

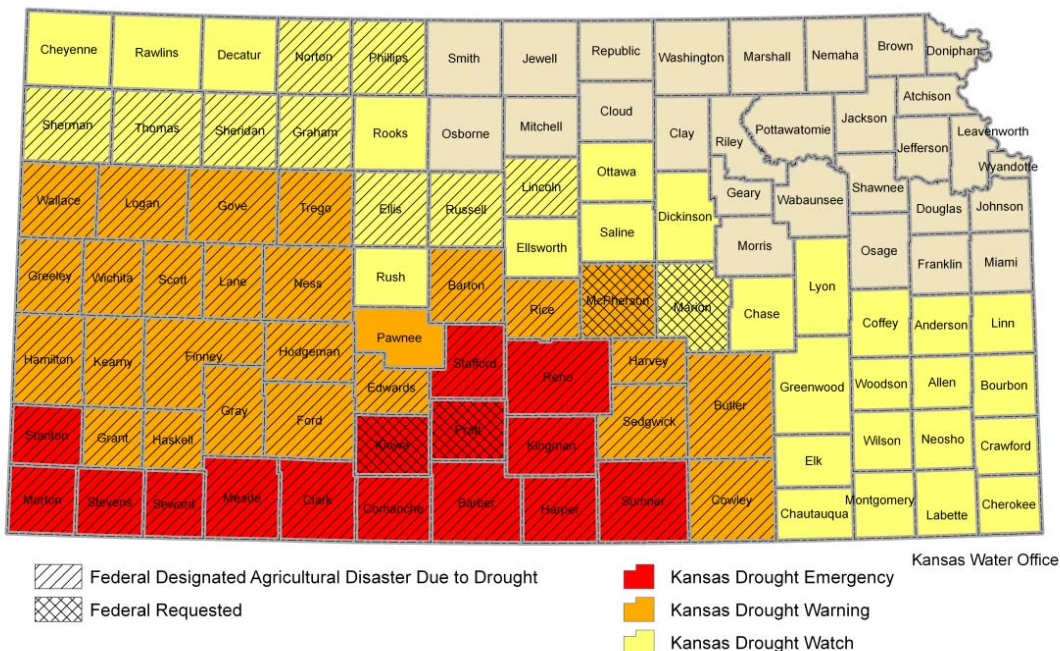
# KANSAS WEEKLY DROUGHT UPDATE – AUGUST 8, 2011

## Summary of Conditions and Changes:

- Governor issued Executive Order 11-27 moving 12 counties from drought warning to emergency status two from watch to warning and adding 15 to watch status. Now a total of 77 counties declared under drought.
- Memorandum of Understanding issued for emergency use of state fishing lake water under conditions of drought emergency declared by the Governor, will allow small communities and individuals within the emergency counties category to pump water from named state fishing lakes to provide some relief if they are in dire need of water.
- The August 2, 2011 U.S. Drought Monitor indicates 75 percent of Kansas effected by some level of drought compared to 70 percent last week, concentrated in the southern two-thirds of Kansas. The affected area is spreading north east.
- The southern half of the state had below normal streamflow (24 percent or less) last week (USGS streamflow conditions map).
- Additional orders for the cessation of diversion under 160 water rights/permits in the Neosho and Cottonwood basins were effective August 6. One new permit was issued last week, but a Minimum Desirable Streamflow (MDS) order accompanied the approval on the Walnut/Whitewater system.
- Additional water use restrictions in place by the cities of Butler (Reno Co), Cimarron (Gray Co) and Lakin (Kearny Co), Gardner (Johnson Co), Independence (Montgomery Co), Wichita (Sedgwick Co) and Dickinson County Rural Water District 2. The Chisholm Creek Utility Authority (CCUA) (Sedgwick Co) and Butler Rural Water District 4 have initiated voluntary conservation measures. CCUA is owned by and serves the cities of Park City and Bel Aire.
- Water Assurance releases in Neosho basin began August 6.
- Emergency grazing of CRP is now approved by FSA for 44 counties, emergency haying for 37 Kansas counties.

Counties under Kansas drought stages and/or Federal Agriculture Disaster Declarations are shown on the map below.

**Kansas Drought Conditions**  
August 3, 2011



**County Drought Declarations:**

A total of 77 counties are under state drought stages, with 15 counties in an emergency stage. State Emergency allows public water suppliers aid and opportunities to supplement their water supply, as well as providing opportunity for domestic and livestock water from emergency sources.

*In the list below the counties in green are new to the emergency list, red had their status move from watch to warning and those highlighted in yellow are new to the watch list.*

**Drought Emergency:** Barber, Clark, Comanche, Harper, Kingman, Kiowa, Meade, Morton, Pratt, Reno, Seward, Stafford, Stanton, Stevens, Sumner.

**Drought Warning:** Barton, Butler, Cowley, Edwards, Finney, Ford, Gove, Grant, Gray, Greeley, Hamilton, Harvey, Haskell, Hodgeman, Kearny, Lane, Logan, McPherson, Ness, Pawnee, Rice, Scott, Sedgwick, Trego, Wallace, Wichita.

**Drought Watch:** Allen, Anderson, Bourbon, Chase, Chautauqua, Cherokee, Cheyenne, Coffey, Crawford, Decatur, Dickinson, Elk, Ellis, Ellsworth, Graham, Greenwood, Labette, Lincoln, Linn, Lyon, Marion, Montgomery, Neosho, Norton, Ottawa, Phillips, Rawlins, Rooks, Rush, Russell, Saline, Sheridan, Sherman, Thomas, Wilson, Woodson.

