Oklahoma Water Resources Bulletin
& Summary of Current Conditions

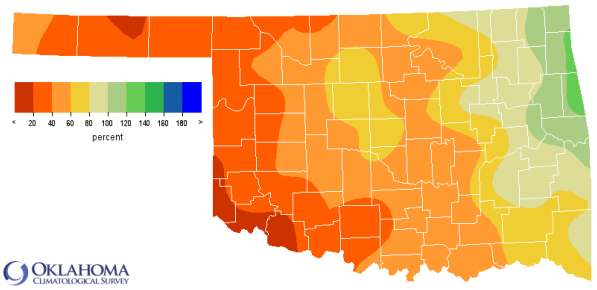
State of Oklahoma OWRB Water Resources Board the water agency

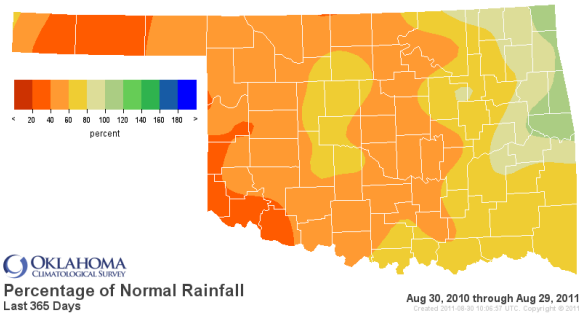
September 1, 2011

PRECIPITATION

Statewide Precipitation

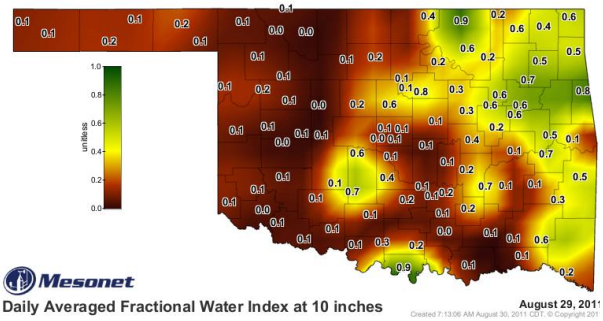
Climate Division	Warm Growing Season March 1 – August 29, 2011				Last 365 Days August 30, 2010 – August 29, 2011			
	Total Rainfall (inches)	Departure From Normal (inches)	Percent Of Normal	Rank Since 1921	Total Rainfall (inches)	Departure From Normal (inches)	Percent Of Normal	Rank Since 1921
Panhandle	4.82"	-9.82"	33%	1st driest	8.78"	-12.32"	42%	1st driest
North Central	10.25"	-9.89"	51%	3rd driest	16.83"	-14.82"	53%	1st driest
Northeast	20.24"	-3.66"	85%	26th driest	32.73"	-9.24"	78%	19th driest
West Central	6.62"	-11.82"	36%	1st driest	13.46"	-15.63"	46%	1st driest
Central	12.52"	-9.48"	57%	3rd driest	21.76"	-16.23"	57%	2nd driest
East Central	22.52"	-2.31"	91%	35th driest	39.16"	-6.93"	85%	30th driest
Southwest	5.89"	-12.87"	31%	1st driest	14.30"	-16.50"	46%	1st driest
South Central	9.93"	-12.54"	44%	1st driest	23.19"	-17.77"	57%	3rd driest
Southeast	20.92"	-5.23"	80%	17th driest	36.07"	-14.87"	71%	9th driest
Statewide	12.62"	-8.65"	59%	4th driest	22.84"	-13.85"	62%	3rd driest

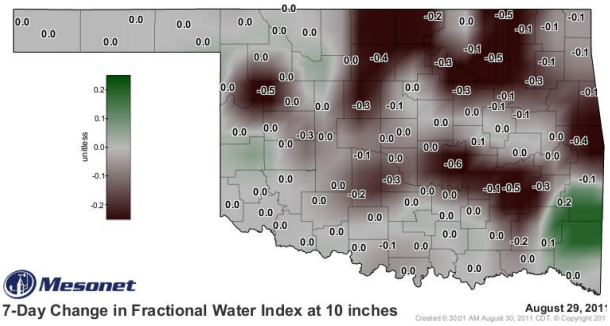




SOIL MOISTURE

Fractional Water Index[1]
August 29, 2011





[1] *The Fractional Water Index ranges from very dry soil having a value of 0 to soil at field capacity illustrated by a value of 1. [1.0-0.8 = Enhanced Growth; 0.8-0.5 = Limited Growth; 0.5-0.3 = Plants Wilting; 0.3-0.1 = Plants Dying; <0.1 = Barren Soil.]*

