

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



JUNE 5, 2002

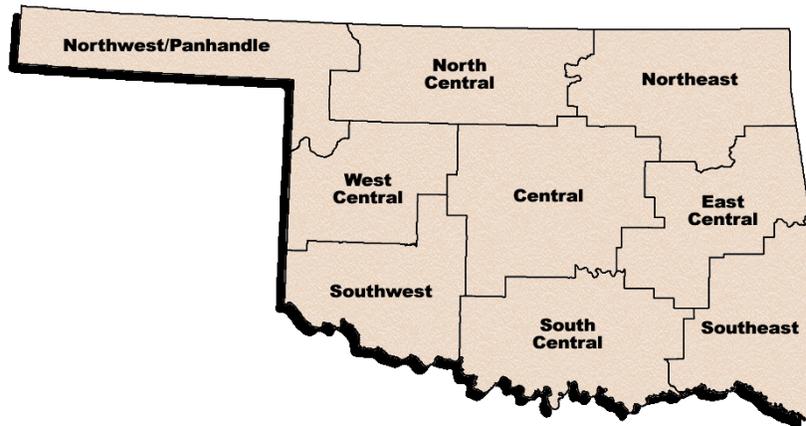
OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Dry conditions continue throughout much of northern and western Oklahoma, especially in the Panhandle region which continues to experience a lingering drought event.

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 June 3, 2002 (the current water year) remains the Northwest climate division (only 3.81 inches, 33 percent of normal precipitation). The West Central (9.95 inches, 56 percent of normal), North Central (10.96 inches, 58 percent of normal), and Southwest (12.14 inches, 65 percent of normal) regions are also exceedingly dry. The current state-averaged precipitation total is 19.15 inches, 81 percent of normal.

For the current growing season (March 1 through June 3), the Northwest region has received 2.21 inches (31 percent of normal) of rainfall, most of that in recent weeks. The state-averaged total is 10.12 inches (84 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2001—JUNE 3, 2002			WARM GROWING SEASON MARCH 1—JUNE 3, 2002			RAINFALL SINCE MAY 20
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	3.81	-7.74	33	2.21	-4.93	31	0.82
North Central (2)	10.96	-7.98	58	7.01	-3.74	65	1.71
Northeast (3)	24.52	-2.17	92	12.37	-1.24	91	1.98
West Central (4)	9.95	-7.78	56	6.56	-3.73	64	1.50
Central (5)	18.37	-6.20	75	9.81	-3.04	76	1.19
East Central (6)	29.66	-1.25	96	14.41	-0.38	97	1.47
Southwest (7)	12.14	-6.65	65	7.14	-3.18	69	1.05
South Central (8)	24.18	-3.19	88	12.98	-0.39	97	0.88
Southeast (9)	40.67	+4.82	113	19.48	+3.68	123	1.88
STATE-AVERAGED	19.15	-4.39	81	10.12	-1.99	84	1.38

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.state.ok.us/~owrb/features/drought.html>.

Drought Indices

According to the latest Palmer Drought Severity Index (June 1, below), drought conditions continue to worsen slightly in some areas of Oklahoma. **The Panhandle region remains in the “severe” drought category** and two additional regions—the North Central and West Central climate divisions—remain in “moderate” drought. Seven of Oklahoma’s nine climate divisions have undergone PDSI moisture decreases since May 18; the greatest decrease occurred in the South Central climate division (“near normal”).