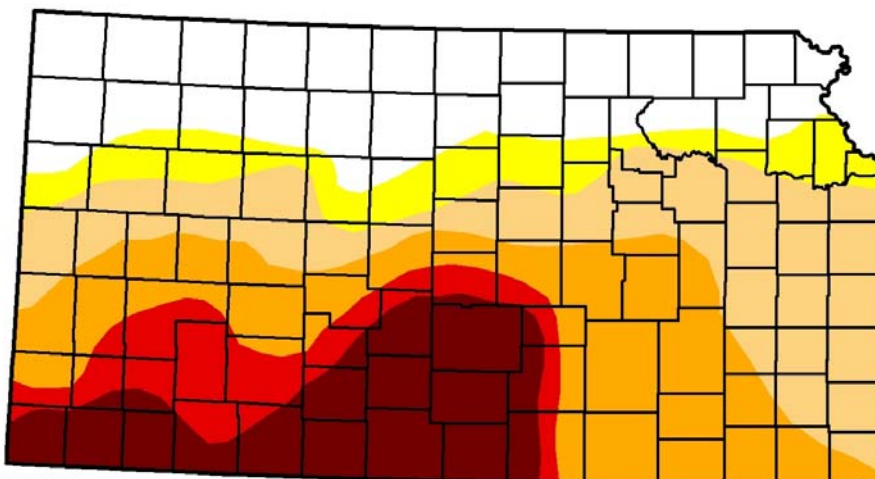
A total of 46 counties are designated federal agricultural disasters (S3117 & S3061) due to drought, high winds and excessive temperatures and are now eligible for federal programs, along with the 20 counties contiguous to these counties. A request for the addition of four counties was sent to USDA on July 25. USDA designations provide for some economic relief and open eligibility to specific federal programs. USDA agricultural disaster declarations are based on anticipated crop losses, while Kansas drought stages are based primarily on water resource conditions. Federal agricultural disasters have also been declared by the Secretary of USDA in for areas of Colorado (S3125 & S3133) and Oklahoman (S3080 & S3139) that include Kansas counties as contiguous. These are all included in the Kansas declaration with the exception of Chautauqua County, which is eligible for programs as a contiguous county under the Oklahoma declaration (not shown on map above).

**General Conditions**

The latest Drought Monitor showed an increase in the area and category/severity areas of drought from last week. The exceptional drought area (D4) increased from almost 12 percent of the state to almost 15 percent. Currently, over 75% of the state is reported as abnormally dry to exceptional drought. A more complete description of the Drought Monitor process can be found in a separate document under useful links.

Week	Nothing	D0-D4	D1-D4	D2-D4	D3-D4	D4
July 26, 2011	29.49	70.51	53.03	40.48	17.64	11.57
August 2, 2011	24.54	75.46	66.43	44.81	22.66	14.55

**US Drought Monitor – August 2, 2011**



<http://drought.unl.edu/dm>

*Legend:*

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



## **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 to provide some relief 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. The priority order established for this MOU is 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 supply may also be available for Drought Emergency counties from federal lakes. Water from U.S. Army Corp of Engineer lakes is available for domestic, industrial and livestock use but is prohibited for irrigation use. Requests from applicants have to go through the KWO or other appropriate State agency. Bureau of Reclamation lake water may be made available by temporary contract under drought conditions.

## **Local Public Water Supply Status**

**Butler County:** Augusta has declared a water emergency due to drought. Water sources for Augusta Lake and Santa Fe Lake are at historic lows; the El Dorado Lake supply pipeline is running close to capacity. Lawn watering restrictions were in place for the cities of Augusta and Mulvane. Augusta supplies Mulvane, Butler RWD4 and has an emergency connection to Butler RWD 6 and Sedgwick RWD3. On August 2 it was estimated Augusta had 6 weeks of water supply left in the city lake. Butler RWD4 has also requested conservation including outside watering restrictions.

**Dickinson County:** Dickinson Rural Water District 2 has mandatory water restrictions in effect through October 31, 2011.

**Gray County:** City of Cimarron has mandatory watering restrictions in place.

**Harvey County:** The City of Hesston has issued mandatory restrictions on residential yard use (lawn and car washing). Hesston is experiencing declines in the city's water wells and the lowered ability to keep up with demand.

**Haskell County:** The City of Sublette has initiated water conservation measures.

**Johnson County:** City of Gardner has requested voluntary conservation measures.

**Kearny County:** City of Lakin has initiated voluntary water conservation measures.

**Neosho County:** The City of St. Paul is under a conserve order as the city's intake is unable to access the low flow in the Neosho River. Emergency measures to pump water to the intake are underway.

**Marion County:** The City of Burns has issued a request that citizens do not fill swimming pools and use water sparingly when watering lawns, gardens and flowers as the city wells are getting low due to the excessive heat and lack of rain.

**Montgomery County:** City of Independence has requested voluntary water conservation practices.

**Reno County:** The City of Buhler has implemented voluntary water restrictions to reduce usage due to concerns with exceeding water rights.

Russell County: The City of Russell has moved to the second stage of its water conservation plan due to lack of flow in Big Creek and the Smoky Hill River at Pfeiffer and the associated aquifer decline. Residents are asked to voluntarily not perform any outside watering or washing of vehicles.

Sedgwick County: The City of Goddard has issued a water warning and asked residents to voluntarily conserve water. The Chisholm Creek Utility Authority which supplies water to Bel Aire and Park City also in Sedgwick County has issued a water watch. The City of Wichita has requested voluntary water conservation.

