

# KANSAS DECEMBER DROUGHT UPDATE – December 30, 2011

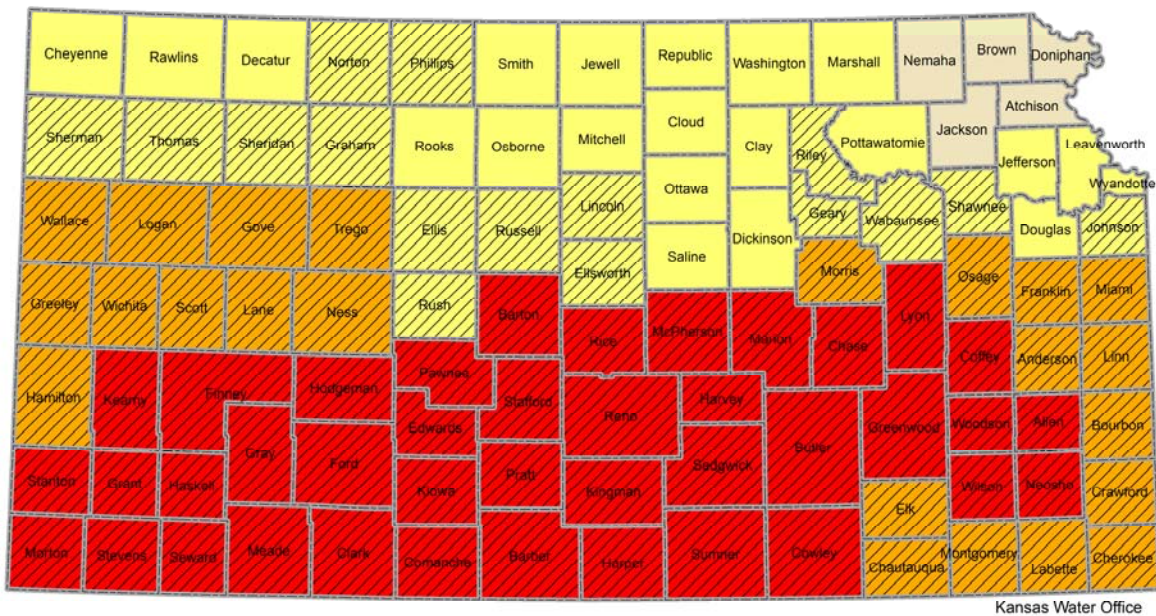
## Summary of Conditions and Changes December 16-29

- Kansas drought declarations remain in effect due to significant moisture deficits reflected in very low soil moisture that has the potential to affect crops in the coming year. Although above normal precipitation has occurred in December, this has done little to address the soil moisture deficits. State wide precipitation is at 67 percent of normal through December 28.
- The December 20 and 27, 2011 U.S. Drought Monitor reflect precipitation from the mid December storms, showing improvement in drought conditions, primarily based on above normal precipitation for the period.
- Administration of junior water rights to meet Minimum Desirable Stream flows remained in effect December 29 on the Smoky Hill, Little Arkansas, Whitewater and Neosho/Cottonwood rivers.

Counties under Kansas drought stages and/or Federal Agriculture Disaster Declarations based on drought in 2011 are shown on the map below. These remain in effect as the overall conditions for plant growth and deficits in precipitation require careful consideration in planning for future water use and needs as well as crop and pasture conditions.

## Kansas Drought Declarations

November 21, 2011



- Kansas Drought Emergency
- Kansas Drought Warning
- Kansas Drought Watch
- Federal Designated Agricultural Disaster Due to Drought

**County Drought Declarations:** A total of 100 counties are under state drought stages, with 40 counties in an emergency stage, 23 in Warning and 37 in Watch. State Emergency allows public water suppliers aid and opportunities to supplement their water supply, as well as provide opportunity for domestic and livestock water from emergency sources.

### Kansas Drought Emergency:

Allen, Barber, Barton, Butler, Chase, Clark, Coffey, Comanche, Cowley, Edwards, Finney, Ford, Grant, Gray, Greenwood, Harper, Harvey, Haskell, Hodgeman, Kearny, Kingman, Kiowa, Lyon, Marion, McPherson, Meade, Morton, Neosho, Pawnee, Pratt, Reno, Rice, Sedgwick, Seward, Stafford, Stanton, Stevens, Sumner, Wilson, Woodson

**Kansas Drought Warning:**

Anderson, Bourbon, Chautauqua, Cherokee, Crawford, Elk, Franklin, Gove, Greeley, Hamilton, Labette, Lane, Linn, Logan, Miami, Montgomery, Morris, Ness, Osage, Scott, Trego, Wallace, Wichita

**Kansas Drought Watch:**

Cheyenne, Clay, Cloud, Decatur, Dickinson, Douglas, Ellis, Ellsworth, Geary, Graham, Jefferson, Jewel, Johnson, Leavenworth, Lincoln, Marshall, Mitchell, Norton, Osborne, Ottawa, Phillips, Pottawatomie, Rawlins, Republic, Riley, Rooks, Rush, Russell, Saline, Shawnee, Sheridan, Sherman, Smith, Thomas, Wabaunsee, Washington, Wyandotte

**Federal:** A total of 79 counties are designated federal agricultural disasters during 2011 (S3117, S3061, S3156, S3167 & S3189) due to drought, high winds and excessive temperatures and are now eligible for federal programs, along with the contiguous counties. USDA agricultural disaster declarations are based on anticipated crop losses, while Kansas drought stages are based primarily on water resource conditions.

In addition numerous presidential (FEMA) and secretarial (USDA) disaster declarations at the federal level are in effect as a result of flooding, excessive rain, severe storms, straight line winds, tornados, hail and lightning. Up-to-date information regarding designated counties and assistance available due to these declarations is available here: <http://www.fema.gov/dhsusda/index.jsp>.

