

Oklahoma Water Resources Bulletin

& Summary of Current Conditions



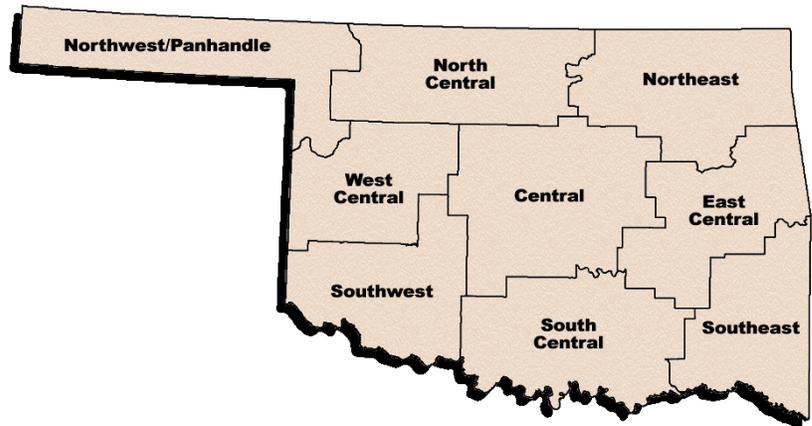
JULY 17, 2002

OKLAHOMA WATER RESOURCES BOARD

Statewide Precipitation & General Summary

Despite recent precipitation in the region, drought conditions continue to plague 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 July 15, 2002 (the current water year), remains the Northwest climate division (7.34 inches, only 48 percent of normal precipitation). The West Central (15.08 inches, 68 percent of normal) and North Central (16.72 inches, 70 percent of normal) regions also remain quite dry. The current state-averaged precipitation total is 24.53 inches, 85 percent of normal.

For the current growing season (March 1 through July 15), the Northwest region has received 5.74 inches (52 percent of normal) of rainfall. Six additional regions report precipitation deficits over the period, although only one climate division (West Central) has received less than 80 percent of its normal rainfall. The state-averaged rainfall total is 15.49 inches (90 percent of normal).



Preliminary Statewide Precipitation By Climate Division

DIVISION (#)	WATER YEAR OCTOBER 1, 2001—JULY 15, 2002			WARM GROWING SEASON MARCH 1—JULY 15, 2002			RAINFALL SINCE JULY 1
	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	TOTAL RAINFALL (INCHES)	DEPARTURE FROM NORMAL (INCHES)	PERCENT OF NORMAL	
Northwest (1)	7.34	-8.07	48	5.74	-5.26	52	1.31
North Central (2)	16.72	-7.21	70	12.77	-2.97	81	1.25
Northeast (3)	29.67	-2.70	92	17.42	-1.88	90	0.99
West Central (4)	15.08	-7.16	68	11.69	-3.10	79	1.68
Central (5)	24.00	-5.93	80	15.44	-2.77	85	0.93
East Central (6)	35.62	-1.10	97	20.37	-0.24	99	1.35
Southwest (7)	17.97	-5.62	76	12.96	-2.15	86	2.00
South Central (8)	30.11	-2.66	92	18.92	0.14	101	0.95
Southeast (9)	46.23	4.42	111	25.03	3.27	115	1.54
STATE-AVERAGED	24.53	-4.17	85	15.49	-1.77	90	1.29

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 (July 13, below), drought conditions in Oklahoma remained generally stable over the past two weeks, although 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.** Six of Oklahoma’s nine climate divisions have undergone PDSI moisture decreases since June 29; the greatest decrease occurred in the Southeast region.

The latest monthly Standardized Precipitation Index (through June, below) indicates long-term dryness throughout the past year in northwest, north central and west central Oklahoma. 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 9 months. “Very dry” conditions have also impacted the North Central and West Central 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 much of northern and western Oklahoma. [SPI updates are available around the 10th of each month.]