DROUGHT INDICES

Palmer Drought Severity Index[1] and Standardized Precipitation Index[2] Through July 2011

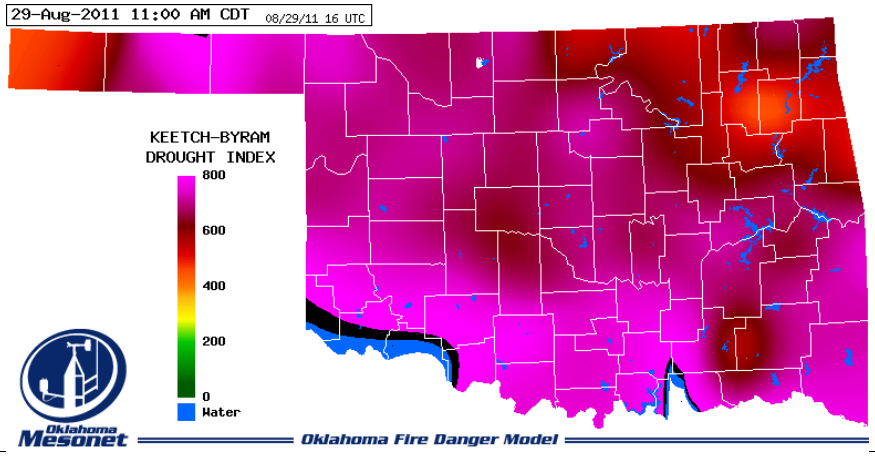
Climate Division	Current Status 8/27/2011	Value 8/27	Value 7/30	Change In Value	3-Month	6-Month	9-Month	12-Month
Northwest	EXTREME DROUGHT	-5.57	-5.43	**-0.14**	EXTREMELY DRY	EXCEPTIONALLY DRY	EXTREMELY DRY	EXTREMELY DRY
North Central	EXTREME DROUGHT	-4.83	-4.09	**-0.74**	VERY DRY	VERY DRY	VERY DRY	VERY DRY
Northeast	MODERATE DROUGHT	-2.41	-2.95	**0.54**	NEAR NORMAL	NEAR NORMAL	NEAR NORMAL	MODERATELY DRY
West Central	EXTREME DROUGHT	-6.08	-5.46	**-0.62**	EXTREMELY DRY	EXCEPTIONALLY DRY	EXTREMELY DRY	EXTREMELY DRY
Central	EXTREME DROUGHT	-5.74	-5.09	**-0.65**	VERY DRY	VERY DRY	EXTREMELY DRY	EXTREMELY DRY
East Central	SEVERE DROUGHT	-3.23	-3.30	**0.07**	MODERATELY DRY	NEAR NORMAL	VERY DRY	VERY DRY
Southwest	EXTREME DROUGHT	-6.74	-6.13	**-0.61**	EXTREMELY DRY	EXTREMELY DRY	EXCEPTIONALLY DRY	EXTREMELY DRY
South Central	EXTREME DROUGHT	-6.47	-5.39	**-1.08**	VERY DRY	EXTREMELY DRY	EXTREMELY DRY	EXTREMELY DRY
Southeast	EXTREME DROUGHT	-4.59	-3.63	**-0.96**	MODERATELY DRY	MODERATELY DRY	VERY DRY	VERY DRY

- All nine climate divisions are currently experiencing drought conditions, according to the PDSI. Seven climate divisions are in extreme drought. Seven climate divisions have undergone PDSI moisture decreases since July 30.
- All climate divisions are experiencing near long-term dry conditions, according to the SPI. The three western climate divisions are considered exceptionally dry over various time periods.