**General Conditions**

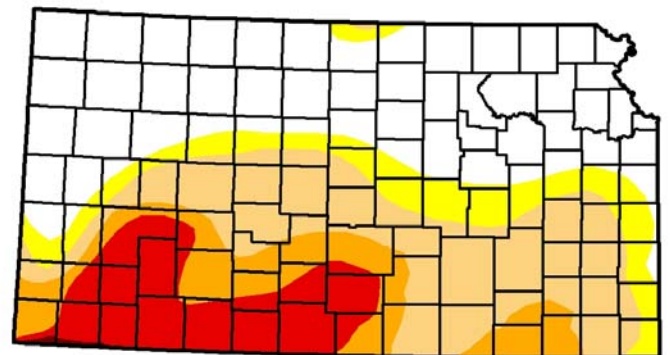
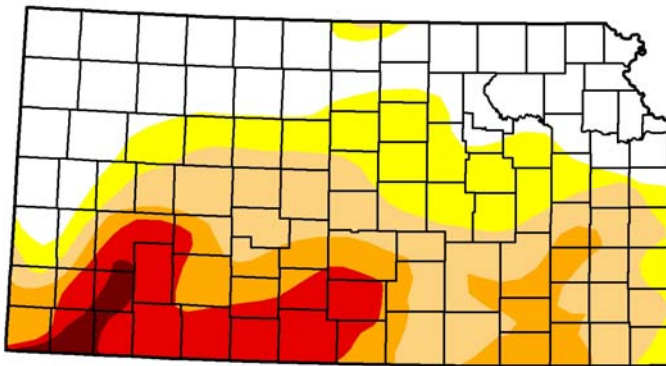
U.S. Drought Monitor indicates some improvement in abnormally dry and severe drought area from the first two weeks of December. Widespread rains (0.5 – 2.7 inches) prompted the removal of D1 and D0 from portions of eastern Kansas by December 20. Further improvement by the December 27 report is due to above normal precipitation. However it is important to remember normal precipitation in December is 0-2 inches. Substantial moisture deficits from spring and summer remain especially in southern parts of the state.

An explanation of the Drought Monitor categories can be found in a separate document under useful links on the KWO drought page.

**US Drought Monitor**

**December 20, 2011**

**December 27, 2011**



**Intensity:**

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

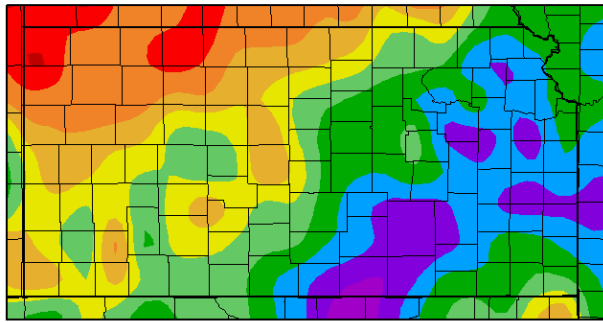


## Climate (Precipitation and Temperature)

Early December precipitation events that have provided some relief to drought conditions are shown on map below, provided by the Kansas State Weather Data Library. Temperatures remain generally warmer than normal. Early December precipitation and temperatures are also summarized in the table below.

The December precipitation is summarized by the maps below by the High Plains Regional Climatic Center. Normal precipitation for the period shown is relatively low (0.inches in west to over 2.2 inches in east) for the month of December, so it doesn't take a lot of precipitation result in positive departure from the normal precipitation. Precipitation in December for the majority of the state was 200-400 percent of normal, with some areas of southwestern Kansas receiving over 800 percent of normal.

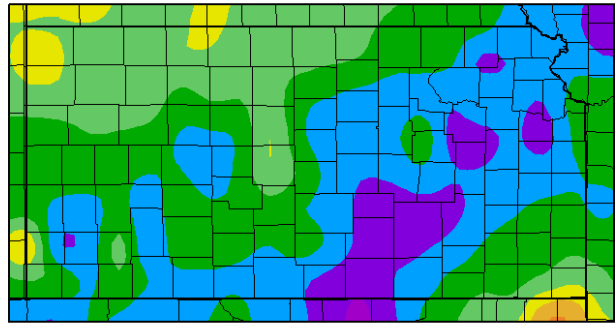
Precipitation (in)  
12/1/2011 - 12/28/2011



Generated 12/29/2011 at HPRCC using provisional data.

Regional Climate Centers

Departure from Normal Precipitation (in)  
12/1/2011 - 12/28/2011



Generated 12/29/2011 at HPRCC using provisional data.

Regional Climate Centers

The table below summarizes precipitation by climate division. Please note that the data used in compiling is preliminary and comes from different sources. This may result in slight differences in the average or extreme values presented.

**Kansas Climate Division Precipitation Summary (inches)**

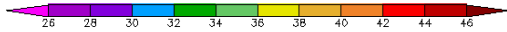
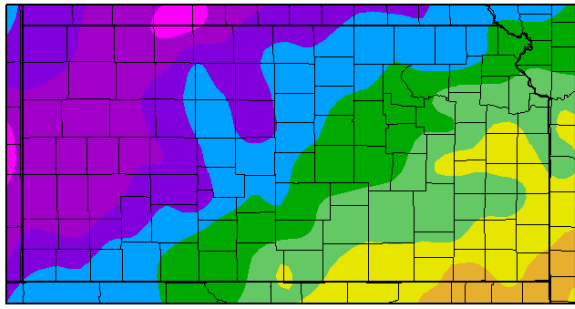
Climate Division	December 1 - 28			January 1 to December 28			April 1 to December 28			September 1 to December 28		
	Actual	Normal	% Normal	Actual	Normal	% Normal	Actual	Normal	% Normal	Actual	Normal	% Normal
Northwest	0.38	0.44	83	16.74	20.23	81	15.59	18.04	85	3.60	4.26	82
West Central	0.95	0.44	207	14.33	19.69	73	12.8	17.48	73	3.93	4.32	92
Southwest	1.58	0.44	374	10.56	19.31	55	9.63	17.18	56	4.52	4.28	106
North Central	1.18	0.70	163	23.09	26.88	85	20.95	23.66	88	3.78	6.84	54
Central	1.65	0.83	210	18.67	28.60	66	16.15	25.02	65	5.28	7.61	70
South Central	2.12	0.94	219	15.01	28.26	51	12.91	24.56	51	6.13	7.87	75
Northeast	1.97	1.13	176	26.73	35.05	76	23.26	31.00	75	6.57	10.32	64
East Central	2.03	1.29	165	22.40	36.64	62	18.44	32.00	58	6.69	11.07	63
Southeast	2.85	1.50	196	28.15	38.30	73	22.77	32.87	69	10.22	12.14	85
<b>STATE</b>	<b>1.68</b>	<b>0.86</b>	<b>208</b>	<b>19.08</b>	<b>27.94</b>	<b>67</b>	<b>16.53</b>	<b>24.47</b>	<b>67</b>	<b>5.70</b>	<b>7.59</b>	<b>78</b>

Note: 1971-2000 normal value, 100 % =normal  
Source: KSU Weather Data Library



Temperatures for December are summarized in the maps below.

