



Natural Resources Conservation Service  
P.O. Box 2890  
Washington, D.C. 20013

## Weekly Water and Climate Update December 11, 2014

Agricultural Weather Highlights.....	1	National Weather Hazards .....	16
Snow .....	2	National Drought Summary .....	16
Precipitation.....	3	Supplemental Drought Information .....	20
Temperature.....	6	National Seasonal Drought Outlook .....	20
Weather and Drought Summary .....	8	2014 USDA Secretarial Drought Designations .....	20
Risk Management Web Resources.....	9	National Fire Potential Outlook.....	21
U.S. Population in Drought .....	12	Supplemental Drought-Agriculture News .....	21
Changes in Drought Monitor Categories .....	13	Tea Cup Reservoir Depictions.....	23
Soil Moisture.....	14	California Reservoir Conditions .....	24
Soil Climate Analysis Network (SCAN) .....	14	State Activities .....	25
Streamflow .....	15	More Information.....	25
National Long-Range Outlook.....	15		

### Agricultural Weather Highlights – Thursday – December 11, 2014

- “In the **West**, a significant storm system is arriving across northern California, producing heavy precipitation, high winds, and mountain snow. Precipitation is also falling in the Pacific Northwest. Elsewhere, unusually warm weather prevails in advance of the approaching storm.
- On the **Plains**, mild, dry weather prevails. Early today, however, fog blankets parts of the central and southern Plains. Later today, high temperatures will exceed 60°F on the High Plains as far north as central Montana.
- In the **Corn Belt**, dry but mostly cloudy weather prevails. Mild, foggy conditions in parts of the western Corn Belt contrast with cool, breezy weather in the eastern Corn Belt. In Wisconsin, corn was 86% harvested by December 7, ahead of only 1985, 1992, and 2009 during the last three decades.
- In the **South**, cool weather persists. Freezes were noted early today as far south as the northern tier of Florida.

**Outlook:** A significant, early-winter storm will provide much-needed precipitation across California and environs through Friday. In some places, including areas that experienced wildfires earlier this year, precipitation may fall with enough intensity to cause flash flooding and mud slides. A blizzard warning is in effect for the Sierra Nevada, where snow levels will gradually lower to near 5,000 feet by Friday morning. Storm-total precipitation could reach 4 to 8 inches in parts of northern and central California, with much lighter amounts (generally 0.5 to 2.0 inches or less) expected elsewhere in the West. By December 14-15, California’s storm will arrive across the central and southern Plains, where 1- to 2-inch rainfall totals may occur. Another storm system will reach the Pacific Coast early next week. Elsewhere, late-season warmth will continue to dominate the nation’s mid-section during the next several days, with late-week temperatures approaching 70°F on the High Plains as far north as western South Dakota. In contrast, chilly conditions will persist across much of the eastern U.S., accompanied by rain and snow showers in the Northeast. The NWS 6- to 10-day outlook for December 16-20 calls for above-normal temperatures nearly nationwide, although cooler-than-normal conditions will linger across southern Florida. Meanwhile, above-normal precipitation across much of the southern and western U.S. will contrast with drier-than-normal weather on the northern Plains and from portions of the Great Lakes region into the Northeast.”

