Oklahoma Water Resources Bulletin
& Summary of Current Conditions

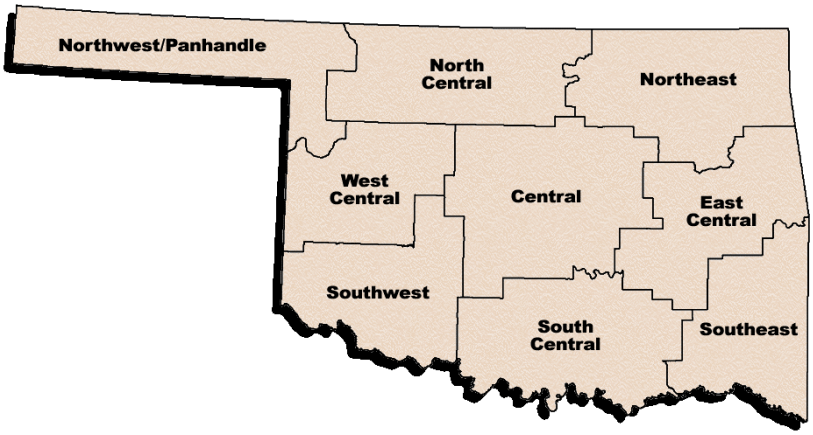
JUNE 19, 2002 — OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Recent statewide rainfall has had a marginal beneficial effect on the drought conditions bearing down on northwest Oklahoma during the past few months. Northwest Oklahoma has received more than two inches of precipitation during the last two weeks and state-averaged rainfall is nearly 3.5 inches during that period.

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 17, 2002 (the current water year), remains the Northwest climate division (5.86 inches, 45 percent of normal precipitation). The West Central region (12.95 inches, 66 percent of normal) region also remains quite dry. The current state-averaged precipitation total is 22.57 inches, 88 percent of normal.

For the current growing season (March 1 through June 17), the Northwest region has received 4.26 inches (50 percent of normal) of rainfall. Four other regions report precipitation deficits over the period. The state-averaged total is 13.53 inches (96 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2001—JUNE 17, 2002			WARM GROWING SEASON MARCH 1—JUNE 17, 2002			RAINFALL SINCE JUNE 3
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	5.86	-7.07	45	4.26	-4.25	50	2.05
North Central (2)	15.08	-5.71	73	11.12	-1.47	88	4.12
Northeast (3)	28.29	-0.56	98	16.05	+0.29	102	3.77
West Central (4)	12.95	-6.59	66	9.55	-2.54	79	3.00
Central (5)	22.30	-4.40	84	13.75	-1.24	92	3.93
East Central (6)	33.45	+0.28	101	18.20	+1.14	107	3.79
Southwest (7)	15.22	-5.52	73	10.21	-2.05	83	3.08
South Central (8)	27.89	-1.64	94	16.70	+1.16	107	3.71
Southeast (9)	43.65	+5.61	115	22.45	+4.46	125	2.98
STATE-AVERAGED	**22.57**	**-2.96**	**88**	**13.53**	**-0.56**	**96**	**3.42**

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 (June 15, below), drought conditions have improved slightly in virtually all areas of Oklahoma. While **the Panhandle and West Central regions remain in the "severe" and moderate drought categories**, respectively, the North Central climate division has improved from "moderate" to "mild" drought. Only one of Oklahoma's nine climate divisions has undergone a PDSI moisture decrease since June 1.

The latest monthly Standardized Precipitation Index (through May, below) indicates long-term dryness throughout the past year in much of northern and western Oklahoma, especially the Northwest/Panhandle climate division. Among the *selected* time periods (3-, 6-, 9- and 12-month SPIs), **the Northwest climate division reports "extremely dry" conditions throughout the last 9- and 12-month periods and "very dry" conditions in the last 3- and 6-month periods. "Very dry" conditions have also impacted North Central, West Central and Southwest regions during the last 12-month period**. Among periods beyond one year, the 15-, 18-, and 24-month SPIs also report particularly dry conditions for the Northwest and North Central climate divisions. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (June 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 of concern in some areas of northwest Oklahoma and the Panhandle. Statewide, however, only one station is currently above 600, generally indicative of more severe drought conditions (two stations had a reading above 600 on June 3). Buffalo, in Northwest Oklahoma (649), has the highest KBDI value, followed by Hooker (Northwest; 592), and Alva (North Central; 544). 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).