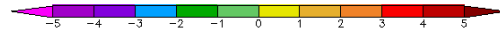
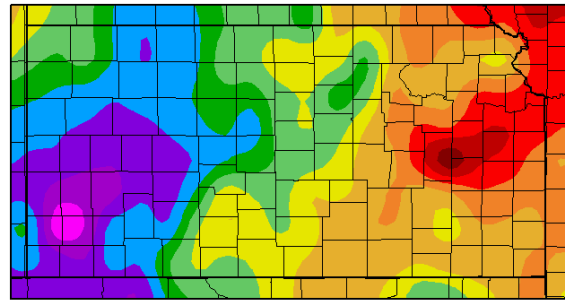
Temperature (F)  
12/1/2011 – 12/28/2011



Generated 12/29/2011 at HPRCC using provisional data.

Regional Climate Centers

Departure from Normal Temperature (F)  
12/1/2011 – 12/28/2011



Generated 12/29/2011 at HPRCC using provisional data.

Regional Climate Centers

The Palmer Drought Severity Index (PDSI) is a meteorological drought index, and it responds to weather conditions that have been abnormally dry or abnormally wet. The PDSI is calculated based on precipitation and temperature data, as well as the local Available Water Content (AWC) of the soil. The table below summarizes conditions by climate division. Please note that the data used in compiling is preliminary and comes from different sources. This may result in slight differences in the average or extreme values presented.

**Kansas Climate Division Palmer Drought Index Summary for Week Ending December 24, 2011**

Climate Division	Temp. (°F)	Precip. (inches)	Soil Moisture		Percent Field Capacity	Crop Moisture Index	Change from previous week	Month Moisture Anom (Z)	Palmer Drought Index	Precip. to End Drought (inches)
			Upper Layer (inches)	Lower Layer (inches)						
Northwest	30.2	0.1	1	3.49	40.8	0.06	0	0.61	0.99	
West Central	27.8	0.65	1	1.85	31.7	0.2	0.14	1.91	1.26	
Southwest	28.4	1.06	1	1.48	27.6	0.24	0.2	3.01	-0.32	
North Central	30.5	0.22	1	5.62	66.2	0.15	-0.14	1.63	1.75	
Central	29.7	1.08	1	3.8	60	0.58	0.42	2.56	0.99	
South Central	32.7	1.63	1	4	71.4	0.99	0.79	3.11	0.41	
Northeast	33.2	0.69	1	9	100	1.08	0.19	2.86	1.62	
East Central	34.8	1.62	1	6	100	1.54	1.09	2.74	1.55	
Southeast	36.5	1.97	1	7	100	1.75	1.51	2.1	0.91	

Source: KSU Weather Data Library

### Public Water Supply Conditions

A Memorandum of Understanding (MOU) for emergency use of state fishing lake water under conditions of drought emergency declared by the Governor is in place. This will allow small communities and individuals within the emergency counties category to pump water from named state fishing lakes if they are in dire need of water. Individuals and communities need to contact the KWO for a water supply request and they will in turn be referred to the appropriate Kansas Department of Wildlife, Parks and Tourism office to obtain the necessary permit to withdraw the water. The MOU limits the types of water use and a fee may be set for use of the state fishing lakes' water supply. This MOU establishes a use priority of domestic, municipal and then livestock uses, while also protecting the lake's fish population.

The State Fishing Lakes available for withdrawals for Emergency Declared counties include Atchison, Barber, Brown, Bourbon, Butler, Chase, Clark, Crawford, Goodman, Jewell, Kingman, Leavenworth, Lyon, Pott#1, Pott#2, McPherson, Miami, Mined Lands (Pits), Neosho, Osage, Ottawa, Saline, Scott, Shawnee, Sheridan, Washington, Wilson and Woodson Lakes.

Additional water may also be available for Drought Emergency counties from federal lakes. Water from U.S. Army Corps of Engineer lakes is available for domestic, industrial and livestock use but is prohibited for irrigation use. Requests from applicants must go through the KWO. It may also be possible to obtain water under surplus contracts from State owned

storage in certain Corps lakes with water available for purchase. Bureau of Reclamation lake water may also be made available by temporary contract under drought conditions

### **Local Public Water Supply Status**

Throughout 2011, at least 38 public water suppliers in 22 counties have initiated conservation measures due to drought conditions. These include municipal, rural water districts and a community college. The conservation measures are mostly voluntary; however in at least four communities it has been mandatory. Although some precipitation has occurred, suppliers are cautioned that supplies remain lower than normal for the time of year. Review of existing supplies and conservation triggers is recommended to all public water suppliers in drought affected counties.

On November 23, the Kansas Water Office issued a drought watch for purchasers of water in state storage in eight federal reservoirs, Big Hill, Clinton, Council Grove, Elk City, Hillsdale, Marion, Melvern and Pomona. It also included the Marais des Cygnes River and Neosho/Cottonwood River Basins Assurance Districts which have ownership interest in five reservoirs. This action instructs these purchasers to initiate the appropriate drought related actions in their water conservation plan.

### **Other Water Supply Conditions**

In eastern Kansas, the primary source of water is surface water including: rivers, federal reservoirs, multipurpose small lakes and municipal lakes. Many federal reservoirs store water for public water supply and other uses. The lakes which have water supply through the Water Marketing and/or Water Assurance programs include Big Hill, Clinton, Council Grove, Elk City, Hillsdale, John Redmond, Kanopolis, Marion, Melvern, Milford, Pomona, Perry and Tuttle Creek. Cedar Bluff, Glen Elder and Keith Sebelius reservoirs also contain supply water for a community.

In lakes where all state owned water is not under contract, it may be possible to negotiate for an emergency water supply.