**Contact:** Brad Rippey, Agricultural Meteorologist, USDA/OCE/WAOB, Washington, D.C. (202-720-2397)

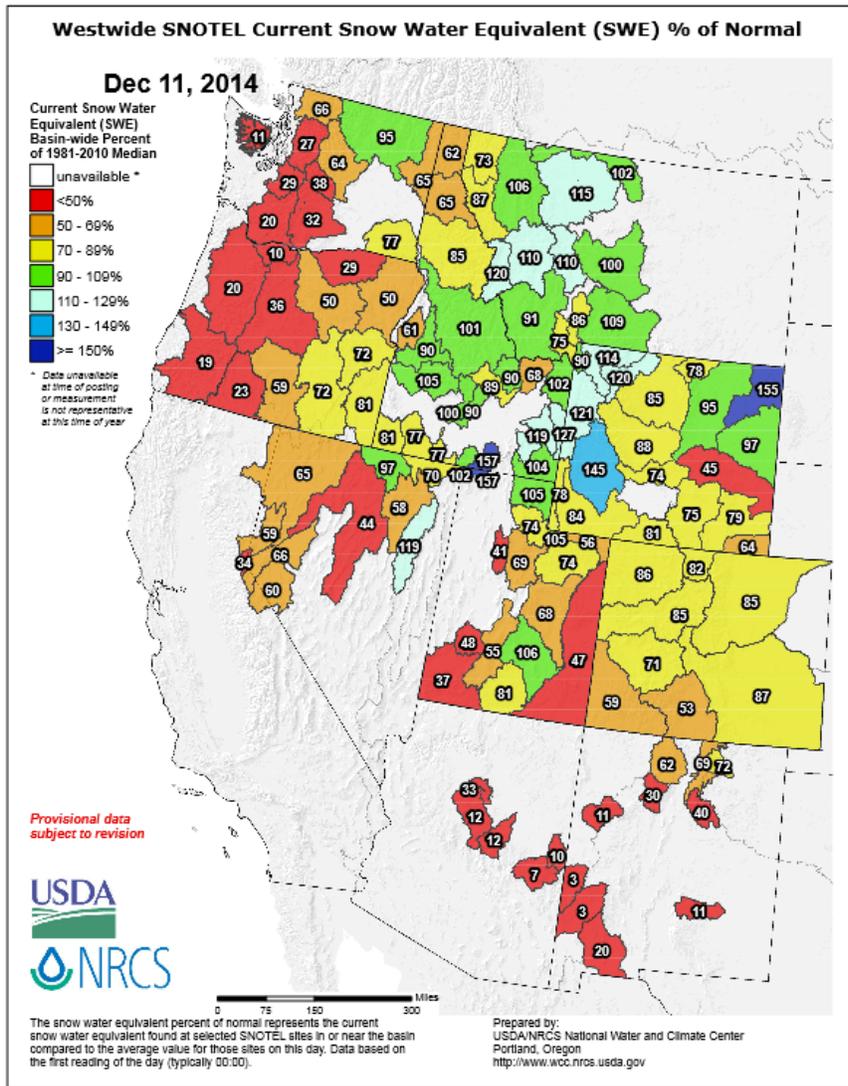
**Website:** <http://www.usda.gov/oce/weather/pubs/Daily/TODAYSWX.pdf>

The Natural Resources Conservation Service provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment

An Equal Opportunity Employer

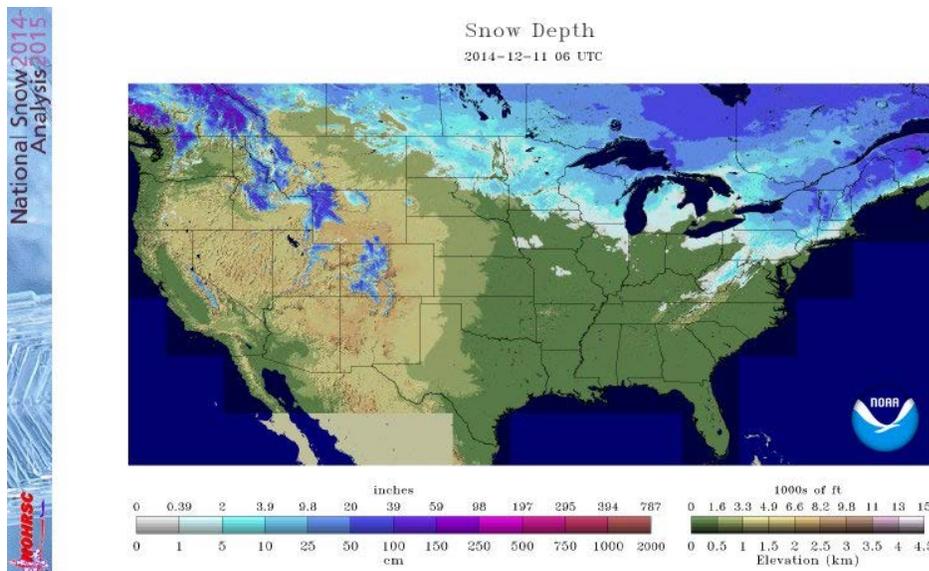
# Weekly Water and Climate Update

## Snow



For the [2015 Water Year](#) that began on October 1, 2014, a few basins in Idaho, eastern Nevada, Utah, Wyoming, and Montana have recorded above normal Snow Water Equivalent (SWE) values (medium blue and dark blue areas).

The largest snowpack deficits (red areas) are in the Cascades and Olympics of Oregon and Washington, southern and central Utah, central Nevada, Arizona, and New Mexico.



Snow depth reported from [NWS NOHRSC](#) as of December 11, 2014. Recent storms have produced snow in the upper Midwest, much of the Northeast, and the Rocky Mountains. Areas with a substantial snowpack include the Upper Peninsula of Michigan, the Rocky Mountains in Wyoming, Montana, and central Idaho, as well as the North Cascades in Washington, and in northern New England.

