

Oklahoma Water Resources Bulletin & Summary of Current Conditions



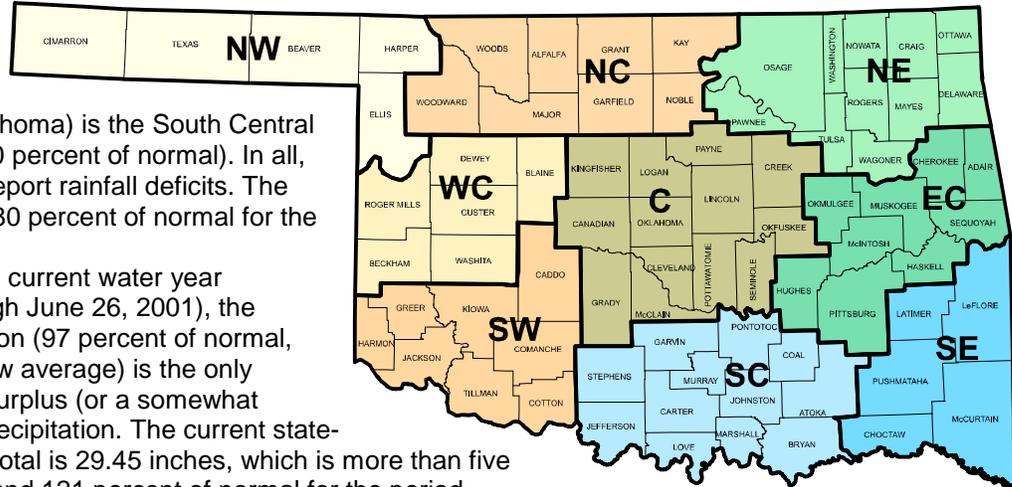
JUNE 27, 2001

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Dry conditions are once again beginning to emerge throughout many areas of the state, especially since the start of the current growing season. According to preliminary Mesonet weather station data provided by the [Oklahoma Climatological Survey](#) and National Weather Service (see below), the area experiencing the lowest percent of normal rainfall from March 1 through June 26 (the current growing season in Oklahoma) is the South Central climate division (only 60 percent of normal). In all, seven of nine regions report rainfall deficits. The state-averaged total is 80 percent of normal for the period.

Conversely, for the current water year (October 1, 2000 through June 26, 2001), the Northeast climate division (97 percent of normal, less than one inch below average) is the only region not reporting a surplus (or a somewhat generous surplus) of precipitation. The current state-averaged precipitation total is 29.45 inches, which is more than five inches above average and 121 percent of normal for the period.



PRELIMINARY STATEWIDE PRECIPITATION BY CLIMATE DIVISION

(IN INCHES)

DIVISION (#)	CURRENT GROWING SEASON MARCH 1 – JUNE 26, 2001			WATER YEAR OCTOBER 1, 2000 – JUNE 26, 2001			RAINFALL SINCE MAY 21
	TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	TOTAL RAINFALL	DEPARTURE FROM NORMAL	PERCENT OF NORMAL	
Northwest (1)	9.22	0.73	109	17.23	4.80	139	2.42
North Central (2)	11.03	-0.43	96	24.89	6.28	134	3.97
Northeast (3)	11.85	-4.43	73	27.95	-0.83	97	5.20
West Central (4)	12.28	0.92	108	23.85	5.83	132	3.58
Central (5)	10.85	-3.61	75	30.05	5.49	122	4.77
East Central (6)	13.95	-3.61	79	37.33	4.69	114	6.11
Southwest (7)	9.88	-2.06	83	26.52	6.95	136	2.45
South Central (8)	9.68	-6.38	60	34.89	6.70	124	2.09
Southeast (9)	14.81	-4.76	76	44.05	6.35	117	4.52
STATE-AVERAGED	11.37	-2.81	80	29.45	5.13	121	3.91

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 23, below), drought conditions are arising in some areas of Oklahoma, especially in the east. Seven of Oklahoma's nine climate divisions have undergone PDSI moisture increases since May 19; the South Central ("near normal") and Southwest ("moist spell") climate divisions experienced the greatest decreases during the period. While the Southeast region is the only region currently experiencing drought conditions ("mild drought"), the Northeast and East Central climate divisions are both in the "incipient drought" category.