The latest monthly Standardized Precipitation Index (through April, below) indicates long-term dryness throughout the past year in northern Oklahoma. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **the Northwest and North Central climate divisions both report “very dry” conditions throughout the last 9- and 12-month periods.** In addition, the Northeast and West Central regions are “moderately dry” over the past 12- and 9-month periods, respectively. Among periods beyond one year, the 15-, 18-, and 24-month SPIs also report dry conditions for the three northern climate divisions. In particular, the North Central region is “very dry” throughout the past 15 months. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (June 3, 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 northwest Oklahoma, especially in the Panhandle. Statewide, however, only two stations are currently above 600, generally indicative of more severe drought conditions (three stations had a reading above 600 on May 20). Hooker, in Northwest Oklahoma (647), retains the highest KBDI value, followed by Buffalo (Northwest; 613), and Kenton (Northwest; 573). According to the Oklahoma Department of Agriculture (Forestry Services), Statewide Wildfire Preparedness remains at Level 3 (high fire danger). Effective May 30, the Governor’s Ban on Outdoor Burning remains in effect for four counties in northwest Oklahoma (Beaver, Cimarron, Harper, and Texas Counties); Woodward County has been removed from the ban.

Palmer Drought Severity Index					Standardized Precipitation Index Through April 2002			
CLIMATE DIVISION (#)	CURRENT STATUS 6/1/2002	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
		6/1	5/18					
Northwest (1)	SEVERE DROUGHT	-3.80	-3.41	-0.39	MODERATELY DRY	MODERATELY DRY	VERY DRY	VERY DRY
North Central (2)	MODERATE DROUGHT	-2.62	-2.70	0.08	NEAR NORMAL	NEAR NORMAL	VERY DRY	VERY DRY
Northeast (3)	NEAR NORMAL	0.40	0.45	-0.05	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
West Central (4)	MODERATE DROUGHT	-2.34	-2.42	0.08	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	NEAR NORMAL
Central (5)	NEAR NORMAL	-0.41	0.02	-0.43	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	NEAR NORMAL	-0.07	0.59	-0.66	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Southwest (7)	INCIPIENT DROUGHT	-0.97	-0.78	-0.19	MODERATELY WET	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	NEAR NORMAL	0.44	1.30	-0.86	MODERATELY WET	MODERATELY WET	MODERATELY WET	NEAR NORMAL
Southeast (9)	MOIST SPELL	1.45	2.00	-0.55	MODERATELY WET	VERY WET	VERY WET	VERY WET

Keetch-Byram Drought Fire Index

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 6/3/2002	ANTICIPATED IMPACT
Hooker	Texas	Northwest	647	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.
Buffalo	Harper	Northwest	613	
Kenton	Cimarron	Northwest	573	

2 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.