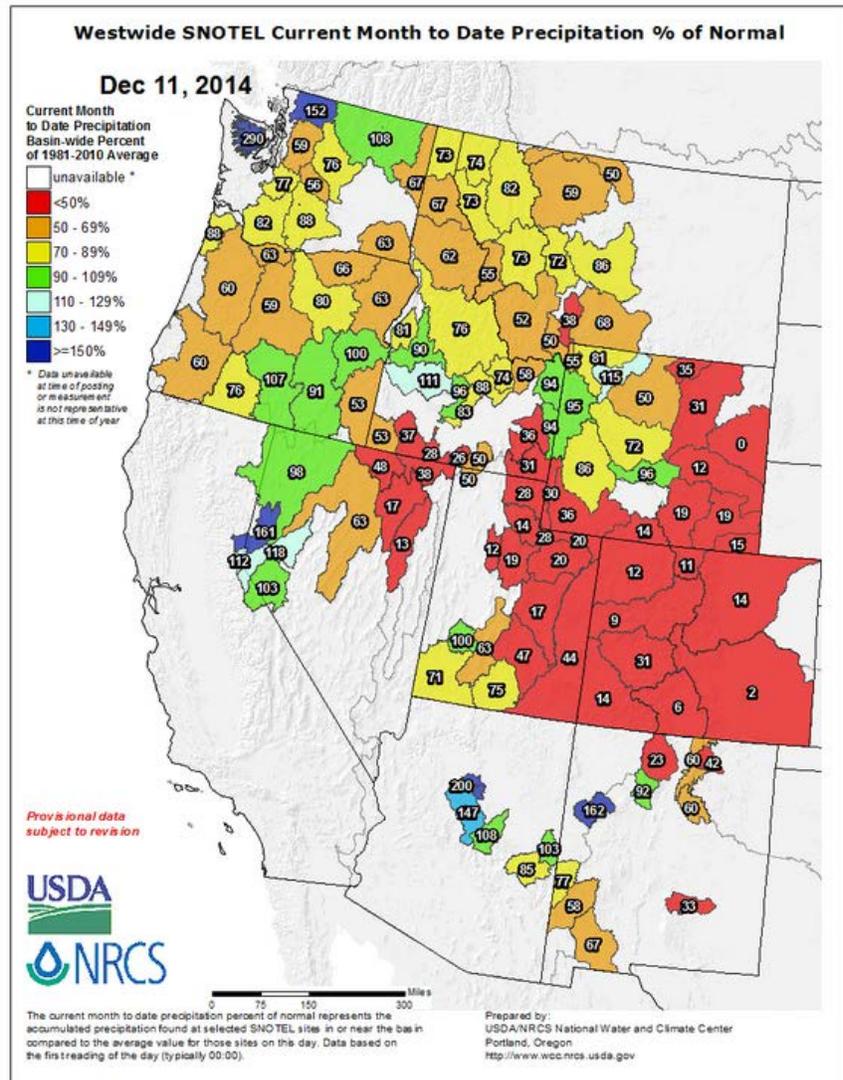
# Weekly Water and Climate Update

## Precipitation

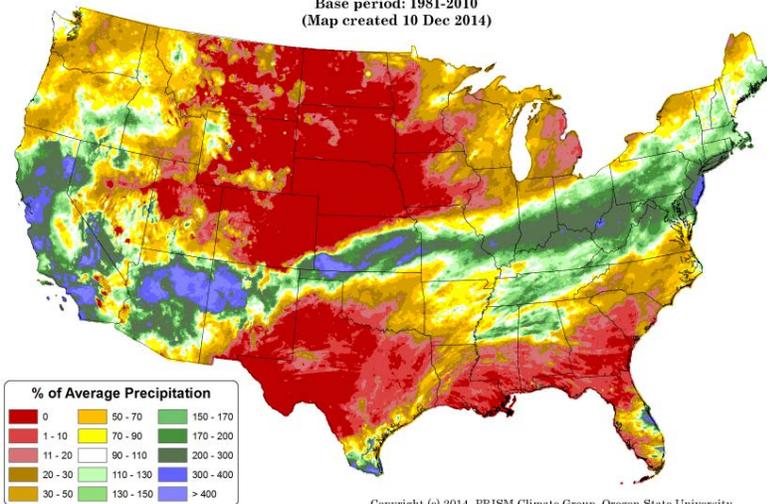
In the West, the [SNOTEL](#) precipitation percent of normal map shows Colorado and much of Utah, New Mexico, Wyoming, southern Idaho, and eastern Nevada are much below normal so far this month. Above normal precipitation occurred in basins in western Nevada, California, northern Washington, and central Arizona. One basin in New Mexico is also much above average.

