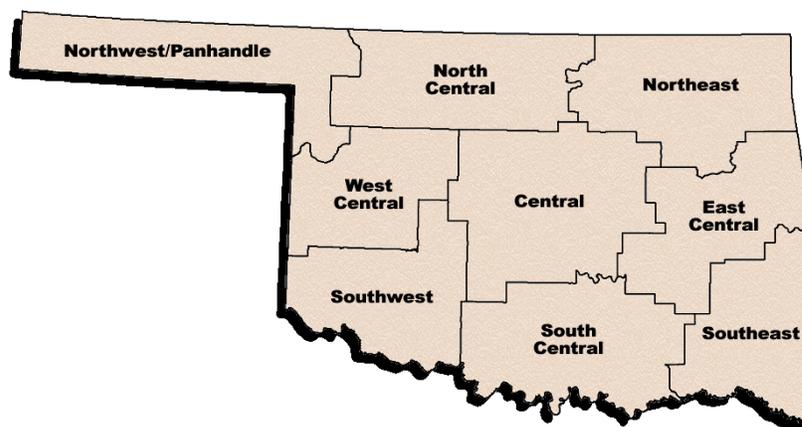
AUGUST 7, 2002

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Drought conditions persist in northwest Oklahoma and the Panhandle region. 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 August 5, 2002 (the current water year), remains the Northwest climate division (8.01 inches, only 47 percent of normal precipitation). The current state-averaged precipitation total is 26.16 inches, 86 percent of normal.

For the current growing season (March 1 through August 5), the Northwest region has received only 6.41 inches (50 percent of normal) of rainfall. Six additional regions report precipitation deficits over the period. The state-averaged rainfall total is 17.11 inches (89 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2001—AUGUST 5, 2002			WARM GROWING SEASON MARCH 1—AUGUST 5, 2002			RAINFALL SINCE JULY 15
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	8.01	-9.10	47	6.41	-6.29	50	0.67
North Central (2)	19.13	-6.83	74	15.18	-2.59	85	2.41
Northeast (3)	32.33	-2.19	94	20.00	-1.44	93	2.66
West Central (4)	17.02	-6.76	72	13.63	-2.70	83	1.94
Central (5)	25.36	-6.32	80	16.80	-3.16	84	1.36
East Central (6)	36.89	-1.83	95	21.65	-0.97	96	1.27
Southwest (7)	18.84	-6.32	75	13.83	-2.85	83	0.87
South Central (8)	32.01	-2.47	93	20.82	0.32	102	1.90
Southeast (9)	47.71	3.62	108	26.52	2.47	110	1.48
STATE-AVERAGED	26.16	-4.40	86	17.11	-2.01	89	1.63

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 (August 3, below), drought conditions in Oklahoma remained generally stable over the past three weeks. Five climate divisions are still in various drought categories. **The Panhandle/Northwest region remains in the “extreme” drought category while the West Central and North Central climate divisions are in “moderate” drought.** Eight of Oklahoma’s nine climate divisions have undergone PDSI moisture decreases since July 13; the greatest decrease occurred in the Southwest region.

The latest monthly Standardized Precipitation Index (through July, below) continues to indicate long-term dryness throughout the past year in northwest Oklahoma. Also, north central and west central Oklahoma have experienced an extended, moderately dry period. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **the Northwest/Panhandle climate division reports “extremely dry” conditions throughout the last 12-month period and “very dry” conditions during the last 6 and 9 months.** Among periods beyond one year, the 15-, 18-, and 24-month SPIs also report particularly dry conditions for much of northern and western Oklahoma. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (August 5, 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 are generally good, yet remain of concern in isolated areas of Oklahoma. Statewide, three stations are currently above 600, generally indicative of more severe drought conditions (one station had a reading above 600 on July 15). Idabel, in Southeast Oklahoma (650), has the highest KBDI value, followed by Hooker (Northwest; 645), and Boise City (Northwest; 606). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger). Effective June 19, the Governor’s Ban on Outdoor Burning remains in effect for two counties in the Panhandle region of Oklahoma (Cimarron and Texas Counties).