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

Climate Division (#)	Current Status 6/15/2002	Value 6/15	Value 6/1	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest (1)	SEVERE DROUGHT	-3.46	-3.80	**0.34**	VERY DRY	VERY DRY	EXTREMELY DRY	EXTREMELY DRY
North Central (2)	MILD DROUGHT	-1.44	-2.62	**1.18**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	VERY DRY
Northeast (3)	INCIPIENT MOIST SPELL	0.87	0.40	**0.47**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
West Central (4)	MODERATE DROUGHT	-2.22	-2.34	**0.12**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	VERY DRY
Central (5)	NEAR NORMAL	0.11	-0.41	**0.52**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	NEAR NORMAL	0.24	-0.07	**0.31**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	INCIPIENT DROUGHT	-0.80	-0.97	**0.17**	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	VERY DRY
South Central (8)	INCIPIENT MOIST SPELL	0.63	0.44	**0.19**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	MOIST SPELL	1.17	1.45	**-0.28**	MODERATELY WET	VERY WET	MODERATELY WET	MODERATELY WET

Keetch-Byram Drought Fire Index

Mesonet Station	County	Climate Division	Current Value 6/17/2002	Anticipated Impact
Buffalo	Harper	Northwest	649	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.
Hooker	Texas	Northwest	592	
Alva	Woods	North Central	544	400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.

1 total station above 600

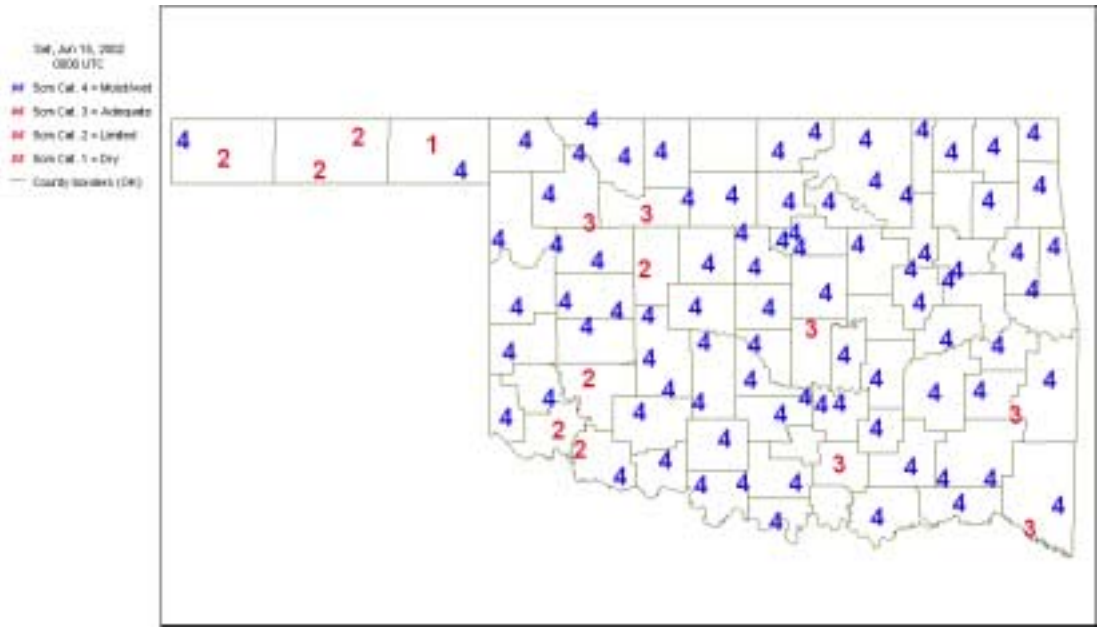
The PDSI may underestimate or overestimate the severity of ongoing dry periods. The SPI, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides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