The latest monthly [Standardized Precipitation Index](#) (through May, below) indicates that no climate divisions are experiencing long-term dryness among the selected time periods (3-, 6-, 9- and 12-month SPI's). The same is true among all other monthly time steps throughout the last six years, as all regions report normal or wet conditions.

The latest [Keetch-Byram Drought Index](#) (June 27, 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, although drought-related fire conditions in Oklahoma are becoming a concern, the situation remains generally good in most areas. Statewide, only six stations are currently above 400, generally indicative of moderate drought conditions (only one station had a reading above 400 on May 21). However, two of these stations are above 500. Burneyville and Madill, both in South Central Oklahoma, have the highest KBDI values (534), followed by Altus (Southwest; 465) and Medford (North Central; 465). According to the Oklahoma Department of Agriculture (Forestry Services), as of June 25, [Statewide Wildfire Preparedness](#) remains at Level 2 (moderate fire danger). Although recent moisture has reduced the fire danger across northern Oklahoma, southern Oklahoma remains generally drier than normal. The danger of wildland fires escaping control is increasing throughout the southern counties and extreme caution is advised concerning outdoor activities involving fire in this area. Caution is advised when conducting outdoor burning, particularly when high winds and low humidities are forecasted and outdoor burning should be avoided when winds exceed 20 mph.

CLIMATE DIVISION (#)	PALMER DROUGHT SEVERITY INDEX			STANDARDIZED PRECIPITATION INDEX THROUGH MAY 2001				
	CURRENT STATUS 6/23/2001	VALUE		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
	6/23	5/19						
Northwest (1)	VERY MOIST SPELL	3.29	3.71	-0.42	MODERATELY WET	VERY WET	VERY WET	MODERATELY WET
North Central (2)	MOIST SPELL	1.60	2.10	-0.50	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Northeast (3)	INCIPIENT DROUGHT	-0.99	-1.12	0.13	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MOIST SPELL	1.76	3.20	-1.44	MODERATELY WET	MODERATELY WET	VERY WET	MODERATELY WET
Central (5)	NEAR NORMAL	-0.14	0.88	-1.02	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
East Central (6)	INCIPIENT DROUGHT	-0.82	-1.39	0.57	NEAR NORMAL	NEAR NORMAL	MODERATELY WET	MODERATELY WET
Southwest (7)	MOIST SPELL	1.12	3.39	-2.27	NEAR NORMAL	MODERATELY WET	VERY WET	VERY WET
South Central (8)	NEAR NORMAL	-0.33	2.04	-2.37	NEAR NORMAL	MODERATELY WET	VERY WET	MODERATELY WET
Southeast (9)	MILD DROUGHT	-1.16	-0.92	-0.24	NEAR NORMAL	VERY WET	MODERATELY WET	MODERATELY WET

KEETCH-BYRAM DROUGHT FIRE INDEX

MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 6/27/2001	ANTICIPATED IMPACT
Burneyville	Love	South Central	534	400-600: lower litter and duff layers actively contribute to fire intensity and will burn actively; typical of late summer, early fall.
Madill	Marshall	South Central	534	
Altus	Jackson	Southwest	465	
Medford	Grant	North Central	465	

6 total stations above 400

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.