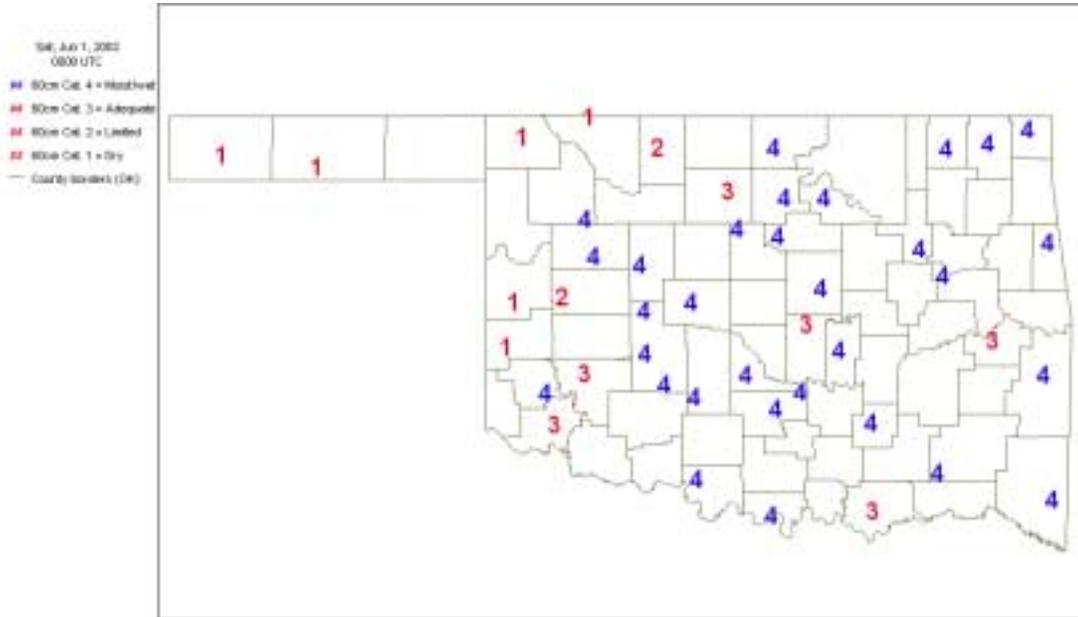
Soil Moisture
June 1, 2002

(courtesy Oklahoma Climatological Survey)

5 cm



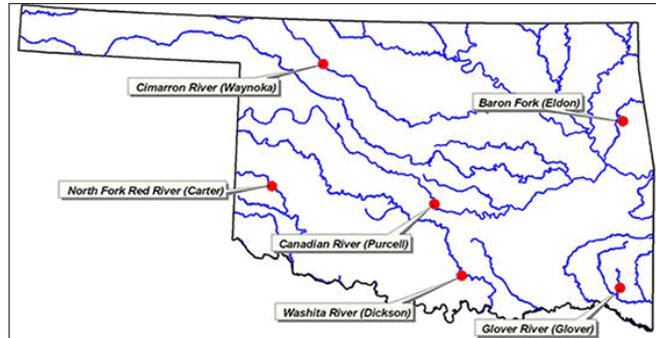
60 cm



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 state rivers and streams are generally in decline. Considering overall trends as well as current flows, the most recent data (June 3, 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 *southwest* (North Fork/Red River, Beckham County); and **near average flow** in the *southeast* (Glover River, McCurtain County), *central* (Canadian River, McClain County), and *northeast* (Baron Fork, Cherokee County) regions.



Weather Forecast

The National Weather Service 8- to 14-day outlook (June 11-17) calls for below normal precipitation for generally the entire state. Normal temperatures are anticipated for all of Oklahoma throughout the period.

Current models indicate that positive (warmer than normal) sub-surface temperature (SST) anomalies continue to arise in the equatorial Pacific Ocean. Forecasts indicate a gradual warming over the next several months with weak to moderate El Niño conditions by the end of 2002. 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

June 2—Hot and dry weather at week's end allowed combining crews to begin harvesting in southwestern counties, and machinery was being positioned and prepared for harvest elsewhere. Scattered showers crossed the state last week, but all regions except the southeast continued to run behind normal precipitation. Statewide, soil moisture supplies were rated mostly adequate. There were 4.9 days suitable for fieldwork last week.

Winter wheat condition ratings across the state were virtually unchanged with most rated in fair or good condition. Winter wheat in the soft dough stage reached 96 percent, ahead of both last year and the five-year average. Wheat harvested increased one to two percent complete and was poised to pick up momentum next week. Oat development moved ahead last week, but was lagging behind both last year and the five-year average. This year's oat crop continued to be rated in mostly fair to good condition. Statewide, all row crops continued to be rated in mostly fair or good condition. Planting and emergence progress for all major row crops was ahead of the five-year average pace. Crop insect activities were rated as mostly light to moderate, however reports of grasshopper populations increasing came in from around the state. The first cutting of alfalfa was winding down with 94 percent completed by the end of last week. Other hay cutting passed the halfway point at 54 percent harvested, but ranged from 37 percent completed in the northeast to 78 percent completed in the Panhandle. Both alfalfa and other hay continued to be rated in mostly fair or good condition.

Livestock continued to be rated in mostly fair or good condition. Livestock insect activity was rated mostly light to moderate, however horned fly and horsefly problems were reported. Cattle auctions reported a decrease in marketings of both steers and heifers less than 800 pounds. Statewide, range and pasture conditions were rated in mostly fair or good condition. Warm conditions and recent rains have helped warm season grasses.