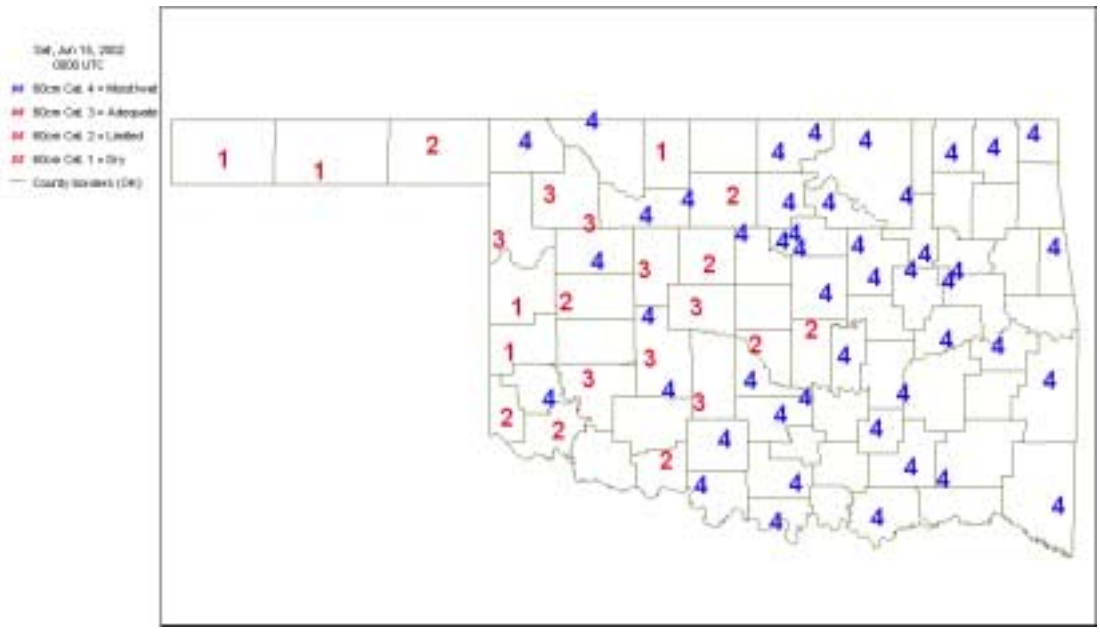
June 15, 2002

(courtesy Oklahoma Climatological Survey)

5 cm



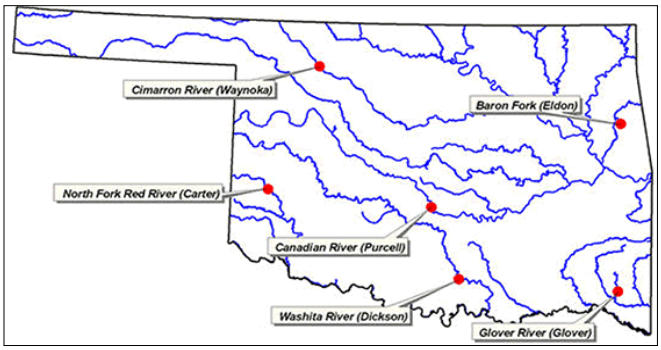
60 cm



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 in general decline. Considering overall trends as well as current flows, the most recent data (June 14, 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) Oklahoma; **below average flow** in the *south central* (Washita River, Carter County) and *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 25 through July 1) calls for below normal precipitation for all but southeast Oklahoma, where normal rainfall is anticipated. Normal temperatures are anticipated for all of Oklahoma throughout the period.

Current models indicate that positive (warmer than normal) sub-surface temperature (SST) anomalies have recently intensified somewhat in the equatorial Pacific Ocean. Forecasts continue to 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 16—The winter wheat harvest advanced rapidly northward early last week with many southwest counties nearly completed. Heavy thunderstorms moved across the state on Wednesday and Thursday, and then again on Saturday, which delayed harvest in many areas. Grant County reported test weights were less than hoped for before the storms, and would be worsened because of the rain. Reports of heavy grasshopper activity continue to come in from around Oklahoma. Soil moisture supplies showed some welcomed improvement and should aid summer crops. There were 4 days suitable for fieldwork.

Winter wheat harvest surged 24 percentage points last week to 42 percent complete, despite the weather. The southwest region was leading the harvest with 81 percent completed, while the north central region was 38 percent completed by week's end. Wheat condition ratings slipped slightly due to the rain. Oats harvest picked up last week, advancing 21 percentage points to 36 percent complete. Both oats and rye condition ratings remained mostly fair or good. Statewide, row crop conditions continued to be rated in mostly fair or good condition. Grasshopper activity was a rising concern and many areas were beginning to see some damage. Corn silking climbed 3 percentage points last week to 8 percent of the crop. Texas County reported recent rains were enough to settle the dust, but irrigation wells were running 24 hours a day to keep up with the corn crop needs. Peanuts entering the pegging stage of development are 3 percent compared with 7 percent last year, and the five-year average of 9 percent. Cotton was just beginning to square. Alfalfa and other hay conditions were rated mostly fair or good. The second cutting of alfalfa reached 43 percent complete, behind last year's 64 percent and the five-year average of 50 percent. Other hay advanced 3 percentage points to 65 percent of the crop harvested.