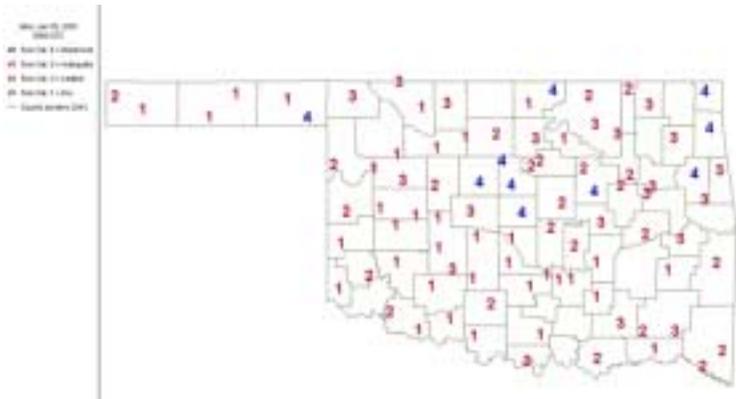
Soil Moisture

June 25, 2001

(courtesy Oklahoma Climatological Survey)

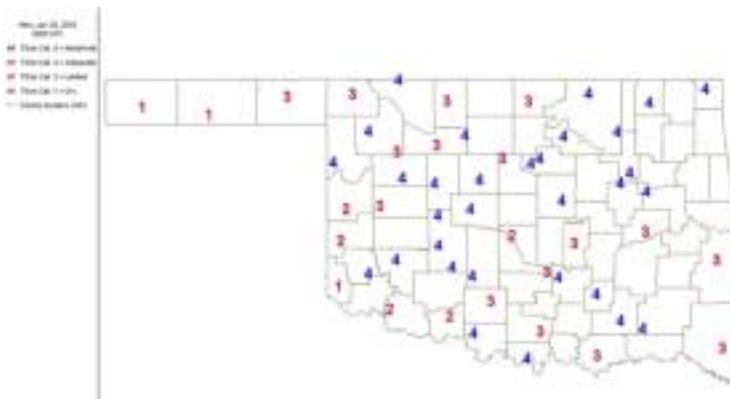
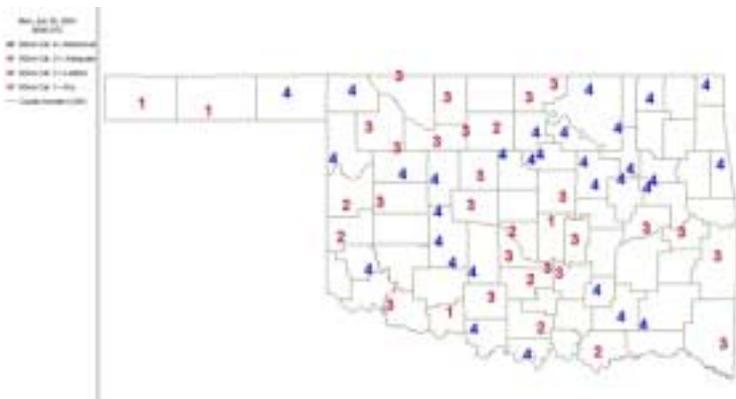
5 cm

25 cm



60 cm

75 cm



Category Description		Depth -- Metric Conversion	
Category 4	Moist/wet	5 cm	2 inches
Category 3	Adequate	25 cm	9.8 inches
Category 2	Limited	60 cm	23.6 inches
Category 1	Dry	75 cm	29.5 inches

Streamflow Conditions

For the current water year (beginning October 1, 2000), flows in most state rivers and streams remain generally near average. Considering overall trends as well as current flows, the most recent data (June 27, 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, 2000 compared to long-term, normal/median daily discharges) indicate **near average flow** in *northeast* (Baron Fork in Cherokee County), *southeast* (Glover River in McCurtain County), *southwest* (North Fork/Red River in Beckham County) and *central* (Canadian River in McClain County) Oklahoma; and **above average flow** in the *south central* (Washita River in Carter County) and *northwest* (Cimarron River in Woods County) regions.