The percent of normal values (especially the dark blue areas) may be amplified where normally very little precipitation falls during this time of year.

*Click on most maps in this report to enlarge and see the latest available update.*



Total Precipitation Anomaly: 01 December 2014 - 09 December 2014  
 Period ending 7 AM EST 09 Dec 2014  
 Base period: 1981-2010  
 (Map created 10 Dec 2014)



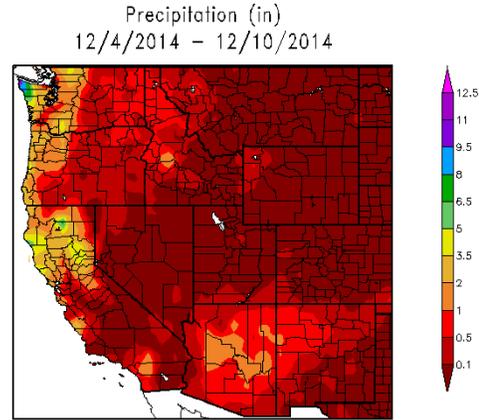
Thus far in the beginning of December 2014, the national [precipitation anomaly](#) pattern reveals some higher than normal precipitation, primarily in California, Nevada, Arizona, and in a line across the U.S. to New Jersey. Precipitation was lighter elsewhere, but above normal in southern Texas and Florida. Most of the upper Midwest, Texas, and the southern states received less than normal or no precipitation (red areas).

*This preliminary daily PRISM precipitation anomaly map contains all available network data, including SNOTEL data, and is updated periodically as additional data become available and are quality controlled.*

## Weekly Water and Climate Update

The [ACIS 7-day](#) total precipitation map for the western U.S. shows mainly dry conditions. Precipitation has fallen in California, Nevada, Oregon, and Washington. The northwest tip of the Olympic Peninsula in Washington recorded over 9.5 inches of rain (purple area).

Other scattered areas that received precipitation were in northern Idaho, Montana, Wyoming, Arizona, and New Mexico.

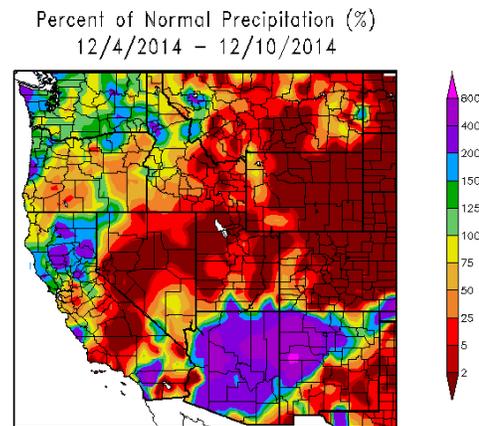


Generated 12/11/2014 at HPRCC using provisional data.

Regional Climate Centers

This percent of normal [map](#) of the West for the last seven days reflects heavy precipitation scattered across the region. The heaviest percent of normal precipitation fell in New Mexico, which recorded over 800% for the period (pink area). California, Oregon, Washington, Idaho, and Montana also had discrete areas of precipitation that were over 200% of normal. Parts of all the other western states also received precipitation.

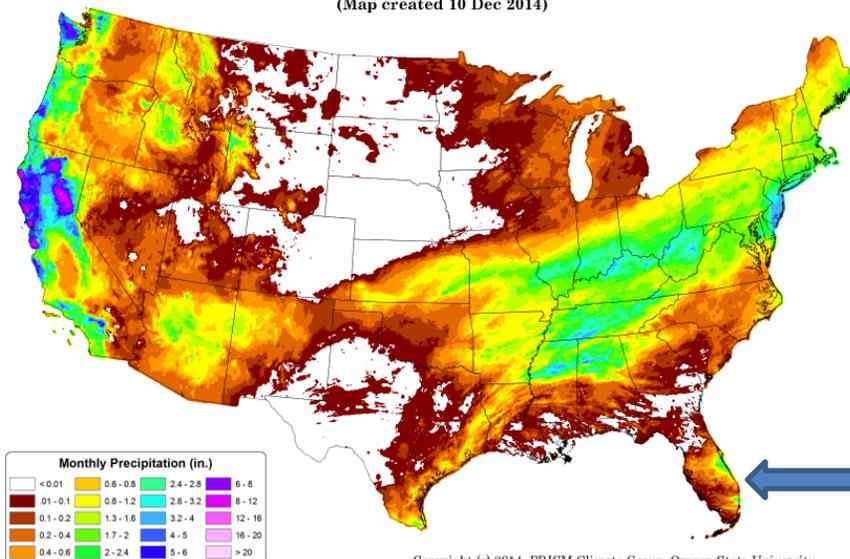
Percent of normal precipitation may be exaggerated in areas where the average for this period is at or near zero.