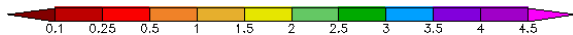
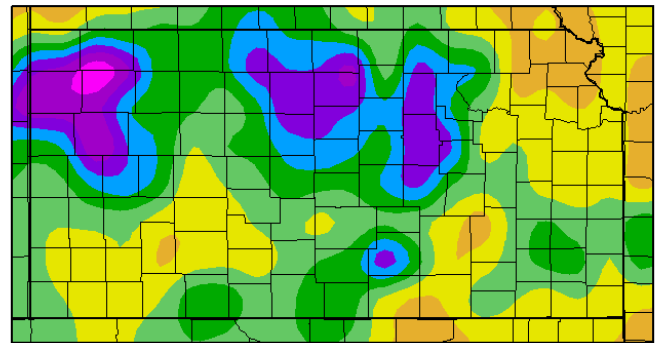
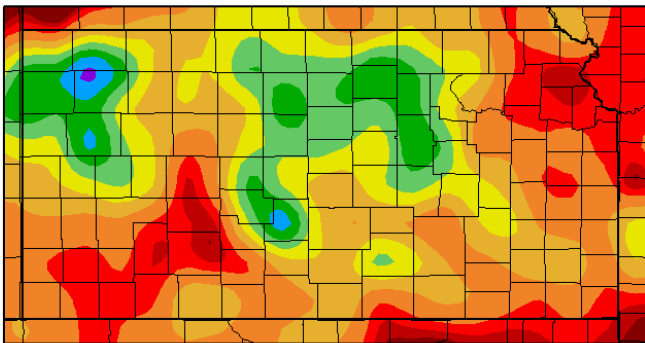
Sumner County: The City of Caldwell has put their emergency water plan (mandatory water conservation measures) into effect for all customers including Rural Water District No. 7. The primary source of water supply is the Chikaskia River.

### Climate (Precipitation and Temperature)

The week August 1 -7, 2011 saw some local improvement due to precipitation, especially when compared to normal precipitation for the week. However, temperatures continued above normal for most of the state.

Precipitation (in)  
8/1/2011 - 8/7/2011

Departure from Normal Precipitation (in)  
8/1/2011 - 8/7/2011



Generated 8/8/2011 at HPRCC using provisional data.

Regional Climate Centers

Generated 8/8/2011 at HPRCC using provisional data.

Regional Climate Centers

## Kansas Climate Division Precipitation Summary (inches)

7 Day Summary ending on 8/7/2011

Percent of Normal (100% = Normal)

Climate Division	8/1 -8/7				1/1 - 8/7				4/1 -8/7			
	Actual	Normal	Departure	%	Actual	Normal	Departure	%	Actual	Normal	Departure	%
Northwest	1.07	0.55	0.52	192	11.42	14.24	-2.82	79	10.28	12.04	-1.76	84
West Central	0.94	0.58	0.36	164	9.24	13.54	-4.3	68	7.71	11.34	-3.63	68
Southwest	0.42	0.57	-0.15	74	5.15	13.22	-8.07	39	4.22	11.08	-6.86	38
North Central	1.6	0.74	0.86	213	17.05	17.56	-0.51	96	14.91	14.34	0.57	103
Central	1.38	0.74	0.64	182	12.03	18.52	-6.49	65	9.51	14.93	-5.42	64
South Central	0.59	0.71	-0.12	85	7.51	17.96	-10.45	40	5.41	14.26	-8.85	37
Northeast	0.55	0.88	-0.33	64	16.85	21.6	-4.75	78	13.38	17.54	-4.16	76
East Central	0.75	0.82	-0.07	97	14.4	22.59	-8.19	64	10.44	17.96	-7.52	58
Southeast	0.56	0.83	-0.27	68	15.89	23.16	-7.27	68	10.51	17.73	-7.22	59
State	0.85	0.71	0.14	123	11.74	17.94	-6.2	64	9.2	14.47	-5.27	62

## Water Supply Reservoir Conditions

In eastern Kansas, the primary source of water is surface water: 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. As of Friday August 5, 2011:

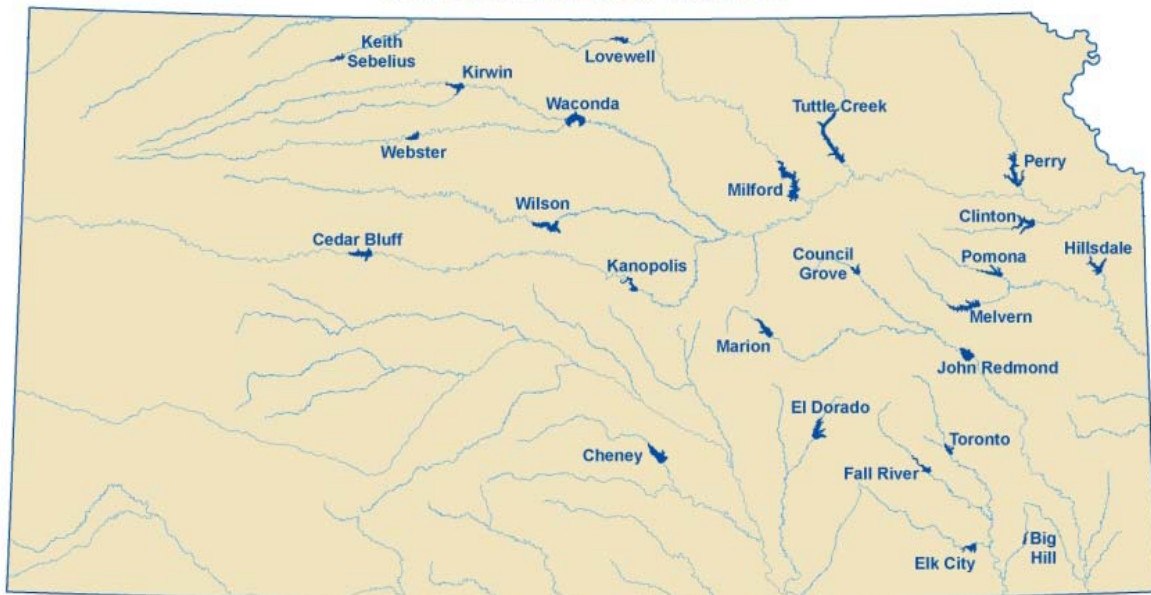
The Marais de Cygnes basin has inflow to all lakes (Hillsdale, Melvern, and Pomona reservoirs) exceeding discharge.