Reservoir Storage

Reservoir storage levels in Oklahoma remain generally good. As of June 3, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 98.1 percent full, a 0.7 percent decrease from that recorded on May 20, according to information from the U.S. Army Corps of Engineers (Tulsa District). Thirteen reservoirs have experienced lake level decreases since that time. Only eight reservoirs are currently operating at less than full capacity (compared to six two weeks ago). Two reservoirs (including Lugert-Altus, 54.1 percent; and Tom Steed, 67.8 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs				
<i>06/03/2002</i>				
<i>Climate Division</i>	<i>Conservation Storage</i>	<i>Present Storage</i>	<i>Percent of Storage</i>	
<i>Lake or Reservoir</i>	<i>(acre-feet)</i>	<i>(acre-feet)</i>	<i>conservation</i>	<i>flood</i>
North Central				
Fort Supply	13,900	13,900	100.0	0.35
Great Salt Plains	31,420	31,420	100.0	1.19
Kaw*	459,850	459,850	100.0	14.28
Regional Totals/Averages	505,170	505,170	100.0	5.27
Northeast				
Birch	19,225	19,225	100.0	0.58
Copan	43,400	43,400	100.0	12.91
Fort Gibson	365,200	365,200	100.0	27.59
Grand	1,672,000	1,672,000	100.0	29.24
Hudson	200,300	200,300	100.0	25.81
Hulah	25,100	25,100	100.0	14.14
Keystone	577,499	577,499	100.0	14.14
Oologah	552,210	552,210	100.0	28.98
Skiatook	322,700	308,269	95.5	0.00
Regional Totals/Averages	3,777,634	3,763,203	99.6	17.04
West Central				
Canton	111,310	109,802	98.6	0.00
Foss	165,480	159,936	96.6	0.00
Regional Totals/Averages	276,790	269,738	97.5	0.00
Central				
Arcadia	27,520	27,520	100.0	0.38
Heyburn	7,105	7,105	100.0	0.63
Thunderbird	119,600	119,600	100.0	0.72
Regional Totals/Averages	154,225	154,225	100.0	0.58
East Central				
Eufaula*	2,314,581	2,314,581	100.0	2.42
Tenkiller	654,100	654,100	100.0	6.41
Regional Totals/Averages	2,968,681	2,968,681	100.0	4.42
Southwest				
Fort Cobb	80,010	80,010	100.0	1.34
Lugert-Altus	132,830	71,912	54.1	0.00
Tom Steed	88,970	60,323	67.8	0.00
Regional Totals/Averages	301,810	212,245	70.3	0.45
South Central				
Arbuckle	72,400	72,400	100.0	2.87
McGee Creek	113,930	112,354	98.6	0.00
Texoma*	2,742,146	2,610,207	95.2	0.00
Waurika*	190,200	190,099	99.9	0.00
Regional Totals/Averages	3,118,676	2,985,060	95.7	0.72
Southeast				
Broken Bow*	958,180	958,180	100.0	6.62
Hugo*	198,067	198,067	100.0	0.66
Pine Creek*	71,120	71,120	100.0	0.63
Sardis	274,330	274,330	100.0	2.26
Wister	60,162	60,162	100.0	8.50
Regional Totals/Averages	1,561,859	1,561,859	100.0	3.73
State Totals	12,664,845	12,420,181	98.1	6.54