Generated 12/11/2014 at HPRCC using provisional data.

Regional Climate Centers

Total Precipitation: 01 December 2014 - 09 December 2014  
Period ending 7 AM EST 09 Dec 2014  
(Map created 10 Dec 2014)



Copyright (c) 2014, PRISM Climate Group, Oregon State University

For December 2014, the [total precipitation](#) across the continental U.S. was heaviest along the west coast of Washington, Oregon, and California. Isolated high precipitation was also recorded in Tennessee, Kentucky, Virginia, New Jersey, Delaware, West Virginia, northern Mississippi and Alabama, and Florida. In contrast, much of the central U.S., and Texas were mainly dry.

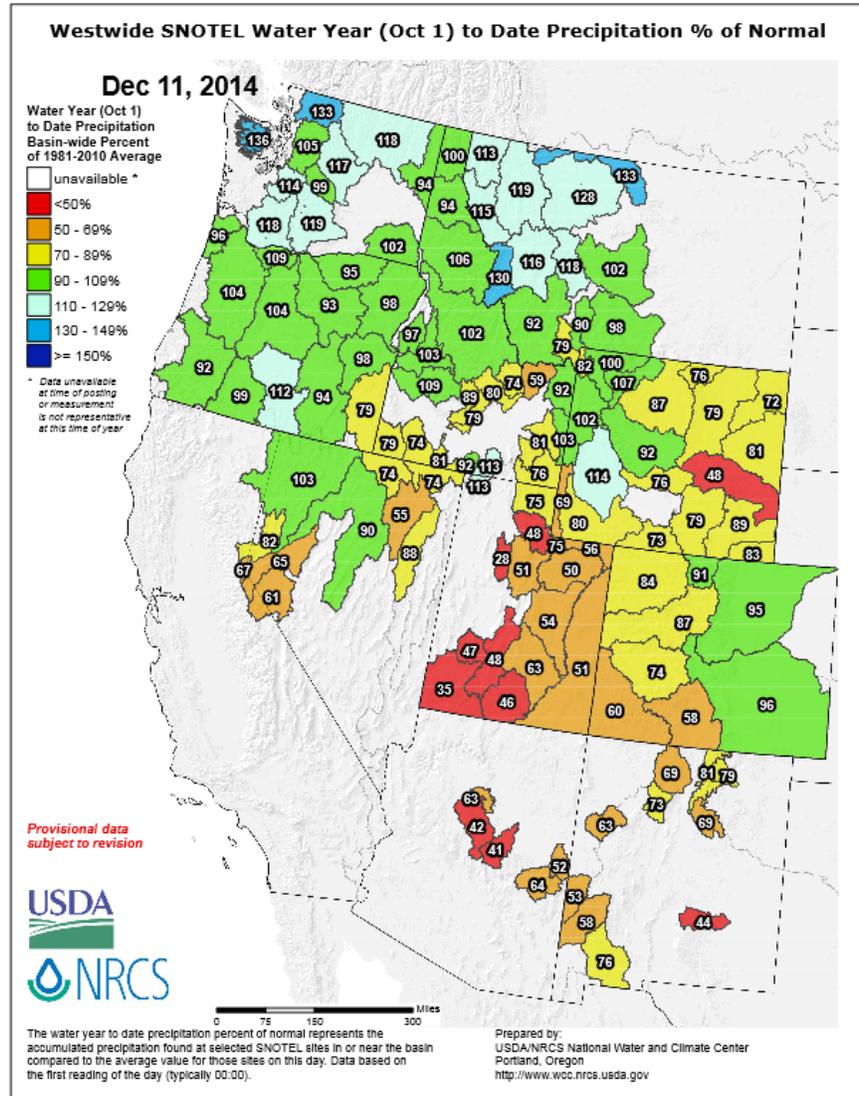
See [Go Hydrology](#) for current and forecast conditions over southern Florida.