As of December 28, 2011:

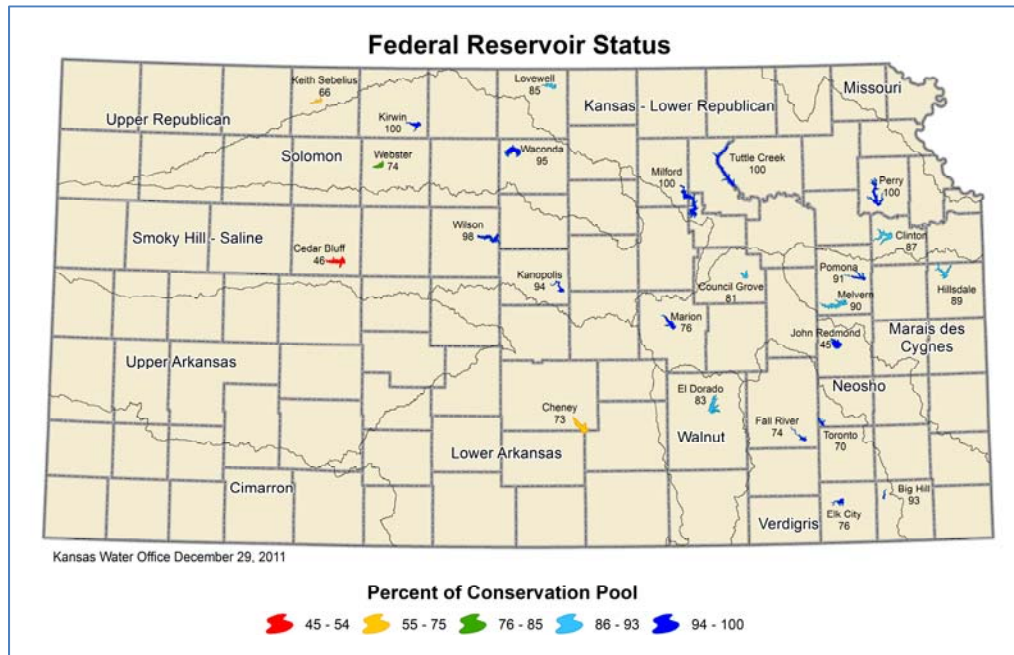
The reservoirs in the Marais des Cygnes basin are all below conservation pool. Remaining conservation storage in Hillsdale, Melvern, and Pomona are all approximately 91, 90 and 96 percent, respectively. Precipitation has provided small to moderate amounts of runoff and water supply releases are not needed in the short term.

The Neosho basin (Marion, Council Grove and John Redmond reservoirs) has also benefited from a small amount of runoff from precipitation and reservoir storage has been maintained or increased slightly. Marion has 80 percent, Council Grove 93 percent and John Redmond 100 percent of storage remaining in the conservation pool. According to DWR website MDS orders remain in effect upstream of Parsons for the Neosho and Cottonwood rivers.

The Smoky Hill basin is experiencing low flow conditions. Kanopolis Reservoir is now about 0.57 feet below normal pool. There is little or no flow from Cedar Bluff to Pfeiffer. The City of Russell has water supply in Cedar Bluff, which is released when specific criteria and the need arises.

Rain in the Verdigris basin has been beneficial with conservation pool storage in Elk City, Toronto and Fall River full. Big Hill is at 98 percent.

## General Reservoir Conditions



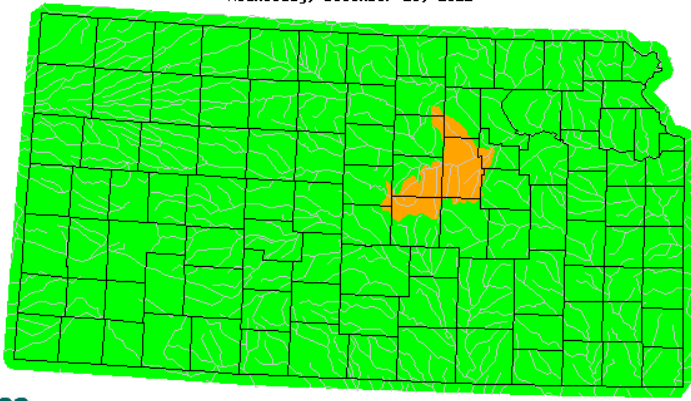
### Kansas Federal Reservoirs

Reservoir	Top of Multipurpose/Conservation Pool (Feet MSL)	Multipurpose/Conservation Pool Elevation (Feet MSL)	Change from Top of Pool (Feet)
<b>Kansas River Basin</b>		<b>12/28/11</b>	
Norton <sup>1</sup>	2304.3	2298.41	-5.89
Harlan County, NE	1946	1946.37	0.37
Lovewell <sup>1</sup>	1582.6	1581.28	-1.32
Milford <sup>1</sup>	1144.4	1144.70	0.30
Cedar Bluff	2144	2126.41	-17.59
Kanopolis <sup>1</sup>	1463	1462.43	-0.57
Wilson <sup>1</sup>	1516	1515.52	-0.48
Webster <sup>1</sup>	1892.5	1887.24	-5.26
Kirwin <sup>1</sup>	1729.3	1729.62	0.32
Waconda <sup>1</sup>	1455.6	1454.94	-0.66
Tuttle Creek <sup>1</sup>	1075	1075.51	0.51
Perry <sup>1</sup>	891.5	891.53	0.03
Clinton <sup>1</sup>	875.5	873.72	-1.78
Melvern <sup>1</sup>	1036	1033.82	-2.18
Pomona <sup>1</sup>	974	973.34	-0.66
Hillsdale <sup>1</sup>	917	915.41	-1.59
<b>Arkansas River Basin</b>			
Cheney	1421.6	1417.23	-4.37
El Dorado	1339	1335.99	-3.01
Toronto <sup>1</sup>	901.5	902.79	1.29
Fall River <sup>1</sup>	948.5	950.72	2.22
Elk City <sup>1</sup>	796	797.27	1.27
Big Hill	858	857.52	-0.48
Council Grove <sup>1</sup>	1274	1272.89	-1.11
Marion <sup>1</sup>	1350.5	1347.89	-0.61
John Redmond <sup>1</sup>	1039	1040.07	1.07

1. Lake level management plan in place  
 Source: U.S. Army Corps of Engineers

# Streamflow Conditions

Hednesday, December 28, 2011



Historical Stream Flow Compared to Year

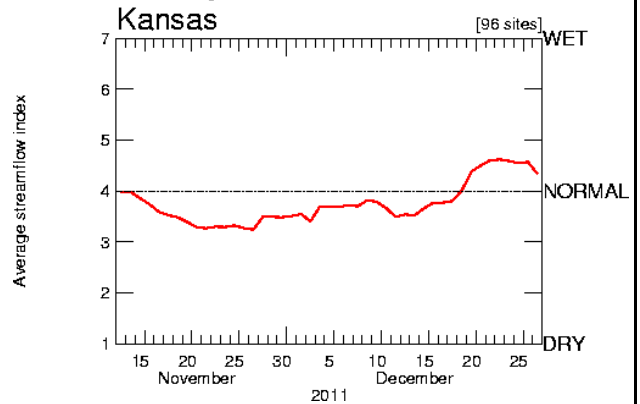
Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	



USGS seven day average stream flow compared to normal flow values recorded for the all days of the year during all years measurements have been collected. In general, a streamflow which is greater than the 75 percentile is considered *above normal*, a streamflow which is between 25 and 75 percentiles is considered *normal* and a streamflow which is less than the 25 percentile is considered *below normal*. Color codes are for basins with streamflow averages less than 25 percent of historic values.