Weather Forecast

The National Weather Service [8- to 14-day outlook](#) (July 4-10) calls for above normal precipitation for the entire state. Below normal temperatures are anticipated for all but the Panhandle region of Oklahoma, where normal temperatures will likely prevail through the period.

Current models indicate that the persistent cold water phenomenon in the equatorial Pacific Ocean, referred to as La Niña, has substantially weakened and near normal or slightly above normal conditions will likely prevail during late 2001 and early 2002. In addition, a pulse of warm water in the eastern Pacific currently traveling toward South America signals the potential onset of another El Niño within the next year or so. El Niños, warm water patterns that increase the chances for cooler, wetter conditions in the southern U.S. (including Oklahoma), generally return every two to seven years; the last one occurred in 1997.

Crop Report

June 25 -- Winter wheat harvest made excellent progress last week as producers took advantage of dry weather conditions. As of Sunday, wheat harvest was running 20 percentage points ahead of the five-year average. The only weather delay occurred when thunderstorms passed through portions of Oklahoma during late Wednesday and Thursday. Rainfall for the week ranged from .84 inch in the northeast district to .01 inch in the southwest. Topsoil and subsoil moisture conditions declined from the previous week but were still mostly adequate statewide. However, continued dry weather concerns many producers with rain needed in most areas to prevent stress to summer crops and pastures. Grasshopper populations continued to grow in many areas and were damaging crops and pastures. Treatment was necessary for some producers but was too costly for others. Farmers had 6.1 days suitable for fieldwork during the week.

An additional 18 percent of wheat was harvested last week and totaled 93 percent statewide – ahead of last year's pace as well as the five-year average. Harvest ranged from 70 percent in the northeast to virtually complete in the southwest. Many producers finished with harvest were able to plow their fields with 43 percent plowed across the state. However, in some drier areas, the ground was too hard to work. Oat harvest also made excellent progress and was 79 percent complete.

Growth and development advanced during the week but rain is needed for much of the state's row crops. Irrigated corn made good progress while some dryland corn was beginning to suffer in various locations due to inadequate moisture. Twenty-three percent of the corn was silking, ahead of normal for this time of year. Sorghum planting was 89 percent complete statewide, ranging from 86 percent in the Panhandle to nearly complete in the southeast. Soybeans were 91 percent planted statewide ranging from 82 percent in north central Oklahoma to finished in the southwest. Cotton was squaring in a few areas and running behind normal statewide. No major pest infestations in cotton had been reported as of Sunday. The second cutting of alfalfa made good progress with an additional 14 percent cut. By week's end, 80 percent of the state's acreage had been cut for the second time. This total was 19 percentage points ahead of the five-year average. A third alfalfa cutting had begun in isolated areas. Other hay first cutting was 81 percent cut statewide and hay fields in a few areas have been cut for a second time.

Livestock remained in mostly good condition. Livestock insect activity was rated mostly moderate to light. Cattle auctions reported average marketings for the week. The price for feeder steers less than 800 pounds was up over a dollar from last week and averaged \$94.30 per cwt. The price for feeder heifers less than 800 pounds was also up over a dollar from last week and averaged \$89.70 per cwt. Pasture conditions were mostly good statewide but many pastures in the southwest were becoming increasingly dry. Some pastures in the drier areas were showing signs of stress. Grasshopper infestations increased during the week and were damaging available grasses in some areas.

Reservoir Storage

Reservoir storage in Oklahoma remains good throughout the state. As of June 26, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 99.2 percent full, a 0.1 percent increase from that recorded on May 21, according to information from the [U.S. Army Corps of Engineers \(Tulsa District\)](#). However, 21 reservoirs have experienced lake level decreases since that time (including Texoma, where levels were raised to accommodate seasonal pool operations). Only nine reservoirs are operating at less than full capacity (compared to five in late May); no reservoirs are below 80 percent capacity.