Palmer Drought Severity Index					Standardized Precipitation Index Through July 2002			
CLIMATE DIVISION (#)	CURRENT STATUS 8/3/2002	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		8/3	7/13					
Northwest (1)	EXTREME DROUGHT	-4.93	-4.40	-0.53	MODERATELY DRY	VERY DRY	VERY DRY	EXTREMELY DRY
North Central (2)	MODERATE DROUGHT	-2.43	-2.59	0.16	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
Northeast (3)	INCIPIENT DROUGHT	-0.98	-0.91	-0.07	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MODERATE DROUGHT	-2.75	-2.69	-0.06	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
Central (5)	MILD DROUGHT	-1.30	-1.08	-0.22	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MILD DROUGHT	-1.57	-1.28	-0.29	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	INCIPIENT DROUGHT	-0.69	-0.06	-0.63	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	NEAR NORMAL	-0.49	-0.48	-0.01	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	INCIPIENT DROUGHT	-0.70	-0.19	-0.51	NEAR NORMAL	MODERATELY WET	MODERATELY WET	VERY WET

Keetch-Byram Drought Fire Index

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 8/5/2002	ANTICIPATED IMPACT
Idabel	McCurtain	Southeast	650	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.
Hooker	Texas	Northwest	646	
Boise City	Cimarron	Northwest	606	

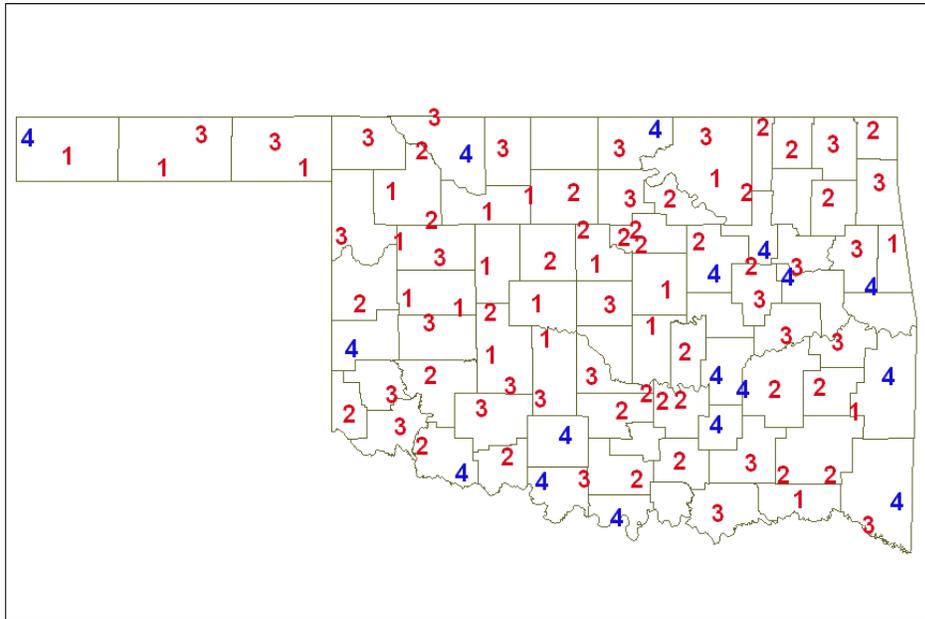
3 total stations above 600)

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
July 16, 2002
(courtesy Oklahoma Climatological Survey)