Keetch-Byram Drought Fire Index[3]

Mesonet Station	Climate Division	Current Value 8/29/2011
Grandfield	Southwest	805
Altus	Southwest	799
Ketchum Ranch	South Central	799

- Stations currently at or above 600 (August 29) = 100
- Stations above 600 on August 1 = 113



[1] *The Palmer Drought Severity Index, the first comprehensive drought index developed in the United States, is calculated based on precipitation, temperature, and soil moisture. Though widely used by government agencies and states to trigger drought relief programs, the PDSI may underestimate or overestimate the severity of ongoing dry periods.*

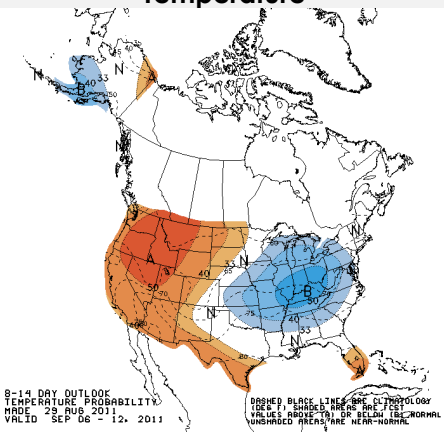
[2] *The Standardized Precipitation Index, more sensitive than the PDSI, provides a comparison of precipitation over a specified period with precipitation totals from that same period for all years included in the historical record. The 3-month SPI provides a seasonal estimation of precipitation while the 6-month SPI can be very effective in showing precipitation over distinct seasons.*

[3] *The Keetch-Byram Drought Index 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. KBDI values of 600 and above are often associated with more severe drought and increased wildfire occurrence.*