# Weekly Water and Climate Update

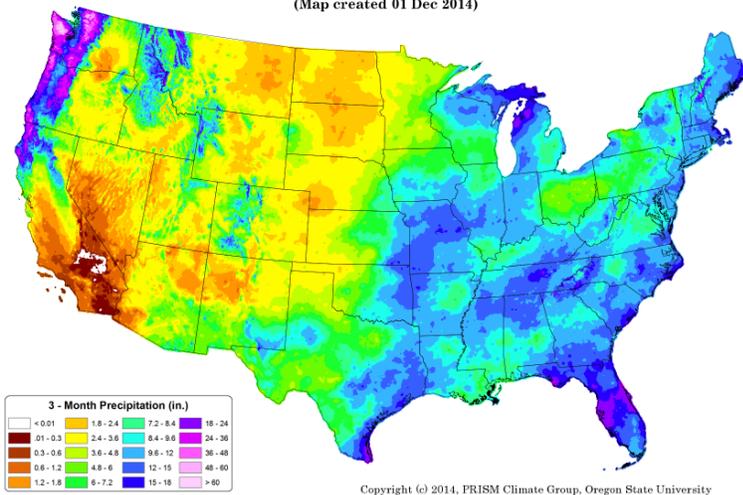
For the [2015 Water Year](#) that began on October 1, 2014, surpluses have occurred in a few basins in the West. Washington, Oregon, Montana, and a few basins in Idaho and Wyoming have received above normal precipitation.

Many basins across the West have near normal conditions for this part of the Water Year (mapped in green). A few areas have less than normal precipitation for the Water Year. These include basins in California, Nevada, southern Idaho, Wyoming, Utah, Colorado, Arizona, and New Mexico.

At the beginning of the Water Year, basin conditions can change rapidly with small amounts of precipitation. As the Water Year advances, it becomes more difficult for river basins to change bin categories.



Total Precipitation: September 2014 - November 2014  
 Period ending 7 AM EST 30 Nov 2014  
 (Map created 01 Dec 2014)



The national map of the [three-month period](#) (September - November) shows that the eastern half of the nation received precipitation in the range from 6 inches to greater than 18 inches. The highest amounts were recorded in Michigan, Florida, New Hampshire, Maine, and southern Texas. In the West, Oregon, Washington, and northern California received over 36 inches for the period.

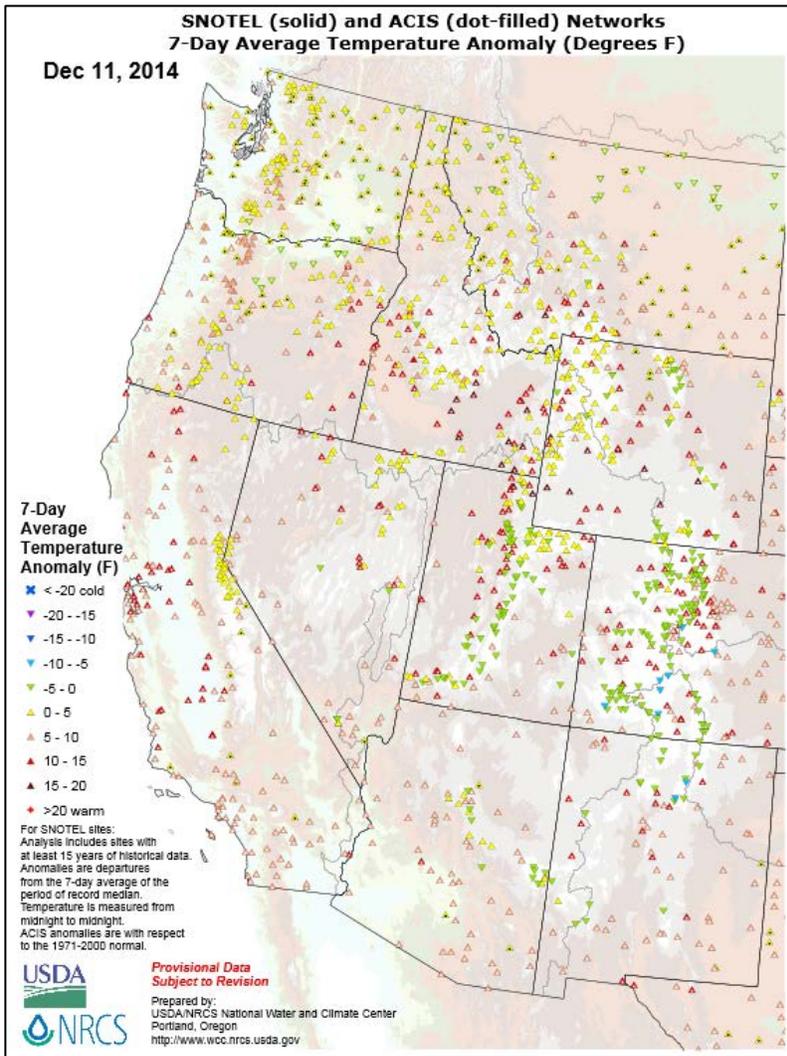
In contrast, parts of the West received totals of less than 1.8 inches. Central and southern California had little to no precipitation for the period.