Neosho basin (Marion, Council Grove and John Redmond reservoirs) on June 28 saw no natural flows in the upper Neosho, with no inflow to Marion Reservoir. There is a quality release in the Cottonwood which continues but there is 20+cfs gain (down from 30 last week) before confluence with the Neosho. Inflow and discharge were about equal at John Redmond Reservoir. The Water Supply release begun July 1, from Council Grove Reservoir for Emporia continues. MDS orders have been issued upstream of Parsons for the Neosho and Cottonwood rivers. Releases for water assurance began August 7 from John Redmond for water assurance district members with water rights junior to MDS.

The Smoky Hill basin conditions are varied. Kanopolis Reservoir which supplies Post Rock Rural Water District is 1.33 feet above conservation pool. The recent rains have improved inflows to Kanopolis and downstream flow. No flow downstream of Cedar Bluff. The City of Russell has water supply in Cedar Bluff, which is released when specific criteria and need arise. Preparations are underway for a release for Russell from their water supply account in Cedar Bluff.

In the Verdigris basin there are no natural flows in the Elk Creek River. Releases from Elk City Lake continue for Coffeyville Resources, but the City of Coffeyville supply is reported as adequate for now. Toronto and Fall River reservoirs are into conservation pool so irrigation has been limited by DWR. One surplus water contract is active below Elk City Reservoir. Another surplus contract has been completed but pumping has not begun.