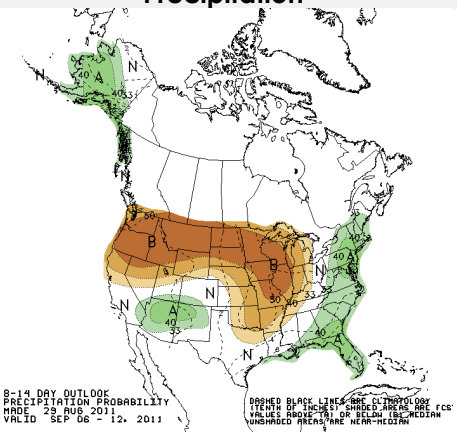
WEATHER/DROUGHT FORECAST

8- to 14-Day Outlook
September 6-12, 2011

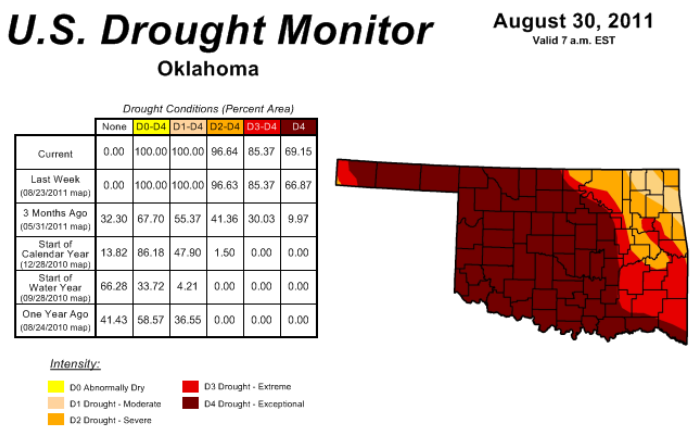
Temperature

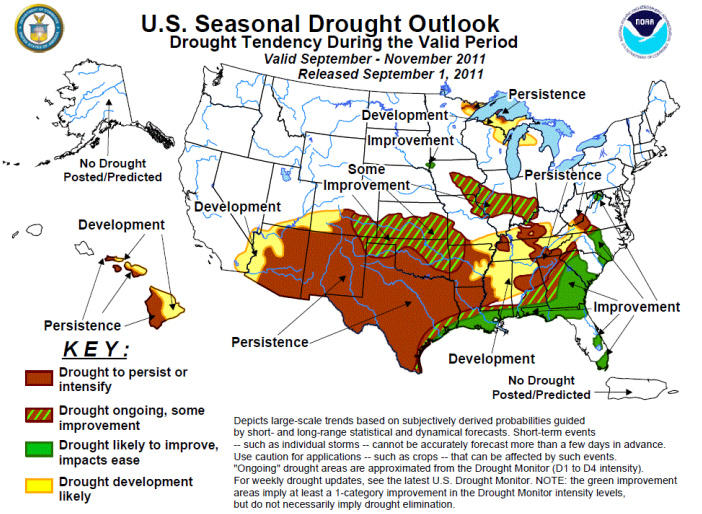


Precipitation



Regional Drought Summary & Outlook





August 30 – The latest U.S. Drought Monitor reports that an In Texas and southern Oklahoma, another week of above-normal temperatures (up to 14°F above normal, with highs eclipsing 110°F) and sunny skies further offset the benefits of early month rainfall. Consequently, drought intensified over many of the remaining D2 and D3 areas (Severe to Extreme Drought), with the vast majority of Texas and Oklahoma under Exceptional Drought (D4). As of August 29, pasture and range condition was rated 98 and 92 percent poor to very poor in Texas and Oklahoma, respectively. Further illustrating the heat and drought's devastating impacts, cotton – a crop that generally thrives in hot, dry weather – was rated 60 percent poor to very poor in Texas and an astounding 92 percent poor to very poor in Oklahoma. 180-day rainfall deficits exceeded 14 inches in southwestern Oklahoma and north-central Texas, and were locally in excess of 20 inches near Houston. Farther east, scattered, mostly light showers offered little if any relief from Severe (D2) to Exceptional (D4) Drought from eastern Oklahoma into eastern and far southern Texas.

The evolution and track of a developing tropical disturbance in the Gulf of Mexico could play a large role in whether portions of the southern or southeastern U.S. experience drought relief over the upcoming week. Also, a slow-moving cold front will generate showers from the northern and central Plains into the Corn Belt and Northeast, with some showers spilling south into Oklahoma and Texas.

According to the latest Drought Outlook (September 1), with the assumption that a weak La Niña event will develop this fall (e.g. back to back La Nina years), drought should persist and expand from the Southwest eastward into the interior Southeast by the end of November. The south-central Plains, however, were labeled some improvement due to a slight wet correlation during the second year of a La Niña and increased rains during August.

CROP REPORT

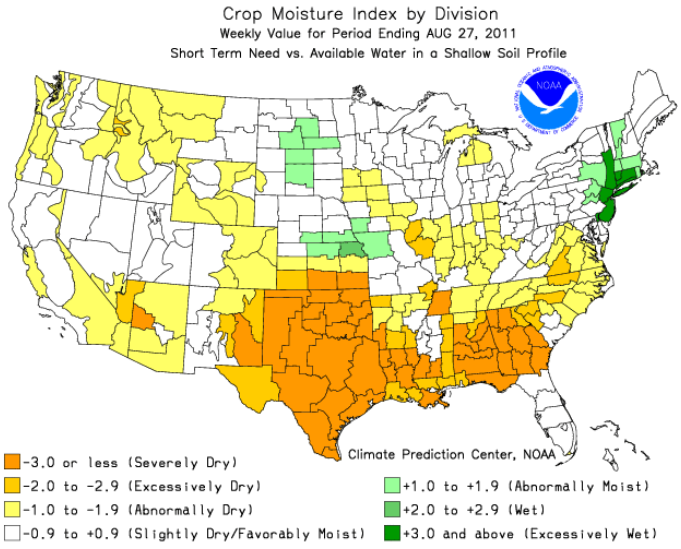
August 29, 2011 – Grandfield has now reached 100 degrees for 93 days in 2011, shattering the previous record held by Hollis in 1956. Producers are ready to put the 2011 year behind them and are looking ahead to the 2012 crop year. Record temperatures, drought conditions and high soil temperatures across the state are raising concerns for the upcoming wheat crop. Producers are ready to plant but with the lack of moisture, planting is on hold. As producers wait on moisture conditions to improve, news from the OSU wheat trials has shown that more drought tolerant varieties are on the market and in the pipeline. Buffalo and Freedom both set the week's high temperature at 112 degrees with a low of 56 degrees at Nowata and Oilton. Rainfall was light across the state. Topsoil moisture conditions declined with 77 percent rated very short. Subsoil moisture conditions also declined with 87 percent rated very short. There were 6.6 days suitable for field work.

Dry soil moisture conditions continued to keep field work at a reduced pace as seedbed preparations are behind normal for all small grains. Plowing of wheat ground was 86 percent complete and 26 percent of seedbeds were prepared by week's end. Rye ground plowed reached 87 percent complete and 18 percent of seedbeds were prepared by Sunday. Plowing of oat ground reached 91 percent complete with 28 percent of seedbeds prepared. Canola seedbed preparation reached 44 percent complete by the end of the week.