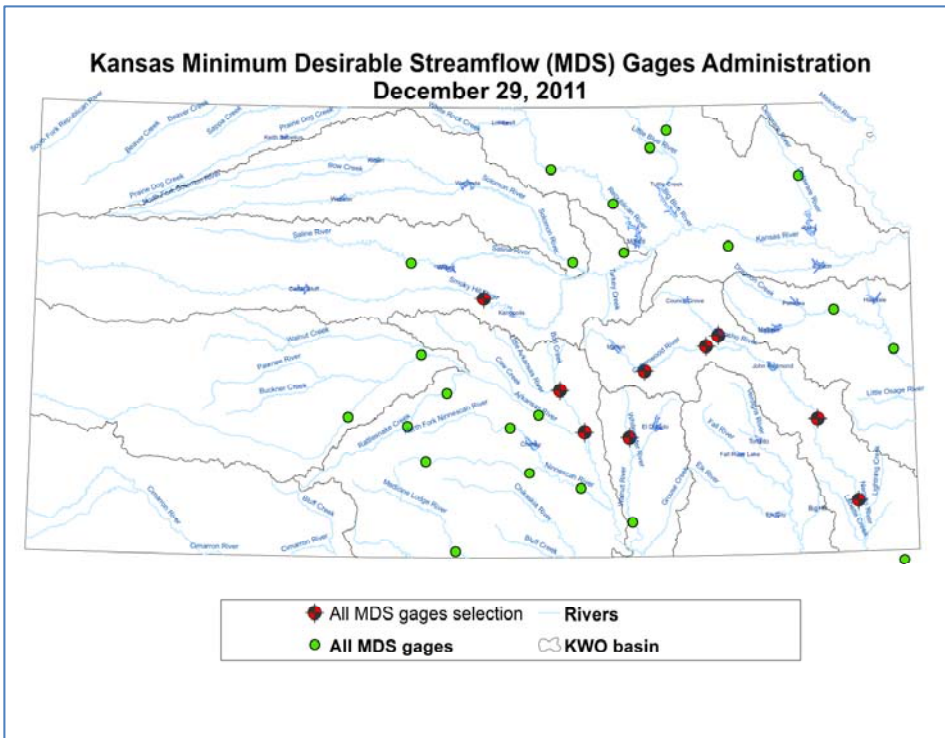
The comparison of stream flow for December 28 flows to all days of the year is shown on the map above. Recent flow is compared to the historical streamflow in the USGS graph at right.

Last 45 Days



## Water Right Administration/Minimum Desirable Streamflow (MDS)

The map at left shows the MDS gages related to Department of Agriculture, Divison of Water Resouces water right administration at this time. The table below shows the gage name for the location on the map where administration is occuring, as well as providing flows in cubic feet per second (cfs) at selected gaging stations as of December 29 for streams where MDS is of interest.



### Streamflows in cfs

Gaging Station	December 28 Flow (CFS)*	December MDS (CFS)	ADMINISTRATION STATUS**	Map Location #
Republican River at Concordia	346	100		
Republican River at Clay Center	357	125		
Smoky Hill River at Ellsworth	ice	20	9/14/11	35
Little Arkansas River at Alta Mills	118	8	5/12/11	18
Little Arkansas River at Valley Center	434	20	7/13/11	19
North Fork Ninnescah River above Cheney	83	40		
South Fork Ninnescah River near Pratt	9	10		
South Fork Ninnescah River near Murdock	178	80		
Ninnescah River near Peck	309	100		
Whitewater River near Towanda	54	10	05/13/11	24
Walnut River at Winfield	742	30		
Neosho River near Americus	79	5	08/06/11	28
Cottonwood River near Florence	183	10	08/06/11	29
Cottonwood River near Plymouth	939	20	08/06/11	30
Neosho River near Iola	203	40	08/06/11	31
Neosho River near Parsons	1361	50	08/06/11	32

\*Flows taken from USGS National Water Information System Real time data and is considered provisional/subject to revision.  
 \*\*Taken from KS Dept Agriculture-Division of Water Resources Website 12/29/11

Little Arkansas River: Orders were effective May 12 and July 13 requiring cessation of pumping on sections of the Little Arkansas River. These orders pertain to the basin which drains to the Little Arkansas River between Alta Mills and Valley Center respectively. These orders remain in affect for 26 water rights/permits. Flow has been above MDS at Valley Center since December 7 and at Alta Mills since Dec 19.

Neosho/Cottonwood River: Orders remain in effect for 160 water rights/permits in both the Neosho and Cottonwood basins. Temporary stays were issued under eight water rights/permits on November 28 and one permit on November 29, allowing users to pump until flows again fall below MDS at Parsons. The flow at Iola has been above MDS since December 11 while the flow at Parsons has been above MDS since November 26.

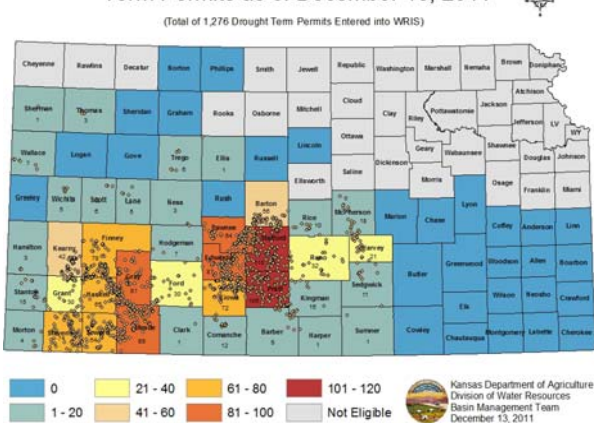
Smoky Hill River: Orders remain in effect requiring cessation of diversion under three water rights.