Livestock continue to be rated in mostly fair or good condition. Livestock insect activity was increasing with more rated moderate to heavy this week compared with the previous week. Ticks and flies are the most cited pests. Cattle auctions reported lighter marketings of both steers and heifers less than 800 pounds. Statewide, range and pasture conditions did not change much from the previous week with most continuing to be rated fair or good. Many producers were beginning to spray pastures due to the outbreak of grasshopper activity.

Reservoir Storage

Reservoir storage levels in Oklahoma remain generally good. As of June 17, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 99.1 percent full, a 1.0 percent increase from that recorded on June 3, according to information from the U.S. Army Corps of Engineers (Tulsa District). Ten reservoirs have experienced lake level decreases since that time. Only six reservoirs are currently operating at less than full capacity (compared to eight two weeks ago). Two reservoirs (including Lugert-Altus, 54.6 percent; and Tom Steed, 66.8 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs
06/17/2002

Climate Division / *Lake or Reservoir*	*Conservation Storage* (acre-feet)	*Present Storage* (acre-feet)	*Percent of Storage* conservation	flood
North Central				
Fort Supply	13,900	13,900	100.0	1.90
Great Salt Plains	31,420	31,420	100.0	4.01
Kaw*	459,850	459,850	100.0	28.80
Regional Totals/Averages	**505,170**	**505,170**	**100.0**	**11.57**
Northeast				
Birch	19,225	19,225	100.0	3.69
Copan	43,400	43,400	100.0	12.39
Fort Gibson	365,200	365,200	100.0	26.25
Grand	1,672,000	1,672,000	100.0	16.45
Hudson	200,300	200,300	100.0	24.81
Hulah	25,100	25,100	100.0	14.39
Keystone	577,499	577,499	100.0	14.39
Oologah	552,210	552,210	100.0	28.07
Skiatook	322,700	320,258	99.2	0.00
Regional Totals/Averages	**3,777,634**	**3,775,192**	**99.9**	**15.60**
West Central				
Canton	111,310	102,402	92.0	0.00
Foss	165,480	160,470	97.0	0.00
Regional Totals/Averages	**276,790**	**262,872**	**95.0**	**0.00**
Central				
Arcadia	27,520	27,520	100.0	2.54
Heyburn	7,105	7,105	100.0	1.57
Thunderbird	119,600	119,600	100.0	3.98
Regional Totals/Averages	**154,225**	**154,225**	**100.0**	**2.70**
East Central				
Eufaula*	2,314,581	2,314,581	100.0	2.91
Tenkiller	654,100	654,100	100.0	9.57
Regional Totals/Averages	**2,968,681**	**2,968,681**	**100.0**	**6.24**
Southwest				
Fort Cobb	80,010	80,010	100.0	4.40
Lugert-Altus	132,830	72,588	54.6	0.00
Tom Steed	88,970	59,466	66.8	0.00
Regional Totals/Averages	**301,810**	**212,064**	**70.3**	**1.47**
South Central				
Arbuckle	72,400	72,400	100.0	4.38
McGee Creek	113,930	113,930	100.0	2.95
Texoma*	2,742,146	2,742,146	100.0	1.74
Waurika*	190,200	190,200	100.0	2.32
Regional Totals/Averages	**3,118,676**	**3,118,676**	**100.0**	**2.85**
Southeast				
Broken Bow*	958,180	954,379	99.6	0.00
Hugo*	198,067	198,067	100.0	0.47
Pine Creek*	71,120	71,120	100.0	0.73
Sardis	274,330	274,330	100.0	2.60
Wister	60,162	60,162	100.0	0.67
Regional Totals/Averages	**1,561,859**	**1,558,058**	**99.8**	**0.89**
State Totals	**12,664,845**	**12,554,938**	**99.1**	**6.97**