Federal Lakes in Kansas

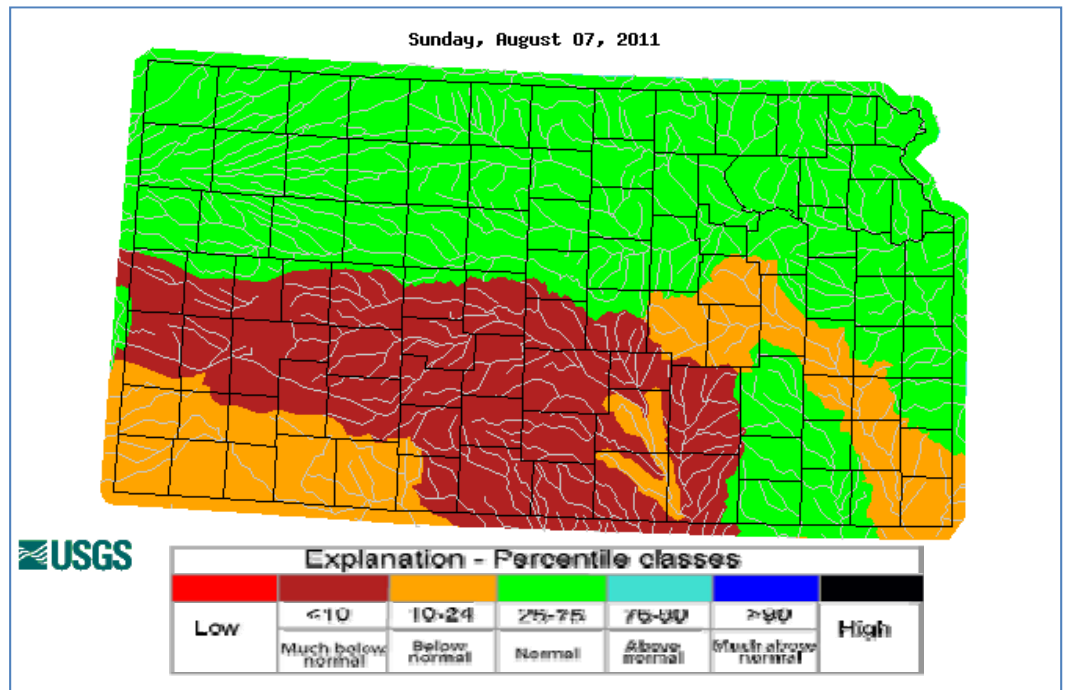


## General Reservoir Conditions

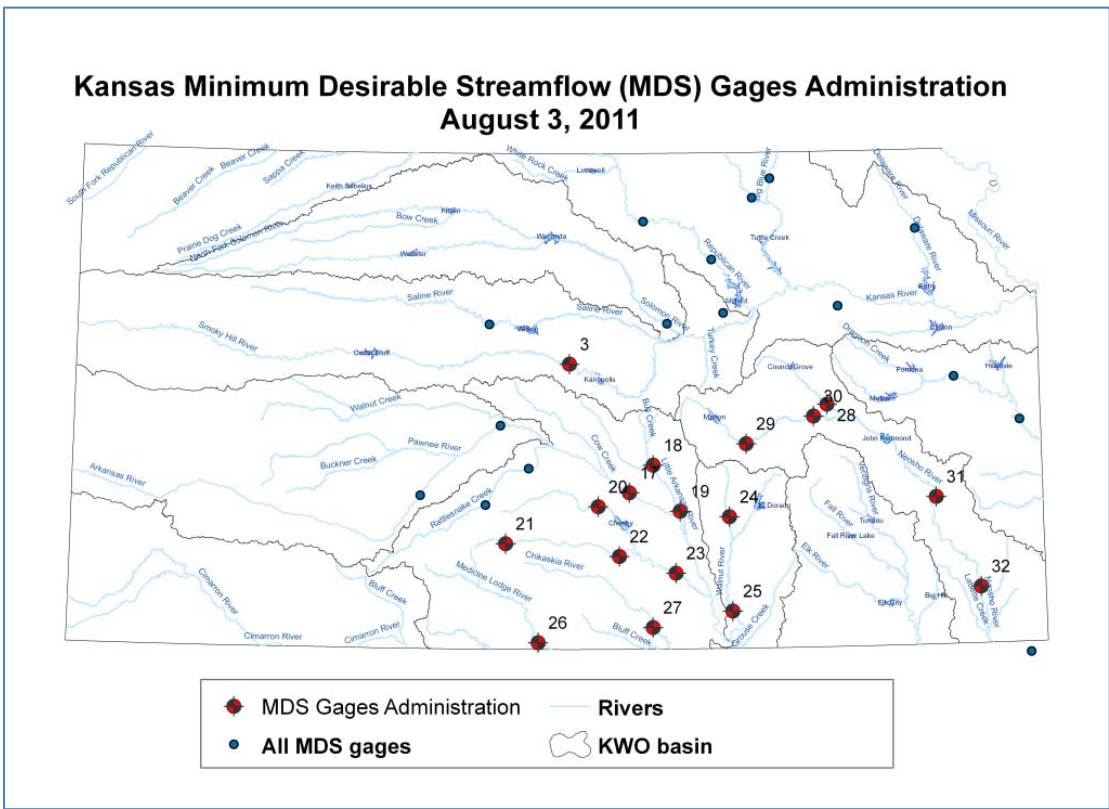
Kansas Federal Reservoirs			
Reservoir	Top of Multipurpose/Conservation Pool (Feet MSL)	Multipurpose/Conservation Pool Elevation (Feet MSL) 8/08/2011	Change from Top of Pool (Feet)
<b>Kansas River Basin</b>			
Norton <sup>1</sup>	2304.3	2296.31	-7.99
Harlan County, NE	1946	1945.56	-0.44
Lovewell <sup>1</sup>	1582.6	1583.17	0.57
Milford <sup>1</sup>	1144.4	1156.96	12.56
Cedar Bluff	2144	2127.84	-16.16
Kanopolis <sup>1</sup>	1463	1464.34	1.34
Wilson <sup>1</sup>	1516	1516.65	0.65
Webster <sup>1</sup>	1892.5	1887.88	-4.62
Kirwin <sup>1</sup>	1729.3	1729.15	-0.15
Waconda <sup>1</sup>	1455.6	1458.54	2.94
Tuttle Creek <sup>1</sup>	1075	1089.46	14.46
Perry <sup>1</sup>	891.5	895.87	4.37
Clinton <sup>1</sup>	875.5	874.92	-0.58
Melvern <sup>1</sup>	1036	1035.49	-0.51
Pomona <sup>1</sup>	974	974.2	0.20
Hillsdale <sup>1</sup>	917	916.75	-0.25
<b>Arkansas River Basin</b>			
Cheney	1421.6	1419.22	-2.38
El Dorado	1339	1336.93	-2.07
Toronto <sup>1</sup>	901.5	901.32	-0.18
Fall River <sup>1</sup>	948.5	948.39	-0.11
Elk City <sup>1</sup>	796	793.5	-2.50
Big Hill	858	856.73	-1.27
Council Grove <sup>1</sup>	1274	1273.07	-0.93
Marion <sup>1</sup>	1350.5	1348.2	-2.30
John Redmond <sup>1</sup>	1039		
1. Lake level management plan in place Source: U.S. Army Corps of Engineers			

### Streamflow Conditions

USGS seven day average stream flow compared to normal flow values recorded for the same day 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.



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



The map at left shows the MDS gages related to Department of Agriculture, Division of Water Resources water right administration at this time. The table below shows the gage name for the location on the map where administration is occurring, as well as providing flows in cubic feet per second (cfs) at selected gaging stations as of August 3 for streams where MDS is of interest.

**Streamflows as of August 3, 2011 in cfs**

<b>Gaging Station</b>	<b>Current Flow (CFS)</b>	<b>August MDS (CFS)</b>	<b>ADMIN 7/20/11</b>	<b>Map Location #</b>
Republican River at Concordia	329	150		
Republican River at Clay Center	510	200		
Smoky Hill River at Ellsworth	11	15	7/8/11	3
Saline River near Russell	7	2		
Mill Creek near Paxico	10	5		
Arkansas River near Hutchinson	60	80		
Little Arkansas River at Alta Mills	0	8	5/12/11	18
Little Arkansas River at Valley Center	5	20	7/13/11	19
North Fork Ninnescah River above Cheney	3	5	7/21/11	20
South Fork Ninnescah River near Pratt	4	5	NA	
South Fork Ninnescah River near Murdock	20	30	7/21/11	22
Ninnescah River near Peck	9	30	7/21/11	23
Whitewater River near Towanda	3	5	05/13/11	24
Walnut River at Winfield	23	25	05/13/11	25
Medicine Lodge River near Kiowa	0	1	06/23/11	26
Chikaskia River near Corbin	1	5	06/23/11	27
Neosho River near Americus	19	5	08/06/11	28
Cottonwood River near Florence	18	10	08/06/11	29
Cottonwood River near Plymouth	33	20	08/06/11	30
Neosho River near lola	28	40	08/06/11	31
Neosho River near Parsons	35	50	08/06/11	32

Arkansas River: The flow at Hutchinson has been below MDS since July 12. DWR has assessed water rights/permits for regulation. The Chief Engineer has determined administration of surface water rights in the basin would be futile.

Chikaskia River: Orders issued June 21 under seven water rights/permits remain in effect.

Little Arkansas River: Orders went out July 11 requiring cessation of pumping. These orders pertain to the basin which drains to the Little Arkansas River between Alta Mills and Valley Center. These orders remain in affect for 24 water rights/permits under administration above the Alta Mills gage.