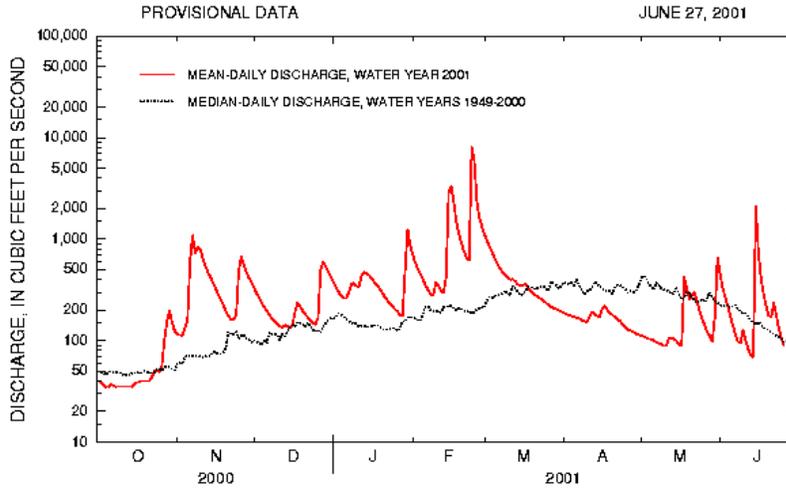
Storage in Selected Oklahoma Lakes & Reservoirs				
as of June 26, 2001				
Climate Division	Conservation Storage	Present Storage	Percent of Storage	
Lake or Reservoir	(acre-feet)	(acre-feet)	conservation	flood
NORTH CENTRAL				
Fort Supply	13,900	13,900	100.0	0.84
Great Salt Plains	31,420	31,420	100.0	2.59
Kaw*	406,540	406,540	100.0	8.21
Regional Totals/Averages	451,860	451,860	100.0	3.88
NORTHEAST				
Birch	19,225	19,099	99.3	0.00
Copan	43,400	43,400	100.0	0.43
Fort Gibson	365,200	365,200	100.0	3.08
Grand	1,672,000	1,672,000	100.0	1.16
Hudson	200,300	200,300	100.0	9.19
Hulah	31,160	31,160	100.0	0.10
Keystone	278,122	278,122	100.0	0.10
Oologah	552,210	552,210	100.0	4.38
Skiatook	322,700	322,700	100.0	1.16
Regional Totals/Averages	3,484,317	3,484,191	100.0	2.18
WEST CENTRAL				
Canton	111,310	111,310	100.0	1.49
Foss	165,480	160,269	96.9	0.00
Regional Totals/Averages	276,790	271,579	98.1	0.75
CENTRAL				
Arcadia	27,520	27,520	100.0	0.58
Heyburn	7,105	7,105	100.0	0.38
Thunderbird	119,600	119,600	100.0	1.59
Regional Totals/Averages	154,225	154,225	100.0	0.85
EAST CENTRAL				
Eufaula*	2,368,223	2,368,223	100.0	1.62
Tenkiller	654,100	654,100	100.0	0.68
Regional Totals/Averages	3,022,323	3,022,323	100.0	1.15
SOUTHWEST				
Fort Cobb	80,010	80,010	100.0	2.20
Lugert-Altus	132,830	129,375	97.4	0.00
Tom Steed	88,970	85,960	96.6	0.00
Regional Totals/Averages	301,810	295,345	97.9	0.73
SOUTH CENTRAL				
Arbuckle	72,400	72,400	100.0	1.11
McGee Creek	113,930	113,930	100.0	0.85
Texoma*	2,742,146	2,678,789	97.7	0.00
Waurika*	190,200	190,200	100.0	2.17
Regional Totals/Averages	3,118,676	3,055,319	98.0	1.03
SOUTHEAST				
Broken Bow*	958,180	939,431	98.0	0.00
Hugo*	198,067	195,315	98.6	0.00
Pine Creek*	71,120	65,270	91.8	0.00
Sardis	274,330	274,330	100.0	1.36
Wister	60,162	57,873	96.2	0.00
Regional Totals/Averages	1,561,859	1,532,219	98.1	0.27
STATE TOTALS	12,371,860	12,267,061	99.2	1.46
* 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 2001 and period of record for Baron Fork at Eldon, Oklahoma.