Walnut/Whitewater: Orders remain in effect for nine water rights/permits above the Towanda gage on the Whitewater River. The flow at Towanda has been above MDS since December 19.

### Water Right Term Permit Opportunity

A 2011 Drought Emergency Term Permit is available from Kansas Department of Agriculture, Division of Water Resources (KDA-DWR) for the counties shown below. The one-time, drought-focused term permit allows holders of existing water rights the flexibility to borrow a portion of next year's authorized quantity for irrigation in order to complete the 2011 growing season. Deadline to apply is December 31, 2011.

Distribution of 2011 Drought Emergency Term Permits as of December 13, 2011

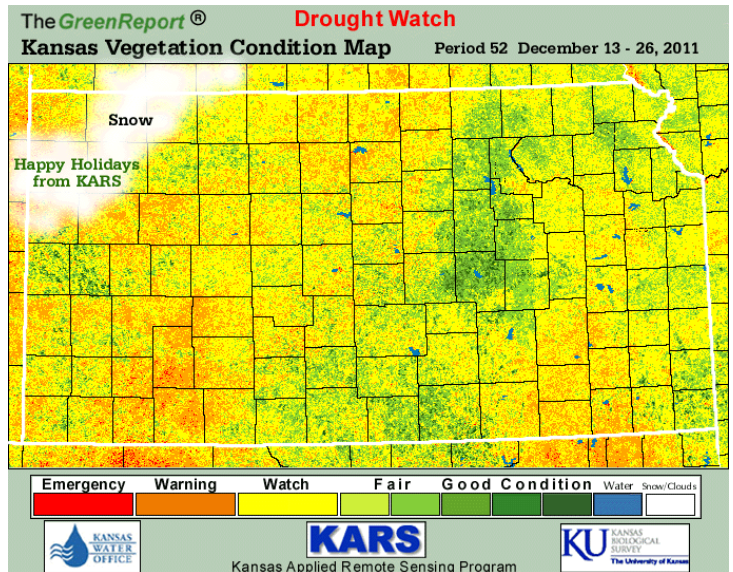
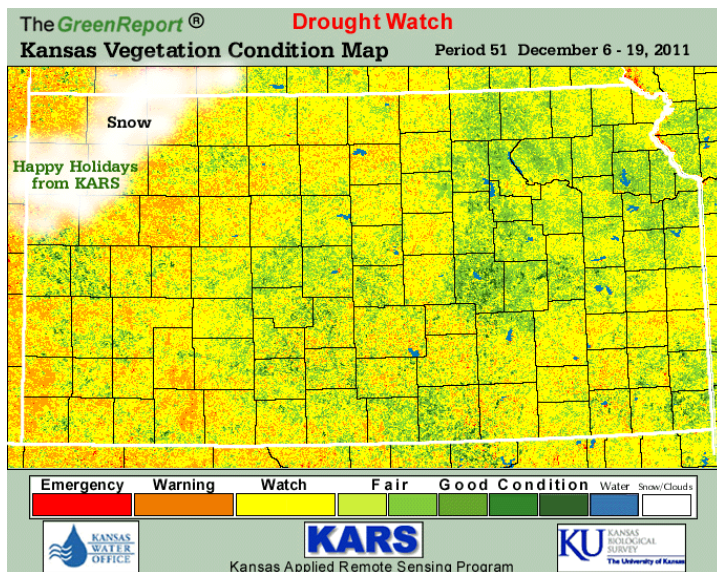


As of December 20, KDA-DWR had received 1,443 applications and processed 1,145.

### Burn Bans and Fires

Most counties require permits prior to a burn and are controlling burns through that process. A county issues a ban as they deem necessary at any time, for a specific time period or until repealed. Dry conditions in much of Kansas allow fires to start or spread easily. Please contact your county officials before you burn. Conditions continue that allow fires to start easily. The outlooks change daily. See <http://www.spc.noaa.gov/fire/> for current information.

## Kansas Vegetative Conditions



### Crops, Feed and Livestock

USDA Crop Progress and Condition reports issued monthly during winter. The most recent report, for the week ending November 27, USDA reports topsoil moisture supplies were rated at 19 percent very short, 25 percent short, 53 percent adequate, and 3 percent surplus. Subsoil moisture supplies were rated 31 percent very short, 32 percent short, 36 percent adequate, and 1 percent surplus.

The range and pasture condition was 37 percent very poor, 25 percent poor, 25 percent fair, and 13 percent good. Feed grain supplies in Kansas were rated at 13 percent very short, 17 percent short, 66 percent adequate, and 4 percent surplus. Hay and forage supplies were rated at 27 percent very short, 28 percent short, 42 percent adequate, and 3 percent surplus.

### Emergency Haying and Grazing

Emergency haying and grazing of CRP acreage were authorized in 2011 to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.

An executive order was signed by the Governor July 27 suspending certain motor carrier rules and regulations for people hauling hay to livestock. Additional measures were added by an executive order on October 6, 2011. This was extended by executive order 11-47 until December 14, 2011. Those include rules on permits, load sizes and nighttime travel of oversized loads. The executive order will be in effect until it's rescinded or until drought emergency and disaster declarations are lifted.

USDA Risk Management Agency provides information on crop insurance and drought damaged crops can be found at [http://www.rma.usda.gov/fields/ks\\_rso/2011/droughtfaq.pdf](http://www.rma.usda.gov/fields/ks_rso/2011/droughtfaq.pdf).

### Future Outlook

During December of 2011, the Climate Prediction Center is forecasting enhanced chances of above normal temperatures for southern sections of Central Region. Also forecast is the enhanced threat of below normal-precipitation across southern sections of Kansas. The National Weather Service drought outlook for December 15, 2011 through March 2012 indicates drought conditions are expected to continue in the southwest and the western portions of south central Kansas. Some improvement may occur in the eastern portion of south central Kansas with improvement predicted in the southeast. This reflects forecasts and outlooks for periods ranging from the next few days to the next few months, as well as La Nina composites for that time periods and related events. During December 2011 - February 2012, there is an increased chance of above-average temperatures across the south-central and southeastern U.S. and drier-than-average conditions are more likely across the southern tier of the U.S.