Medicine Lodge River: Orders issued June 21 under two water rights/permits remain in effect.

Mill Creek: Flows were steadily declining at the Paxico gage, but adjustments after physical measuring by USGS indicated flows higher than previously shown. Additional physical measurements August 2 confirmed the gage is reading correctly. Administration is not needed at this time.

Neosho/Cottonwood River: The flow at Parsons was below MDS on August 3. Orders will be issued on August 4, effective August 6 for the cessation of diversion under 160 water rights/permits in the Neosho and Cottonwood basins. The MDS orders include the junior water rights/permits above lola and Parsons gages, including those above the Americus, Florence and Plymouth gages.

Ninnescah: Orders issued July 19, effective July 21, for 12 water rights/permits to cease diversion above the Cheney, Peck and Murdock gages.

**Smoky Hill River:** Orders went out July 6 under five water rights/permits requiring cessation of diversion. On August 3, orders remain in effect for four water rights/permits. These water rights are located above the Ellsworth gage and below the confluence of Big Creek with the Smoky Hill River.

**Saline River:** Flows have remained above MDS at the Russell gage.

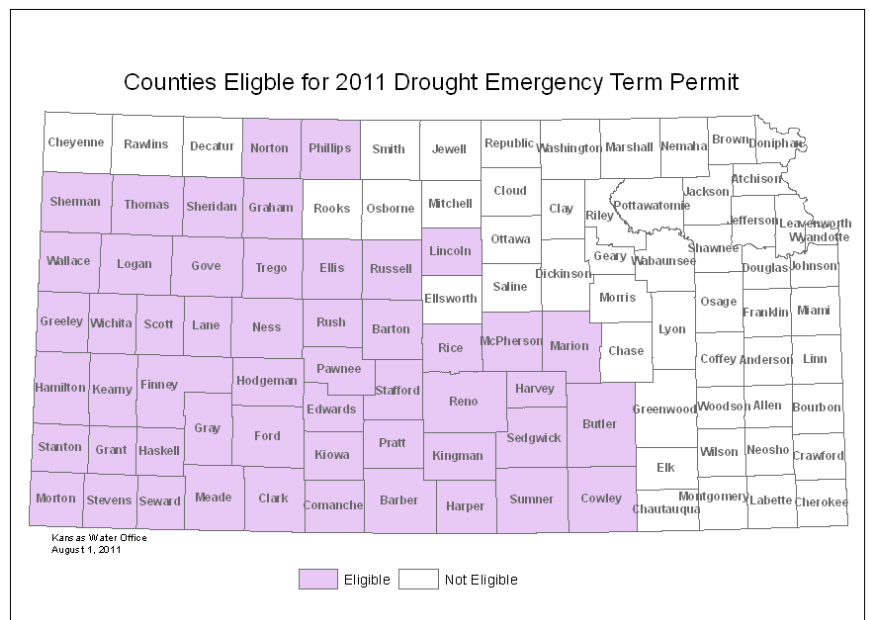
**Walnut/Whitewater:** Flows at the Towanda gage are around MDS, however because the flow has been below MDS downstream at the Winfield gage for most of July, orders for water rights/permits above the Towanda gage remain in effect. One new permit was issued last week, but an MDS order accompanied the approval. There are currently 61 water rights/permits under MDS orders.

**Other Water Right Administration**

In addition to MDS needs, administration of water rights/permits occurs when there is not enough water to meet all appropriations. Senior water rights needs, water quality and the protection of releases may also trigger the need. Notices were issued by DWR July 20, 2011 on the Elk River below Elk City Reservoir (Verdigris basin). DWR has issued orders protecting releases for Emporia from Council Grove Reservoir.

**Water Right Term Permit Opportunity**

A 2011 Drought Emergency Term Permit is available from Kansas Department of Agriculture, Division of Water Resources for the below counties in Kansas. 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 in order to complete the 2011 growing season. The term permit allocation will be based on the sum of the quantity authorized for 2011 and 2012. Municipal water rights are also eligible.



**Emergency Haying and Grazing**

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

Emergency authorization is provided by either national FSA office authorization or by a state FSA committee determination utilizing the U.S. Drought Monitor. The state FSA committee may approve emergency grazing on a county-by-county basis if the county is designated as level “D2 Drought-Severe” according to the U.S. Drought Monitor. It may approve emergency haying on a county-by-county basis if the county is designated as “D3 Drought- Extreme” or “D4-Exceptional” according to the U.S. Drought Monitor.

As of August 4, the 38 counties approved by USDA's Farm Service Agency (FSA) for Conservation Reserve Program (CRP) emergency haying include: Barber, Barton, Clark, Comanche, Edwards, Elk, Ellsworth, Finney, Ford, Grant, Gray, Greenwood, Harper, Harvey, Haskell, Hodgeman, Kearny, Kingman, Kiowa, Lane, McPherson, Meade, Morton, Ness, Pawnee, Pratt, Reno, Rice, Scott, Sedgwick, Seward, Stafford, Stanton, Stevens, Sumner, Trego, Wichita, and Wilson.

The 57 counties approved for CRP emergency grazing include: Barber, Barton, Butler, Chase, Clark, Chautauqua, Cherokee, Comanche, Cowley, Edwards, Elk, Ellis, Ellsworth, Finney, Ford, Gove, Graham, Grant, Gray, Greeley, Greenwood, Hamilton, Harper, Harvey, Haskell, Hodgeman, Kearny, Kingman, Kiowa, Labette, Lane, Logan, Lyon, Marion, McPherson, Meade, Montgomery, Morris, Morton, Ness, Neosho, Pawnee, Pratt, Reno, Rice, Rush, Scott, Sedgwick, Seward, Stafford, Stanton, Stevens, Sumner, Trego, Wallace and Wichita, and Wilson.