# Weekly Water and Climate Update

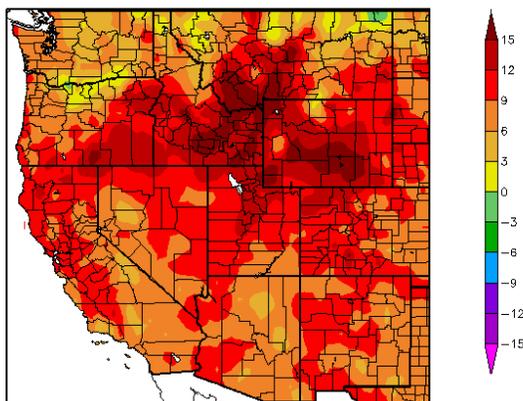
## Temperature

The SNOTEL and ACIS [7-day temperature anomaly](#) map for the western U.S. shows most of the West was warmer than normal for the week. This is due to the warm storm track this past week affecting the region. The highest anomalies occurred in Oregon, Idaho, Montana, Wyoming, Colorado, Utah, Nevada, California, Arizona, and New Mexico.

The only cool areas in the region were in Colorado and New Mexico, where temperatures were cooler than average for the week.



Departure from Normal Temperature (F)  
12/4/2014 - 12/10/2014



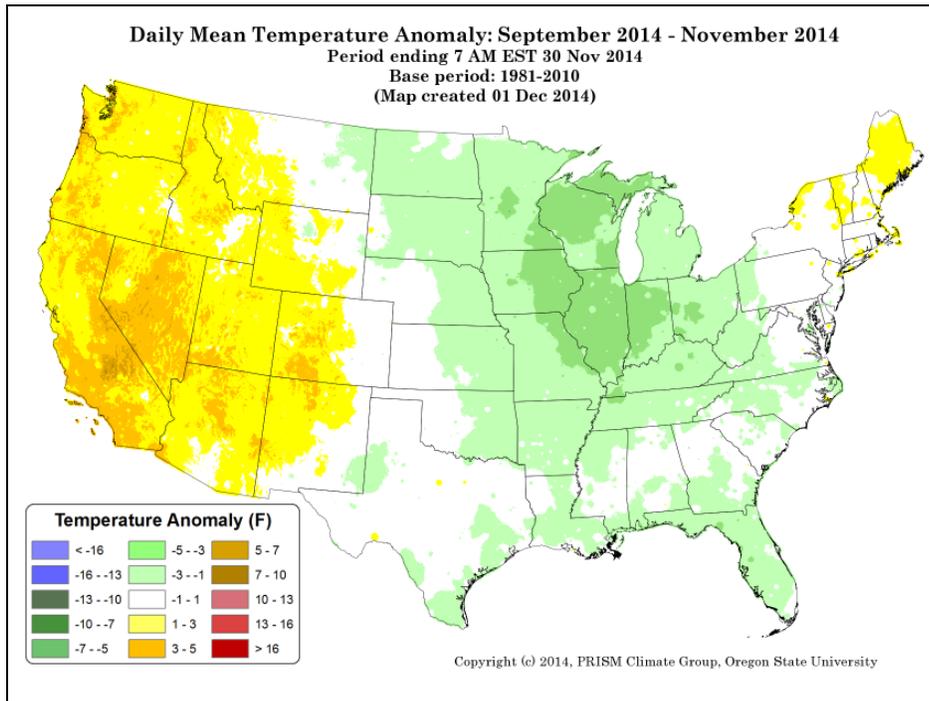
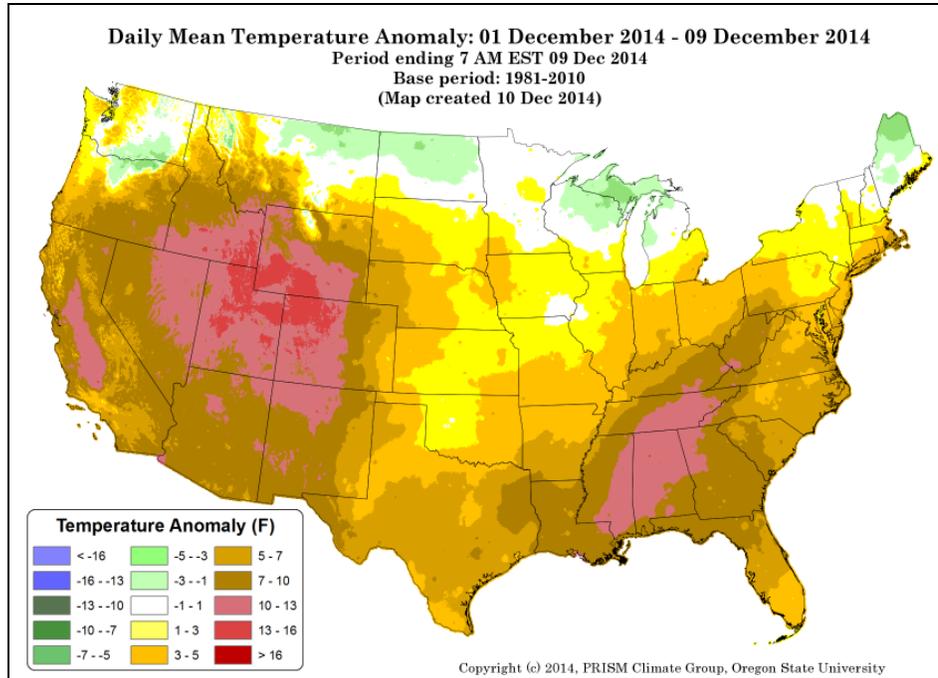
The [ACIS](#) map of the 7-day average temperature anomalies in the West ending December 10 shows that there were no negative temperature departures in the West. The greatest positive temperature departures occurred in Montana, Wyoming, and Idaho (>+15°F). Almost the entire West was generally warmer than normal for the week.