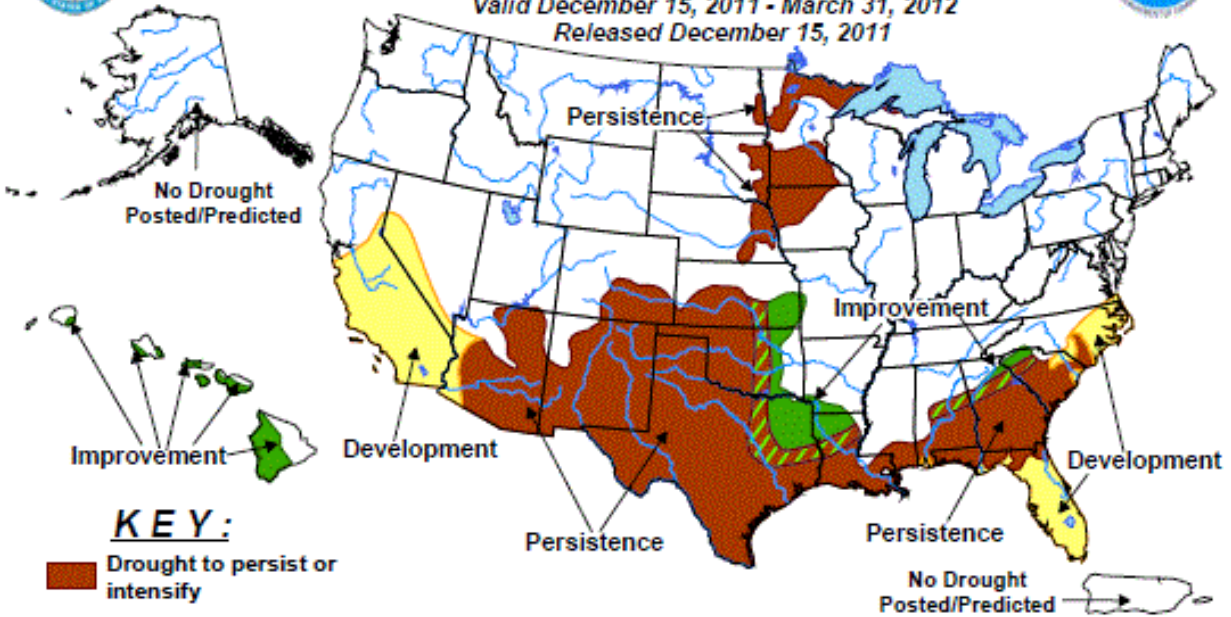


# U.S. Seasonal Drought Outlook

## Drought Tendency During the Valid Period

Valid December 15, 2011 - March 31, 2012

Released December 15, 2011

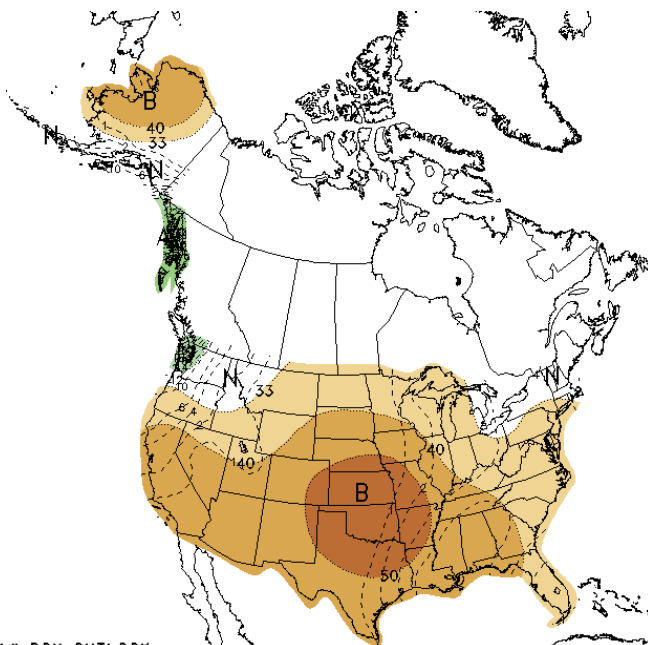


### KEY:

- Drought to persist or intensify
- Drought ongoing, some improvement
- Drought likely to improve, impacts ease
- Drought development likely

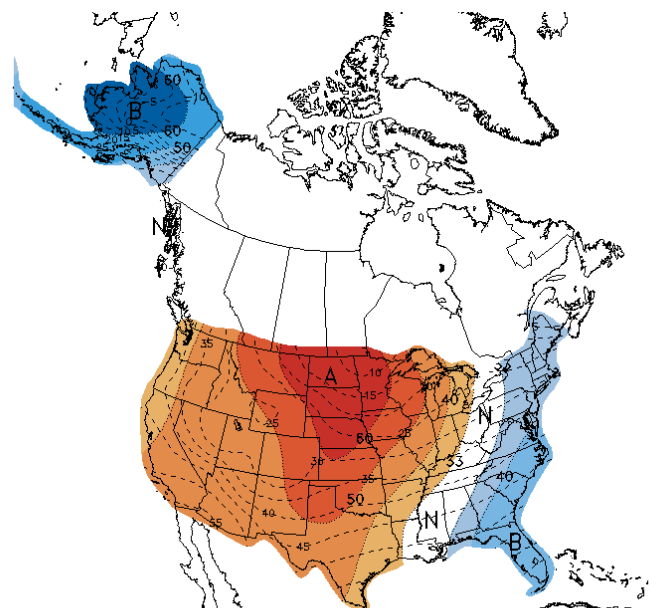
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events – such as individual storms – cannot be accurately forecast more than a few days in advance. Use caution for applications – such as crops – that can be affected by such events. “Ongoing” drought areas are approximated from the Drought Monitor (D1 to D4 Intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

NOAA outlook for the next 14 days and month:



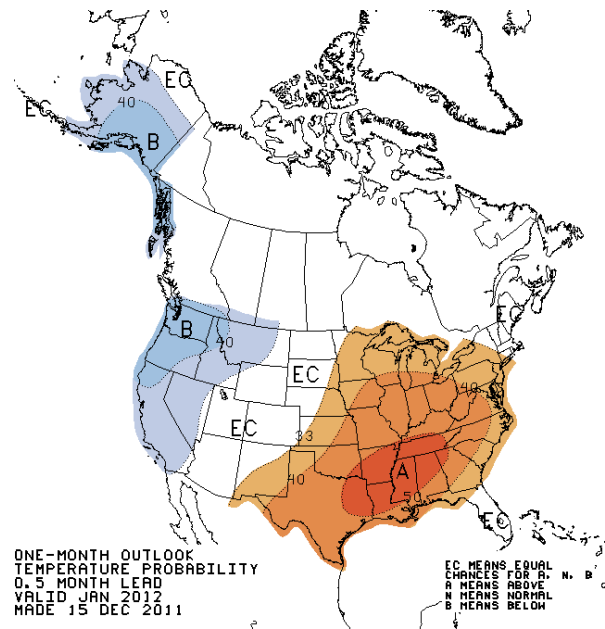
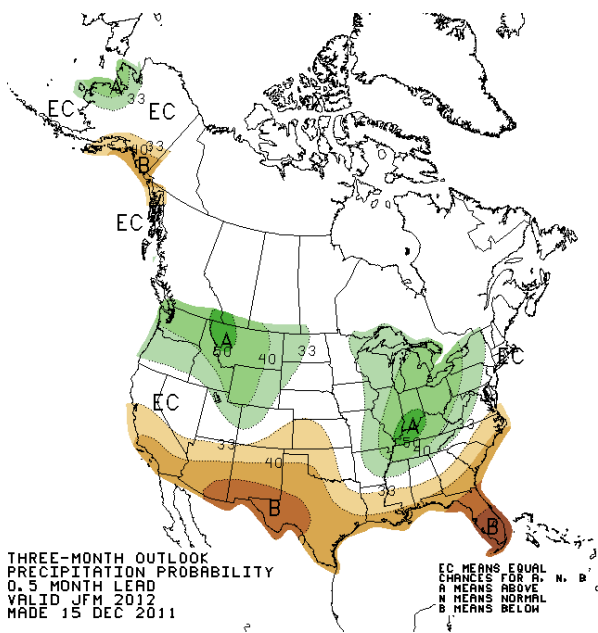
8-14 DAY OUTLOOK  
PRECIPITATION PROBABILITY  
MADE 28 DEC 2011  
VALID JAN 05 - 11, 2012

DASHED BLACK LINES ARE CLIMATOLOGY  
(TENTH OF INCHES) SHADED AREAS ARE FCS  
VALUES ABOVE (A) OR BELOW (B) MEDIAN  
UNSHADED AREAS ARE NEAR-MEDIAN



8-14 DAY OUTLOOK  
TEMPERATURE PROBABILITY  
MADE 28 DEC 2011  
VALID JAN 05 - 11, 2012

DASHED BLACK LINES ARE CLIMATOLOGY  
(DEG F) SHADED AREAS ARE FCS  
VALUES ABOVE (A) OR BELOW (B) NORMAL  
UNSHADED AREAS ARE NEAR-NORMAL



The Kansas Weekly Climate Summary and Drought Report is compiled at least monthly, more frequently when conditions warrant, by the Kansas Water Office (KWO). Information from various federal, state, local and academic sources is used. Some of the data is preliminary and subject to change once final data is available. The KWO web site, [KWO Drought](#), contains additional drought information including links to other agencies with drought information and past issues of the Kansas Climate Summary and Drought Report. Kansas State Climatologist, Mary Knapp, is the primary source of the narrative on weather. She works closely with meteorologists throughout the state and region. Details of current conditions at Evapotranspiration (ET) and Mesonet sites across Kansas are available at <http://www.ksre.k-state.edu/wdl/>.

### RESOURCES and ACTIVITIES

The [U.S. Drought Monitor](#), from the National Drought Mitigation Center at the University of Nebraska-Lincoln, provides a “big picture” perspective of conditions across the nation. In the Kansas county drought stage scheme, a Drought Watch equates roughly to moderate drought in the U.S. Drought Monitor, while a Drought Warning is the equivalent of severe drought. A Drought Emergency is reserved for extreme or exceptional drought. Palmer Drought Severity Index - The Palmer Index (PDSI) is one indicator used in the U.S. Drought Monitor.

The [High Plains Regional Climate Center](#) provides precipitation and temperature summary maps.

The U.S. Geological Survey (USGS) [Drought Watch](#) provides information on 7-day average streamflow measured at long-term gaging stations and compares them to normal flows.

The Kansas Department of Agriculture-Division of Water Resources monitors stream flow using the USGS gages for determination of administrative needs. Administration may be needed due to [Minimum Desirable Streamflow \(MDS\)](#) requirements, impairments, and reservoir release protection.

The water levels of the federal lakes fluctuate during a year according to the management plan. [Lake level Management](#) plans are posted on the Kansas Water Office web site [www.kwo.org](http://www.kwo.org).

The Kansas Applied Remote Sensing Program (KARS) at the University of Kansas produces a [Kansas Green Report](#) each week during the growing season. For a full set of national and regional **GreenReport**® maps, go to: <http://www.kars.ku.edu/products/greenreport/greenreport.shtml>. This Kansas Vegetation Drought Response Index map is developed weekly by the Kansas Biological Survey using state drought triggers as its key. In addition the Vegetation Drought Response Index, by the National Drought Mitigation Center provides another a national perspective on vegetation conditions. VegDRI maps may be found at <http://vegdri.unl.edu/>

The National Weather Service (NWS) provides fire weather products and services for Kansas that include the Rangeland Fire Danger Index, Fire Weather Forecasts, Red Flag Watches/Warnings, and Spot Forecasts. The five NWS offices that serve Kansas websites may be accessed from the [NWS Offices' page](#).

The [Seasonal Drought Outlook](#), developed by the NOAA Climate Prediction Center (NOAA CPC), assesses the likelihood for improvement, persistence or deterioration in drought conditions for areas currently experiencing drought as identified by the U.S. Drought Monitor. Also see:

<http://www.ncdc.noaa.gov/oa/climate/research/dm/weekly-dm-animations.html>

[Responding to Drought: A Guide for City, County and Water System Officials](#) provides an overview of Kansas county drought stage declarations, local planning and coordination, disaster declarations, and available state and federal assistance. [The 2007 Municipal Water Conservation Plan Guidelines](#) and the Drought Vulnerability Assessment Report, both by Kansas Water Office, provide guidance regarding drought preparedness and response.

[USDA has programs for agricultural](#) producers and businesses for drought affected areas. In some cases a eligibility is dependent on a federal disaster declaration but other programs are triggered by specific conditions.

Please contact Diane Coe at the Kansas Water Office (785) 296-3185 or [diane.coe@kwo.ks.gov](mailto:diane.coe@kwo.ks.gov) should you have any questions or suggestions.