Emergency haying is allowed through August 31 and emergency grazing in approved counties is allowed through September 30, 2011. Emergency haying and grazing is not allowed on the same acreage. All livestock must be removed by the end of this grazing period. CRP participants in approved counties shall contact the local FSA county office to request emergency haying or grazing on an individual contract basis prior to haying or grazing. More information can be found on the USDA FSA web pages (<http://www.apfo.usda.gov/FSA/webapp?area=home&subject=copr&topic=crp-eg>).

USDA's Farm Service Agency (FSA) in Kansas, allows eligible ranchers and livestock producers to apply under the Livestock Forage Disaster Program (LFP) for losses incurred during the 2011 grazing season up to October 1, 2011. An eligible livestock producer that owns or leases grazing land or pastureland physically located in a county rated by the U.S. Drought Monitor as having a:

\* D2 (severe drought) intensity in any area of the county for at least eight consecutive weeks during the normal grazing period is eligible to receive assistance in an amount equal to one monthly payment.

\* D3 (extreme drought) intensity in any area of the county at any time during the normal grazing period is eligible to receive assistance in an amount equal to two monthly payments.

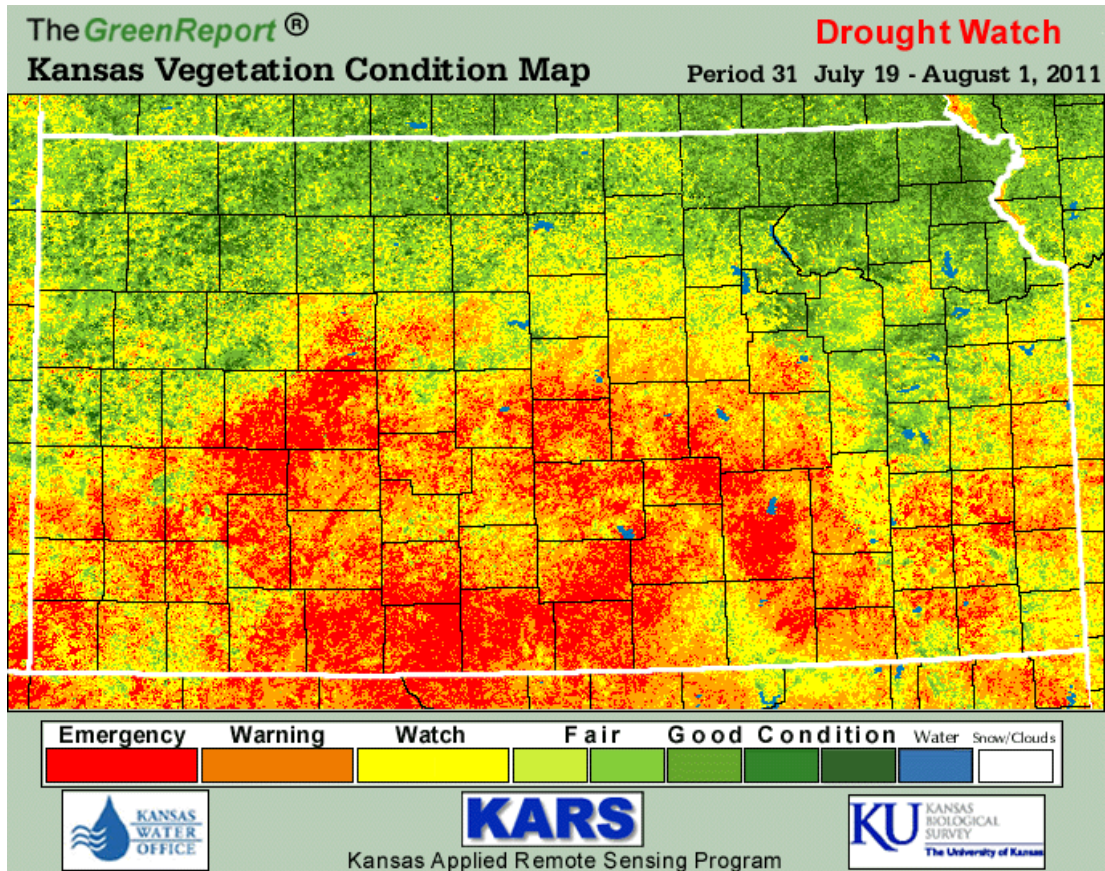
\* D3 (extreme drought) intensity in any area of the county for at least four weeks during the normal grazing period or is rated a D4 (exceptional drought) intensity at any time during the normal grazing period is eligible to receive assistance in an amount equal to three monthly payments.

As of August 4, the following counties meet the LFP trigger requirements for native and improved grasses: Barber, Barton, Clark, Comanche, Edwards, Ellis, Ellsworth, Finney, Ford, Gove, Grant, Gray, Greeley, Hamilton, Harper, Harvey, Haskell, Hodgeman, Kearny, Kingman, Kiowa, Lane, Logan, McPherson, Marion, Meade, Morton, Ness, Pawnee, Pratt, Reno, Rice, Rush, Scott, Sedgwick, Seward, Stafford, Stanton, Stevens, Sumner, Trego, Wallace, and Wichita. Additional counties could become eligible later depending on the U.S. Drought Monitor rating.

For more information on grazing and haying see the Kansas Farm Bureau (<http://www.kfb.org/drought2011.htm>).

An executive order was signed by the Governor July 27 suspending certain motor carrier rules and regulations for people hauling hay to livestock. 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.