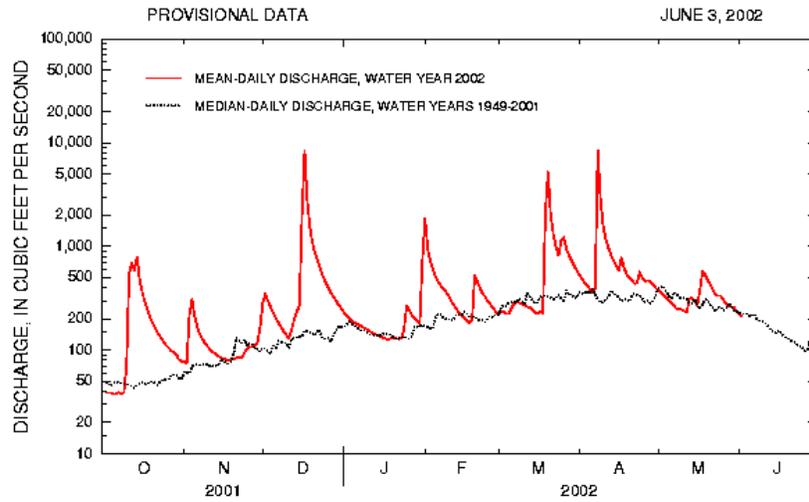
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

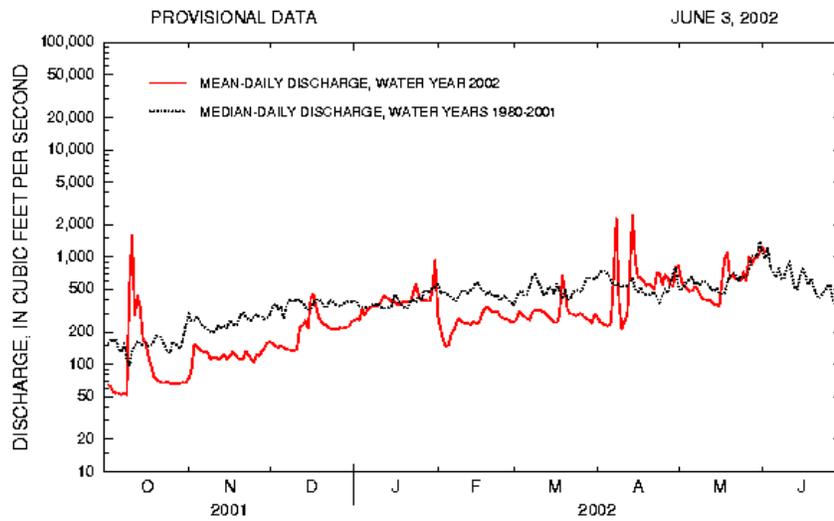
Data from U.S. Geological Survey

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.

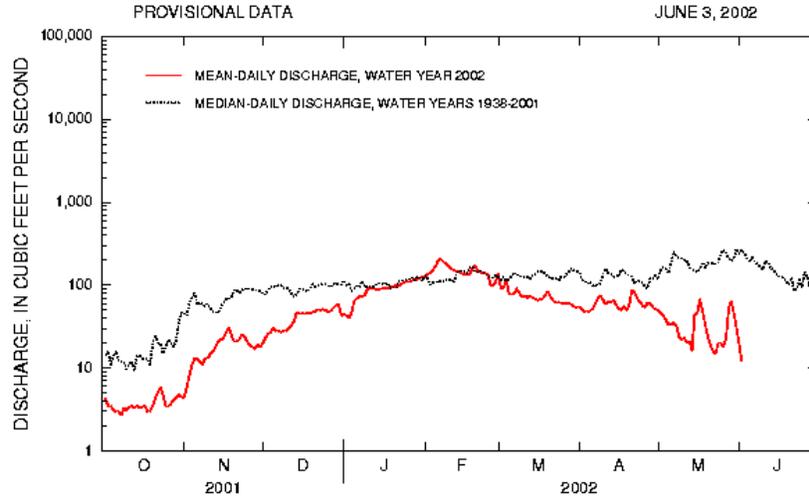
Data from U.S. Geological Survey

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.