Crop conditions continued a downward slide showing no improvements. Crop conditions continued to be rated poor to very poor with peanuts being the exception holding a rating of fair to good. Of the corn still in the fields, 92 percent reached the dent stage, 43 percent was mature, and 22 percent had been harvested by week's end. Sorghum heading reached 63 percent complete, coloring reached 33 percent complete, and 11 percent was mature by Sunday. Soybean blooming was 88 percent complete and 58 percent were setting pods by week's end. Peanuts setting pods reached 70 percent by Sunday, 24 points behind normal. Cotton squaring was 94 percent complete and 69 percent was setting bolls, significantly behind normal. Eleven percent of the cotton had reached boll opening by week's end.

Conditions continued to be rated mostly very poor for all hay. Second cuttings of alfalfa reached 93 percent complete and third cuttings reached 38 percent complete, 60 points behind normal. First cuttings of other hay were 94 percent complete and the second cutting was only 17 percent complete by Sunday, 36 points behind the five-year average.

With no change in sight, pasture and range conditions were still rated mostly very poor. Livestock conditions were virtually unchanged and continued to be rated fair to poor. Hay shortages and supplemental feeding continued across the state. Cattle liquidation continued with market conditions moderating slightly.



RESERVOIR STORAGE

- 30 reservoirs are currently operating at less than full capacity (compared to 29 four weeks ago).
- 28 reservoirs have experienced lake level decreases.

Storage in Selected Oklahoma Lakes & Reservoirs
August 29, 2011

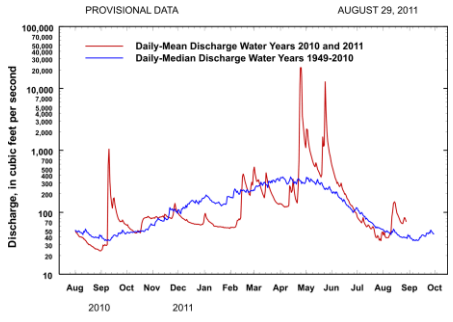
Lake or Reservoir	Normal Pool Elevation (feet)	Previous Elevation 8/3/2011 (feet)	Current Elevation 8/29/2011 (feet)	Change in Elevation (feet)	Current Flood Control Storage (acre-feet)
North Central					
Fort Supply	2004.00	2002.46	2002.07	(0.39)	(3,174)
Great Salt Plains	1125.00	1123.64	1122.90	(0.74)	(14,527)
Kaw*	1008.50	1008.57	1008.46	(0.11)	(647)
Northeast					
Birch	750.50	747.46	746.53	(0.93)	(4,253)
Copan	710.00	709.72	709.64	(0.08)	(1,404)
Fort Gibson	554.00	551.69	553.73	2.04	(5,049)
Grand*	741.30	743.82	741.23	(2.59)	(1,577)
Hudson	619.00	619.80	620.52	0.72	16,973
Hulah	733.00	732.52	732.52	0.00	(1,453)
Keystone*	723.00	720.36	720.33	(0.03)	(44,025)
Oologah*	638.00	637.27	636.72	(0.55)	(38,171)
Skiatook	714.00	705.44	704.45	(0.99)	(90,039)
West Central					
Canton	1615.40	1610.29	1609.86	(0.43)	(39,355)
Foss	1642.00	1638.04	1637.45	(0.59)	(28,899)
Central					
Arcadia	1006.00	1004.47	1003.95	(0.52)	(3,583)
Heyburn	761.50	760.00	759.95	(0.05)	(932)
Thunderbird	1039.00	1035.59	1034.87	(0.72)	(23,457)
East Central					
Eufaula*	585.00	583.16	582.10	(1.06)	(260,836)
Tenkiller	632.00	629.00	627.74	(1.26)	(53,198)
Southwest					
Fort Cobb	1342.00	1339.79	1338.98	(0.81)	(10,737)
Lugert-Altus	1559.00	1532.71	1531.98	(0.73)	(109,791)
Tom Steed	1411.00	1405.55	1404.69	(0.86)	(35,133)
South Central					
Arbuckle	872.00	868.34	867.27	(1.07)	(10,562)
McGee Creek**	175.90	175.57	175.21	(0.36)	(8,366)
Texoma*	616.80	612.92	611.21	(1.71)	(378,638)
Waurika*	951.40	948.32	947.43	(0.89)	(36,897)
Southeast					
Broken Bow*	602.50	596.14	594.26	(1.88)	(115,705)
Hugo*	404.50	404.86	403.43	(1.43)	(15,949)
Pine Creek*	433.00	429.48	427.65	(1.83)	(12,773)
Sardis	599.00	597.86	597.46	(0.40)	(20,381)
Wister	478.00	477.51	476.83	(0.68)	(6,784)