## Kansas Vegetative Conditions

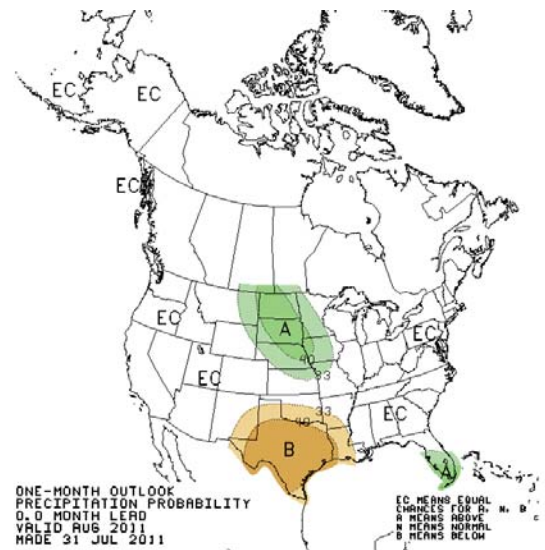
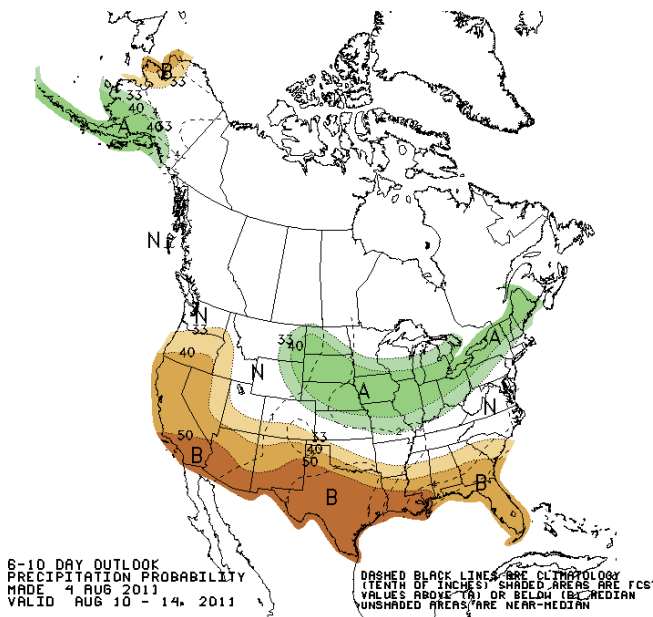
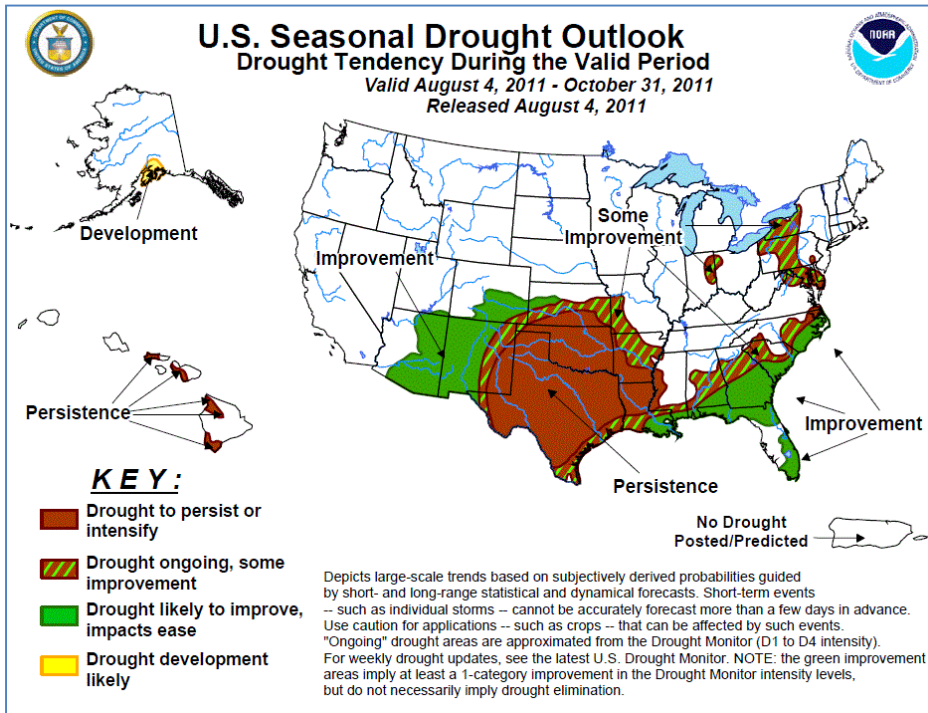


### Burn Bans Update

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.

Counties that have burn bans in effect at this time include Barton, Cherokee, Clark, Crawford, Hamilton, Harper, Labette, Lane, Marion, Pawnee, Russell and Seward. Other counties have had bans that expired or have been repealed. Butler County Fire District #1 is under burn ban (August 4). There may be other burn bans in place.

# Future Outlook



The Kansas Weekly Climate Summary and Drought Report is compiled each week 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

1. 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.
2. The National Weather Service (NWS) Cooperative Observer Program (COOP) is the Nation's weather and climate observing network made up of observers that send monthly reports of daily temperatures and precipitation to the NWS. <http://www.nws.noaa.gov/om/coop/wfo-rfcmap.htm>
3. CoCoRaHS is a community-based network of volunteers that measure and map precipitation (rain, hail and snow). Locations and daily precipitation observed through the CoCoRaHS system can be seen at: <http://www.cocorahs.org/state.aspx?state=ks>
4. 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.
5. 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.
6. 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).
7. Water supply needs for community and rural water systems are monitored through various state agencies and organizations. State Emergency Drought stage opens opportunities for suppliers with supply difficulties to obtain water and receive assistance to obtain water from additional sources.
8. 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://veg dri.unl.edu/>
9. 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](#).
10. 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.
11. [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.

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