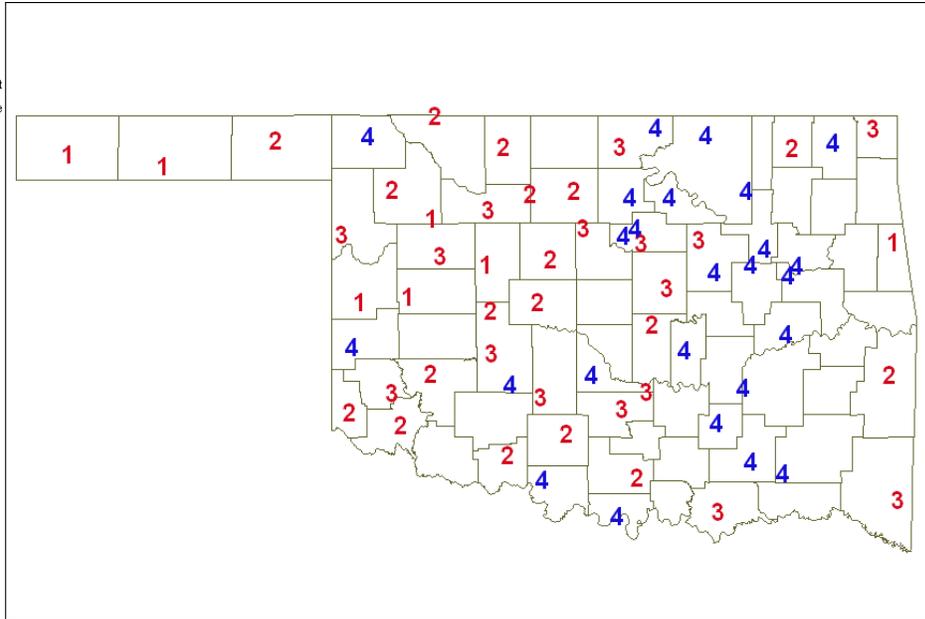
5 cm

Tue, Jul 16, 2002
 0000 UTC
 ## Scm Cat. 4 = Moist/wet
 ## Scm Cat. 3 = Adequate
 ## Scm Cat. 2 = Limited
 ## Scm Cat. 1 = Dry
 — County borders (OK)



60 cm

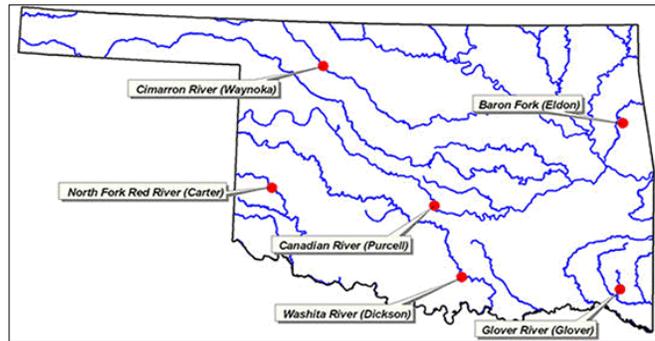
Tue, Jul 16, 2002
 0000 UTC
 ## 60cm Cat. 4 = Moist/wet
 ## 60cm Cat. 3 = Adequate
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Category Description		Depth -- Metric Conversion
Category 4	Moist/wet	5 cm = 2 inches
Category 3	Adequate	*corresponds to the approximate depth of grass roots
Category 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. Considering overall trends as well as current flows, the most recent data (July 29, 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 *south central* (Washita River, Carter County) Oklahoma; **below average flow** in the *southeast* (Glover River, McCurtain County); **near average flow** in the *northeast* (Baron Fork, Cherokee County) and *central* (Canadian River, McClain County) regions; and **above average flow** in *southwest* (North Fork/Red River, Beckham County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (August 12-18) calls for below normal precipitation for the general western two-thirds of Oklahoma and normal rainfall in the east. Normal temperatures are expected for the entire state 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

August 4—Heavy showers crossed the state early last week bringing some temporary relief from hot and dry conditions. Typical hot and dry August weather prevailed for the remainder of the week. Soil moisture supplies improved slightly from the previous week, but row crops will need more moisture to prevent stress. Compared to last year at the same time, soil moisture supplies are much better. However, the situation in the Panhandle continues to be critical, with 65 percent of the topsoil being rated very short of moisture, and 79 percent of subsoil being rated very short. Texas County reported producers were continuing to liquidate cow herds. Farmers had 5.6 days suitable for fieldwork during the week.

Plowing of wheat fields was beginning to slow, with 93 percent completed by week's end. Producers continued fertilizing and preparing seedbeds for fall planting. Nearly all row crops were progressing ahead of the five-year average normal development stages. Corn maturing gained another 10 percentage points last week, and continued to develop ahead of both last year's pace and the five-year average. Corn condition continued to be rated mostly fair or good. Sorghum changing color jumped 17 percentage points and was running ahead of the average pace. Sorghum conditions improved slightly from the previous week with more being rated in good condition. Reports of sorghum testing high for nitrates were received and the Panhandle continued to rate much of their acreage in very poor condition. Peanuts setting pods advanced 10 percentage points from the previous week and were developing ahead of both last year and the average pace. Peanuts remained in mostly fair or good condition. The heat was helping cotton development, with 70 percent of the crop setting bolls by week's end. Cotton continued to be rated in mostly fair or good condition. Grasshopper infestations continued to be the most common insect problem reported, however, the situation appeared to have eased slightly from the previous week. The first cutting of other hay was slowly moving toward completion with 96 percent finished by week's end. The second cutting was progressing steadily with 58 percent completed, ahead of both last year and the five-year average pace. Other hay was rated in mostly fair or good condition. Producers continued to make progress harvesting alfalfa with some areas already half-way complete with a fourth cutting. Alfalfa condition ratings remained about the same as last week with most of the crop rated in fair or good condition.