** indicates seasonal pool operation* *** elevation in meters* *negative numbers in red, parentheses*

STREAMFLOW CONDITIONS

Baron Fork at Eldon

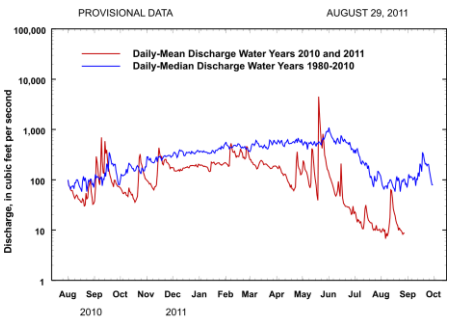
Baron Fork at Eldon, Oklahoma
Station No. 07197000 Northeast Oklahoma
Drainage Area 307 square miles



Comparison of daily discharges for waters year 2010 and 2011
and period of record
Data from U.S. Geological Survey

Canadian River at Purcell

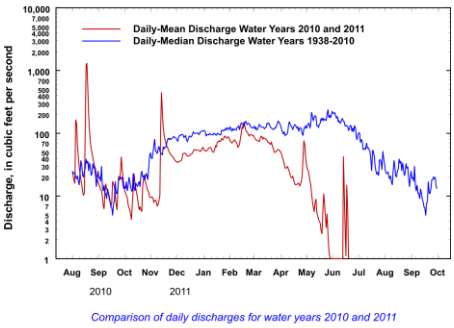
Canadian River at Purcell, Oklahoma
Station No. 07229200 Central Oklahoma
Drainage Area 25,939 square miles



Comparison of daily discharges for water years 2010 and 2011
and period of record
Data from U.S. Geological Survey

Cimarron River near Waynoka

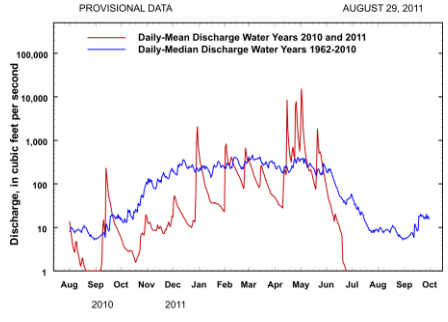
Cimarron River near Waynoka, Oklahoma
Station No. 07158000 Northwest Oklahoma
Drainage Area 13,334 square miles



Comparison of daily discharges for water years 2010 and 2011
and period of record
Data from U.S. Geological Survey

Glover River near Glover

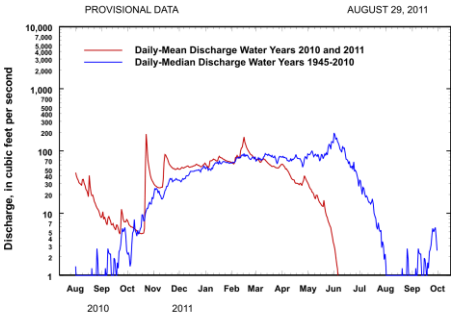
Glover River near Glover, Oklahoma
Station No. 07337900 Southeast Oklahoma
Drainage Area 315 square miles



Comparison of daily discharges for water years 2010 and 2011
and period of record
Data from U.S. Geological Survey

North Fork of the Red River near Carter

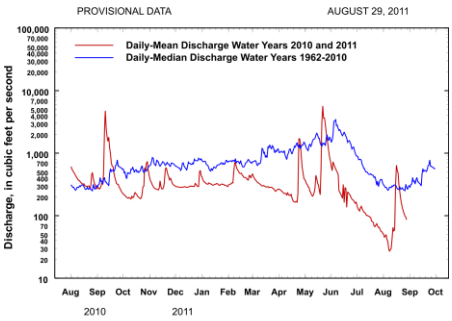
North Fork of the Red River near Carter, Oklahoma
Station No. 07301500 Southwest Oklahoma
Drainage Area 2,337 square miles



Comparison of daily discharges for water years 2010 and 2011
and period of record
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 years 2010 and 2011
and period of record
Data from U.S. Geological Survey

Water Bulletin information/data courtesy of National Weather Service, Climate Prediction Center, Oklahoma Climatological Survey, State Department of Agriculture, Food, and Forestry, 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.
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