The latest Keetch-Byram Drought Index (July 15, 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 have improved, yet remain of concern in northwest Oklahoma and the Panhandle region. Statewide, only one station is currently above 600, generally indicative of more severe drought conditions (two stations had a reading above 600 on July 1). Buffalo, in Northwest Oklahoma (622), retains the highest KBDI value, followed by Hooker (Northwest; 594), and Slapout (Northwest; 557). 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 June 2002			
CLIMATE DIVISION (#)	CURRENT STATUS 7/13/2002	VALUE 7/13 6/29		CHANGE IN VALUE	3-MONTH	6-MONTH	9-MONTH	12-MONTH
Northwest (1)	EXTREME DROUGHT	-4.40	-4.32	-0.08	MODERATELY DRY	MODERATELY DRY	VERY DRY	EXTREMELY DRY
North Central (2)	MODERATE DROUGHT	-2.59	-2.49	-0.10	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	VERY DRY
Northeast (3)	INCIPIENT DROUGHT	-0.91	-0.66	-0.25	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
West Central (4)	MODERATE DROUGHT	-2.69	-2.69	0.00	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY	VERY DRY
Central (5)	MILD DROUGHT	-1.08	-1.01	-0.07	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
East Central (6)	MILD DROUGHT	-1.28	-1.06	-0.22	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southwest (7)	NEAR NORMAL	-0.06	-1.30	1.24	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
South Central (8)	NEAR NORMAL	-0.48	-0.70	0.22	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL
Southeast (9)	NEAR NORMAL	-0.19	0.19	-0.38	NEAR NORMAL	MODERATELY WET	MODERATELY WET	MODERATELY WET

Keetch-Byram Drought Fire Index				
MESONET STATION	COUNTY	CLIMATE DIVISION	CURRENT VALUE 7/15/2002	ANTICIPATED IMPACT
Buffalo	Harper	Northwest	622	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	594	
Slapout	Beaver	Northwest	557	

5 total stations above 500 (1 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 18, 2002

(courtesy Oklahoma Climatological Survey)

5 cm



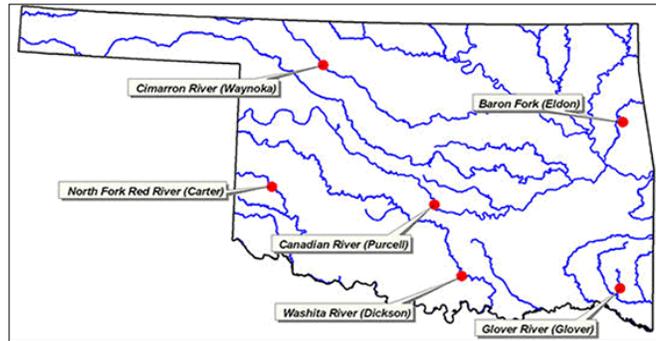
60 cm



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. Considering overall trends as well as current flows, the most recent data (June 30) 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 *southwest* (North Fork/Red River, Beckham County), *southeast* (Glover River, McCurtain County), and *south central* (Washita River, Carter County) regions; and **near average flow** in *northeast* (Baron Fork, Cherokee County) and *central* (Canadian River, McClain County) Oklahoma.



Weather Forecast

The National Weather Service 8- to 14-day outlook (July 24-30) calls for normal precipitation for all but the general southeast quadrant of Oklahoma, where above normal rainfall is anticipated. Below normal temperatures are expected for all but the Panhandle region, 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

July 15—Scattered showers and unseasonably mild temperatures prevailed last week. Topsoil moisture supplies began drying out with 12 percent rated very short, 27 percent short, 60 percent adequate, and 1 percent surplus. This is far better than the previous year when 27 percent was rated very short and 55 percent short. Both topsoil and subsoil moisture continue to be rated mostly very short in the Panhandle, despite recent rains. Texas County reported farmers were running irrigation wells constantly to keep up with corn crop needs. There were 5.7 days suitable for fieldwork.