Livestock were rated in mostly fair or good condition. Livestock insect activity remained mostly light to moderate. Cattle auctions reported a modest increase in marketings of steers under 800 pounds, but a slight decrease in heifers less than 800 pounds. Range and pasture conditions continued to be rated in mostly fair or good condition, but conditions in the Panhandle have been so dry many producers have been selling their cow herds.

Reservoir Storage

Reservoir storage levels in Oklahoma remain generally good, although they have dropped in recent weeks. As of August 5, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 94.9 percent full, a 3.3 percent decrease from that recorded on July 15, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-five reservoirs have experienced lake level decreases since that time. Twenty reservoirs are currently operating at less than full capacity (compared to 12 three weeks ago). Two reservoirs (Lugert-Altus, only 37.5 percent; and Tom Steed, 61.1 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs						
<i>08/05/2002</i>						
<i>Climate Division</i>	Conservation Storage		Present Storage		Percent of Storage	
<i>Lake or Reservoir</i>						
	(acre-feet)		(acre-feet)		conservation	flood
North Central						
Fort Supply	13,900		13,900		100.0	0.02
Great Salt Plains	31,420		31,420		100.0	0.94
Kaw*	459,850		459,850		100.0	2.44
Regional Totals/Averages	505,170		505,170		100.0	1.13
Northeast						
Birch	19,225		17,732		92.2	0.00
Copan	43,400		43,037		99.2	0.00
Fort Gibson	365,200		365,200		100.0	1.30
Grand	1,672,000		1,524,531		91.2	0.00
Hudson	200,300		200,300		100.0	4.94
Hulah	25,100		25,100		100.0	1.46
Keystone	577,499		522,563		90.5	1.46
Oologah	552,210		552,210		100.0	0.38
Skiatook	322,700		302,390		93.7	0.00
Regional Totals/Averages	3,777,634		3,553,063		94.1	1.06
West Central						
Canton	111,310		99,461		89.4	0.00
Foss	165,480		157,763		95.3	0.00
Regional Totals/Averages	276,790		257,224		92.9	0.00
Central						
Arcadia	27,520		27,235		99.0	0.00
Heyburn	7,105		6,736		94.8	0.00
Thunderbird	119,600		117,380		98.1	0.00
Regional Totals/Averages	154,225		151,351		98.1	0.00
East Central						
Eufaula*	2,314,581		2,148,167		92.8	0.00
Tenkiller	654,100		654,100		100.0	3.87
Regional Totals/Averages	2,968,681		2,802,267		94.4	1.94
Southwest						
Fort Cobb	80,010		79,526		99.4	0.00
Lugert-Altus	132,830		49,788		37.5	0.00
Tom Steed	88,970		54,368		61.1	0.00
Regional Totals/Averages	301,810		183,682		60.9	0.00
South Central						
Arbuckle	72,400		72,400		100.0	1.96
McGee Creek	113,930		113,203		99.4	0.00
Texoma*	2,645,090		2,628,932		99.4	0.00
Waurika*	190,200		189,693		99.7	0.00
Regional Totals/Averages	3,021,620		3,004,228		99.4	0.49
Southeast						
Broken Bow*	958,180		864,910		90.3	0.00
Hugo*	158,617		158,617		100.0	2.61
Pine Creek*	64,626		63,397		98.1	0.00
Sardis	274,330		274,330		100.0	1.58
Wister	60,162		59,017		98.1	0.00
Regional Totals/Averages	1,515,915		1,420,271		93.7	0.84
State Totals	12,521,845		11,877,256		94.9	0.74
* indicates seasonal pool operation; actual storage figures/percentages may vary.						