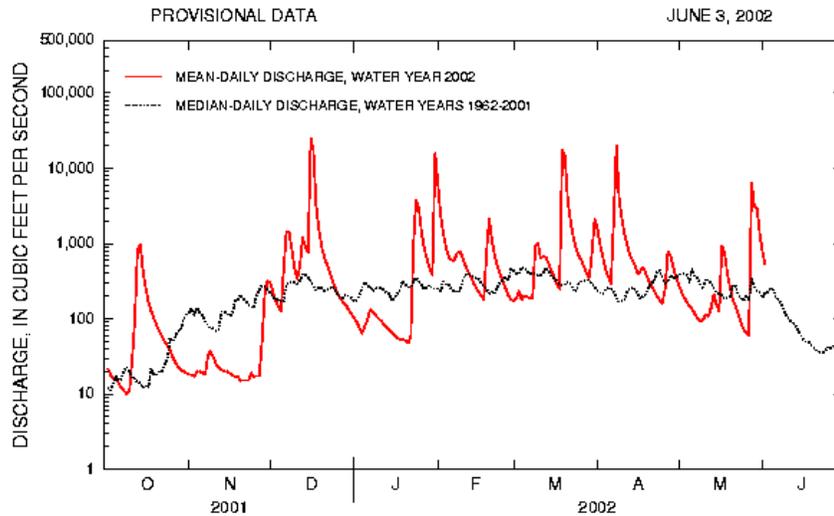
Data from U.S. Geological Survey

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

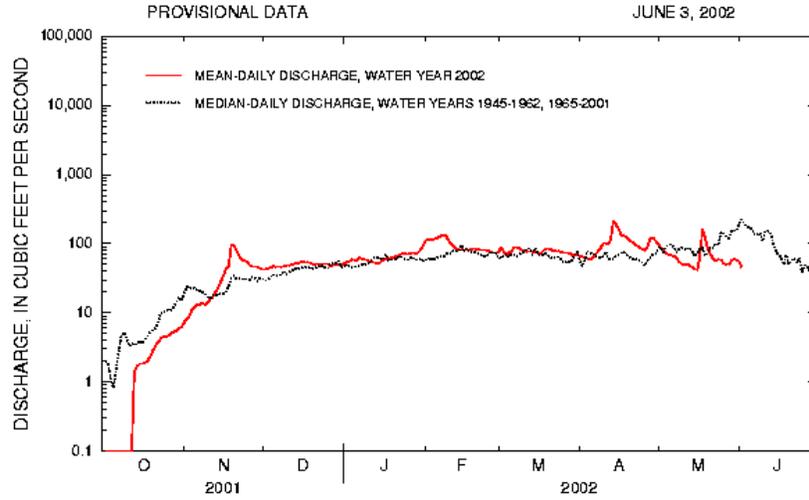
North Fork of the Red River near Carter

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

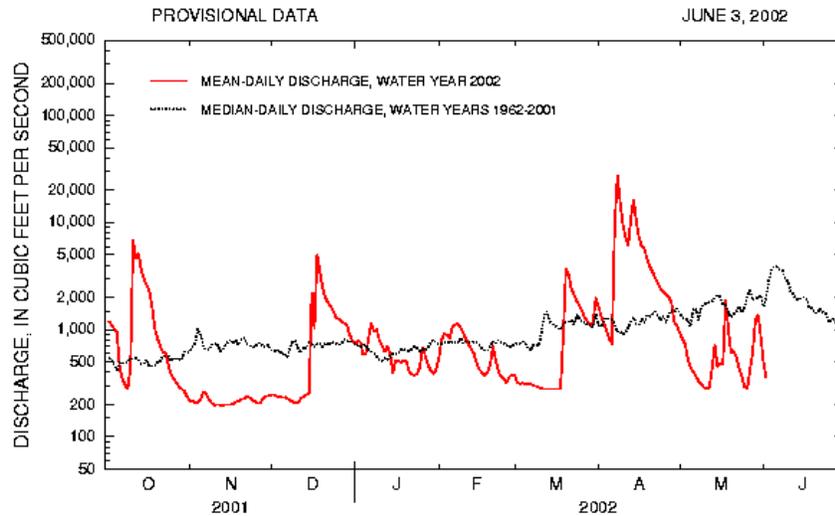
Washita River near Dickson

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