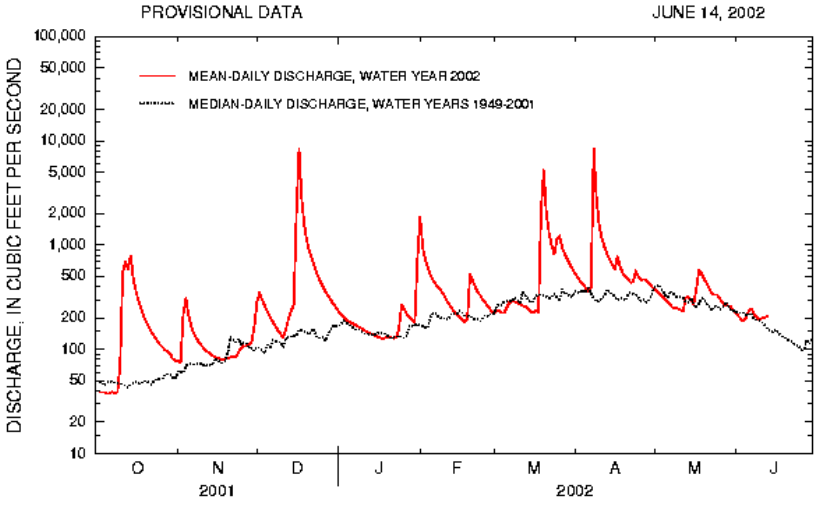
* indicates seasonal pool operation; actual storage figures/percentages may vary.

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.

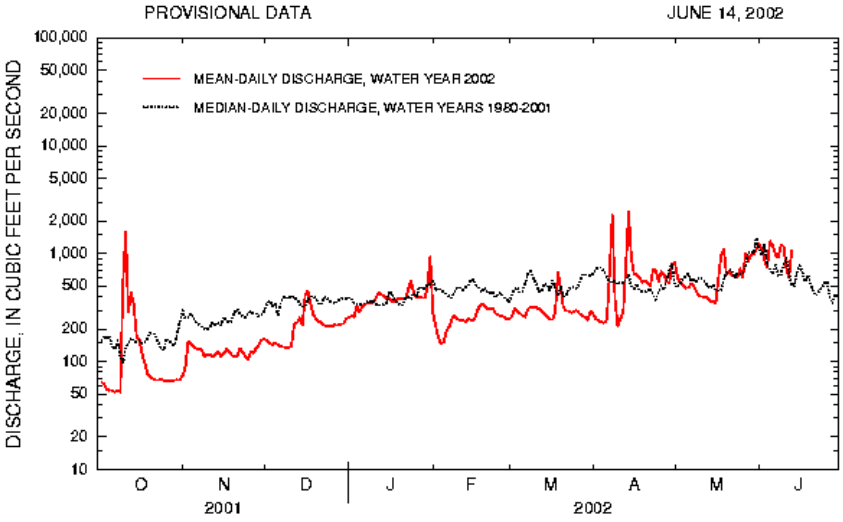
Data from U.S. Geological Survey

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.

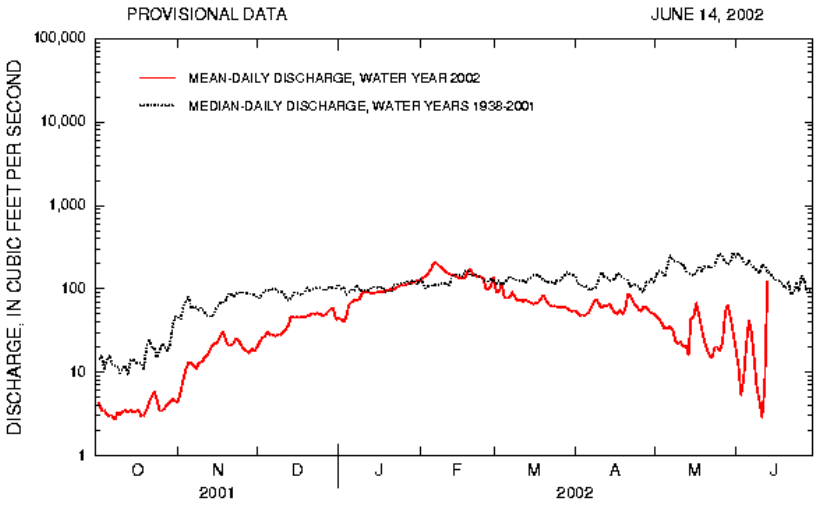
Data from U.S. Geological Survey

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.