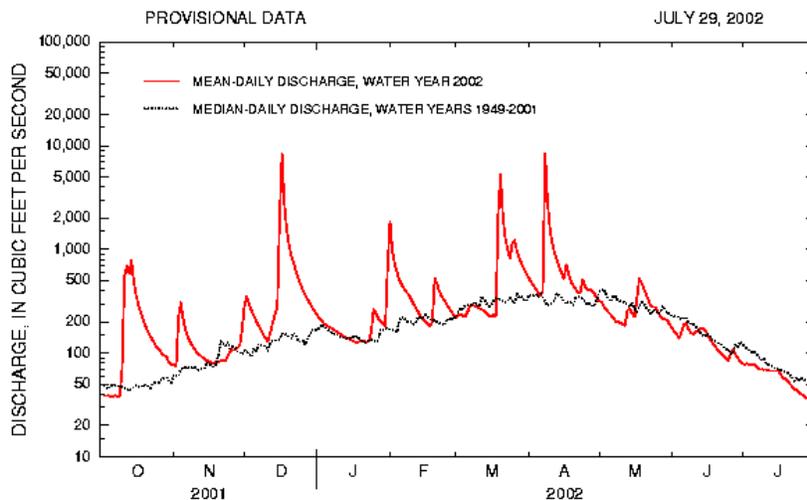
Baron Fork at Eldon

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

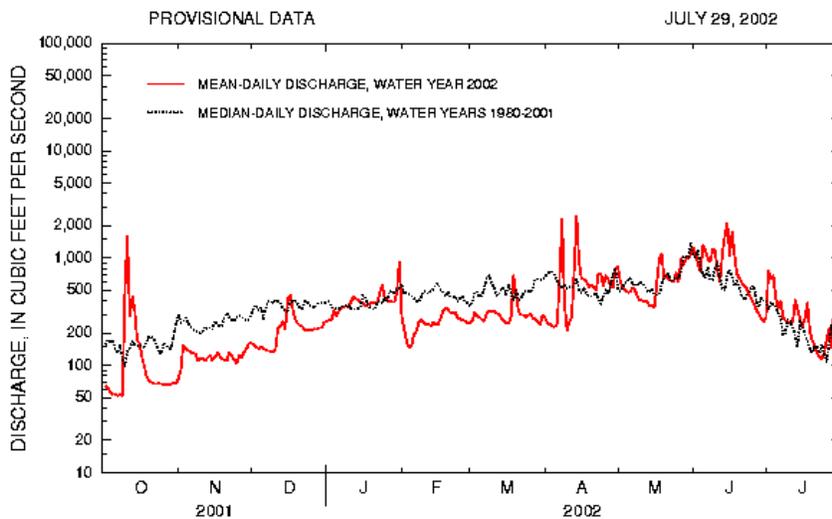
Canadian River at Purcell

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

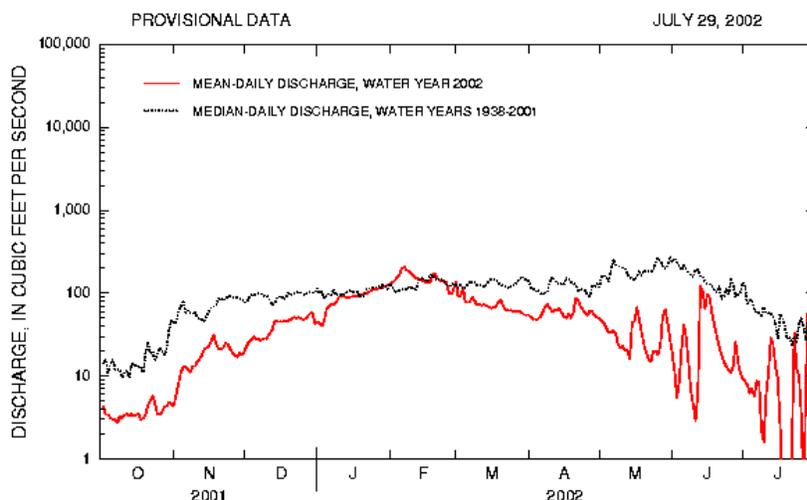
Cimarron River near Waynoka

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