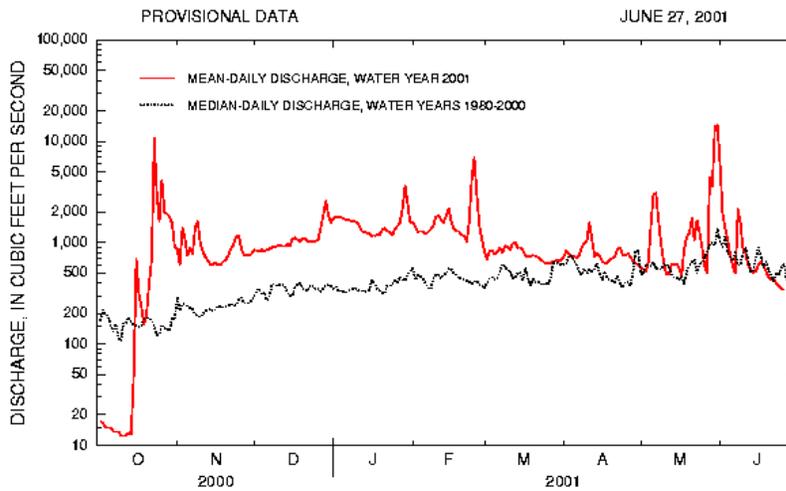
Data from U.S. Geological Survey

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 2001 and period of record for Canadian River at Purcell, Oklahoma.

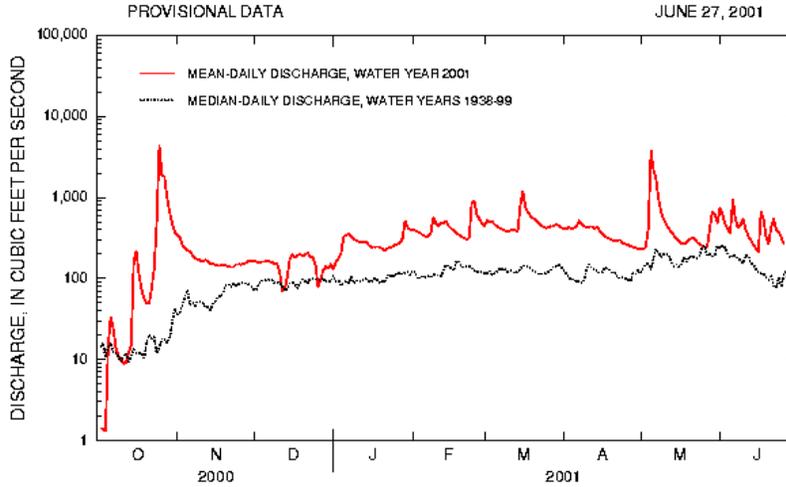
Data from U.S. Geological Survey

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 2001
and period of record for Cimarron River near Waynoka, Oklahoma.