Winter wheat harvest was completed and 81 percent of the fields were plowed. Oat harvest was 94 percent done by week's end, and 78 percent of fields were plowed. Farmers will soon be turning their attention to preparations for fall planting. Corn entering the dough stage of development advanced rapidly, gaining 32 percentage points. Ten percent of this year's corn crop reached maturity by week's end, ahead of last year and the 5-year average. Harmon County reported that producers should begin chopping corn silage within the next couple weeks. Sorghum planting was nearly complete and 88 percent had already emerged. Sorghum headed was 22 percent compared with 17 percent last year and the 5-year average of 10 percent. Isolated areas began seeing sorghum coloring. Soybean planting was virtually complete and 96 percent had emerged by week's end. Soybeans blooming gained 18 percentage points to reach 40 percent of the crop, and 22 percent had already begun setting pods. Seventy-six percent of this year's peanuts were pegging by week's end and 12 percent had begun setting pods. Cotton squaring reached 76 percent, well ahead of both last year and the 5-year average. Cotton setting bolls also advanced rapidly, gaining 16 percentage points to end the week at 20 percent. Crop insect pressures remained high in many areas with grasshoppers being the main pest. Infestations were the most severe in the west central region. The second cutting of alfalfa was nearly complete and the third cutting was moving quickly with 42 percent completed. Alfalfa conditions continued to be rated mostly fair or good. Other hay first cutting continued ahead, gaining 2 percentage points from the previous week to end the week at 88 percent complete. The second cutting was about one-third complete. Other hay was rated in mostly fair or good condition. Watermelons were rated in mostly good or excellent condition. Harvest was gaining momentum with 22 percent completed.

Livestock continued to be rated in mostly good condition except in the Panhandle where poor range and pasture conditions have been taking their toll on herds. There was very little change in range and pasture conditions with most continuing to be rated in mostly fair or good condition. Conditions in the Panhandle continued to be the poorest in the state with most range and pasture rated in poor or very poor condition.

Reservoir Storage

Reservoir storage levels in Oklahoma remain generally good. As of July 15, the combined normal conservation pools of 31 selected major federal reservoirs across Oklahoma (see below) are approximately 98.2 percent full, a 0.6 percent decrease from that recorded on July 2, according to information from the U.S. Army Corps of Engineers (Tulsa District). Twenty-four reservoirs have experienced lake level decreases since that time. Twelve reservoirs are currently operating at less than full capacity (compared to nine two weeks ago). Two reservoirs (Lugert-Altus, 55.6 percent; and Tom Steed, 64.1 percent) remain below 80 percent capacity.

Storage in Selected Oklahoma Lakes & Reservoirs				
<i>07/15/2002</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	0.04
Great Salt Plains	31,420	31,420	100.0	0.52
Kaw*	459,850	459,850	100.0	0.50
Regional Totals/Averages	505,170	505,170	100.0	0.35
Northeast				
Birch	19,225	18,419	95.8	0.00
Copan	43,400	43,319	99.8	0.00
Fort Gibson	365,200	365,200	100.0	1.20
Grand	1,672,000	1,672,000	100.0	2.80
Hudson	200,300	200,300	100.0	3.48
Hulah	25,100	25,100	100.0	1.87
Keystone	577,499	577,499	100.0	1.87
Oologah	552,210	552,210	100.0	0.60
Skiatook	322,700	309,891	96.0	0.00
Regional Totals/Averages	3,777,634	3,763,938	99.6	1.31
West Central				
Canton	111,310	102,555	92.1	0.00
Foss	165,480	159,201	96.2	0.00
Regional Totals/Averages	276,790	261,756	94.6	0.00
Central				
Arcadia	27,520	27,520	100.0	0.35
Heyburn	7,105	7,052	99.3	0.00
Thunderbird	119,600	119,600	100.0	0.88
Regional Totals/Averages	154,225	154,172	100.0	0.41
East Central				
Eufaula*	2,314,581	2,252,622	97.3	0.00
Tenkiller	654,100	654,100	100.0	0.36
Regional Totals/Averages	2,968,681	2,906,722	97.9	0.18
Southwest				
Fort Cobb	80,010	80,010	100.0	1.71
Lugert-Altus	132,830	73,855	55.6	0.00
Tom Steed	88,970	57,046	64.1	0.00
Regional Totals/Averages	301,810	210,911	69.9	0.57
South Central				
Arbuckle	72,400	72,400	100.0	3.79
McGee Creek	113,930	113,930	100.0	0.99
Texoma*	2,742,146	2,742,146	100.0	1.10
Waurika*	190,200	190,200	100.0	1.12
Regional Totals/Averages	3,118,676	3,118,676	100.0	1.75
Southeast				
Broken Bow*	958,180	921,077	96.1	0.00
Hugo*	198,067	194,880	98.4	0.00
Pine Creek*	71,120	71,120	100.0	0.46
Sardis	274,330	274,330	100.0	2.72
Wister	60,162	60,090	99.9	0.00
Regional Totals/Averages	1,561,859	1,521,497	97.4	0.64
State Totals	12,664,845	12,442,842	98.2	0.85

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