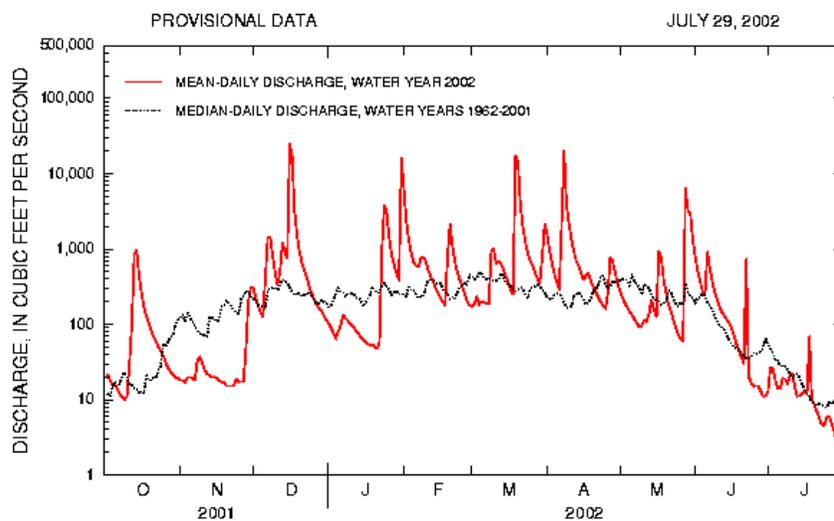
Glover River near Glover

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

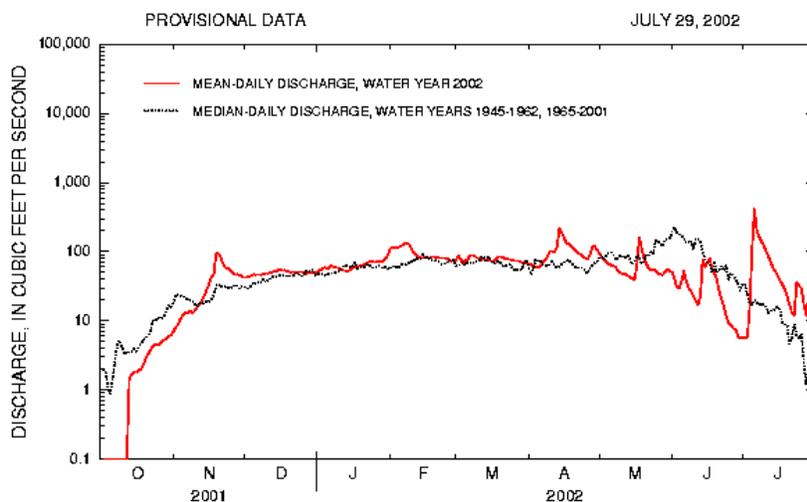
North Fork of the Red River near Carter

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

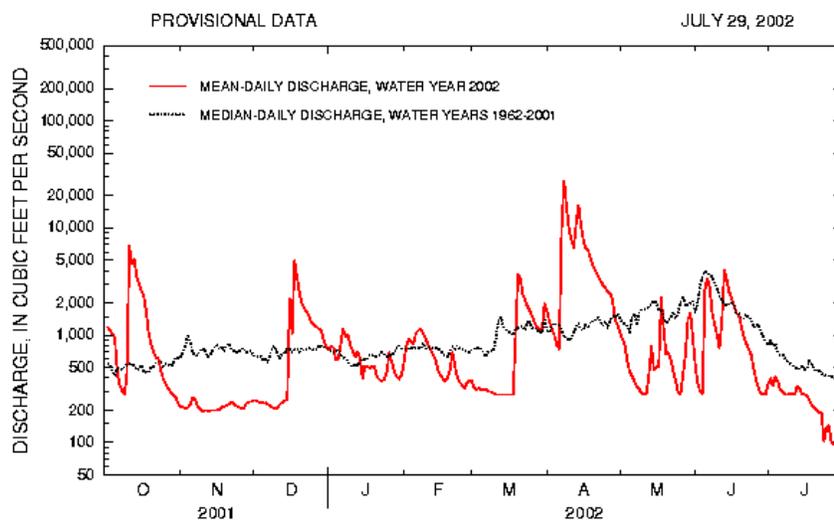
Washita River near Dickson

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