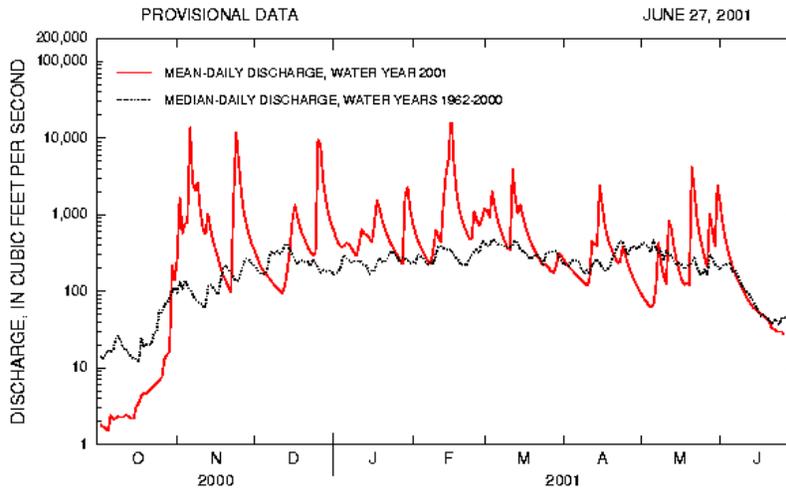
Data from U.S. Geological Survey

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 2001
and period of record for Glover River near Glover, Oklahoma.

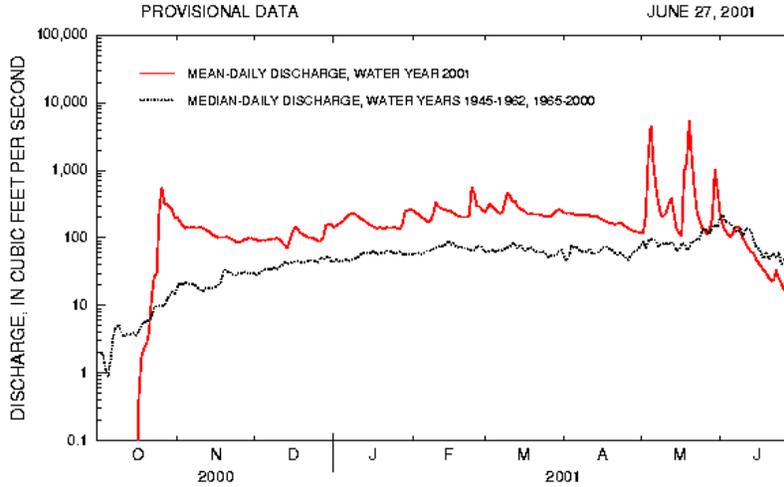
Data from U.S. Geological Survey

North Fork of the Red River near Carter

North Fork Red River near Carter, Oklahoma

Station No. 07301 500
Southwest Oklahoma

Drainage Area 2,337 square miles



Comparison of daily discharges for water year 2001 and period of record for North Fork Red River near Carter, Oklahoma.

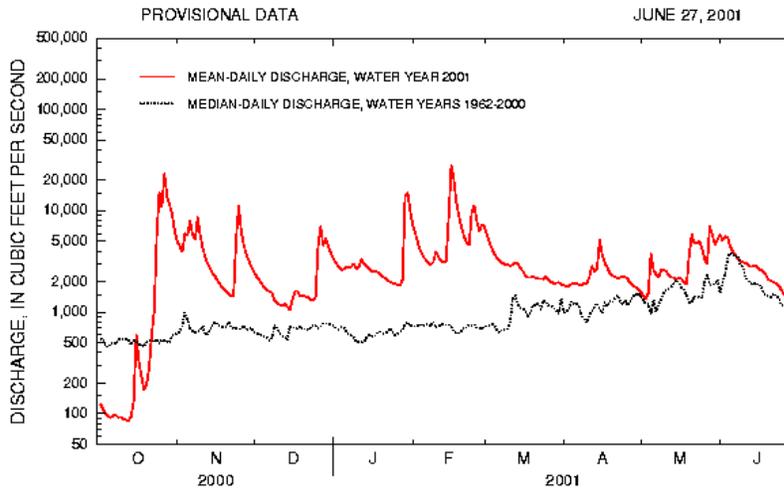
Data from U.S. Geological Survey

Washita River near Dickson

Washita River near Dickson, Oklahoma

Station No. 07331 000
South-Central Oklahoma

Drainage Area 7,202 square miles



Comparison of daily discharges for water year 2001 and period of record for Washita River near Dickson, Oklahoma.

Data from U.S. Geological Survey