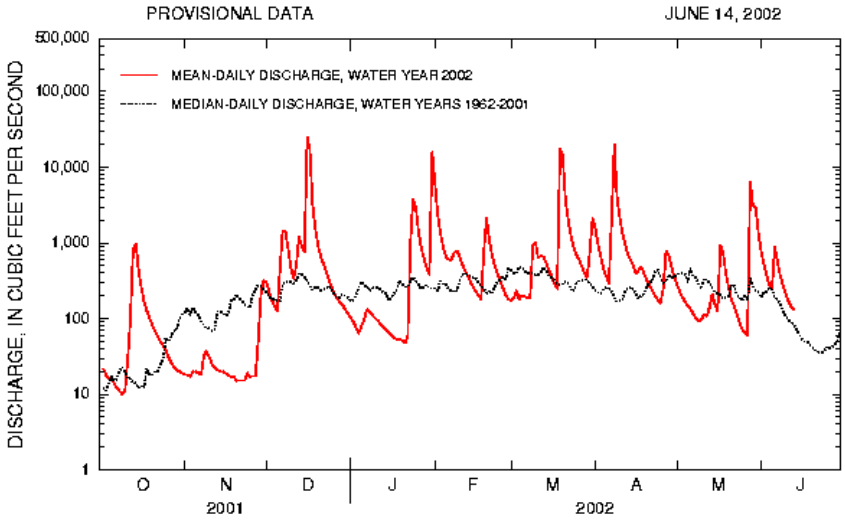
Data from U.S. Geological Survey

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.

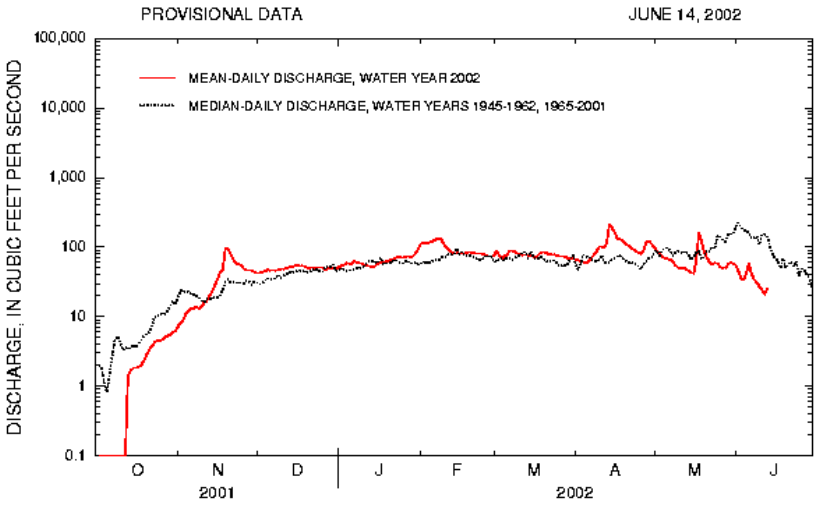
Data from U.S. Geological Survey

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.

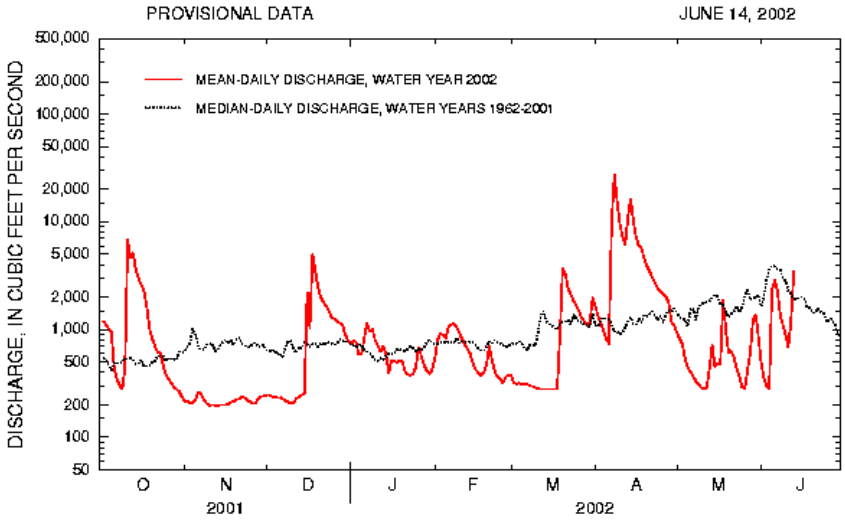
Data from U.S. Geological Survey

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