Also, see [Dashboard](#) and the [Westwide Drought Tracker](#)

## Weekly Water and Climate Update

This preliminary [PRISM](#) temperature map contains all available network data, including SNOTEL data, and will be updated periodically as additional data become available and are quality controlled.

Thus far in December 2014, the national daily mean temperature anomaly [map](#) shows a very small cool pattern in the north central and northeast U.S. ( $<-3^{\circ}\text{F}$ ). Above normal temperatures were recorded in the West and Southeast. Areas in Utah, Idaho, Wyoming, and Colorado had the highest warm anomalies ( $>+13^{\circ}\text{F}$ ).



The September – November national daily mean temperature anomalies for the U.S. in this [climate map](#) shows the west coast had slightly to above normal temperatures in California ( $>+7^{\circ}\text{F}$ ). The north central portion of the country reported normal to slightly cooler than normal temperatures for this period, with the coolest temperatures in northern Michigan, Wisconsin, Minnesota, Iowa, Illinois, Indiana, and a few other scattered areas ( $<-3^{\circ}\text{F}$ ).

# Weekly Water and Climate Update

## Weather and Drought Summary

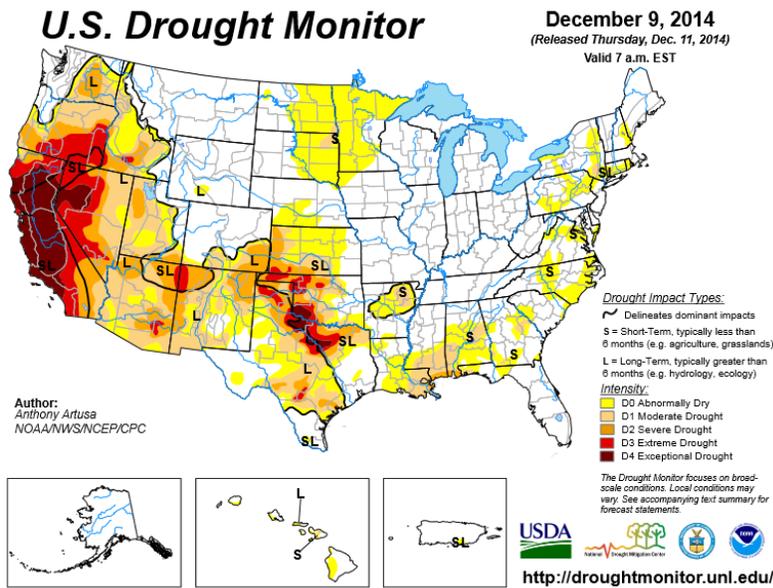
### National Drought Summary – December 9, 2014

The following **Weather and Drought Summary** is provided by this week's NDMC Drought Author, Anthony Artusa, NOAA/NWS/NCEP/CPC.

USDM Map Services: contains [archived maps](#)

"For the contiguous 48 states, the U.S. Drought Monitor showed 29.84 percent of the area in moderate drought or worse, compared with 29.13 percent a week earlier. Drought now affects 68,771,953 people, compared with 67,800,982 a week earlier.

For all 50 U.S. states and Puerto Rico, the U.S. Drought Monitor showed 24.93 percent of the area in moderate drought or worse, compared with 24.34 percent a week earlier. Drought now affects 68,795,505 people, compared with 67,824,535 a week earlier."



See: Latest Drought [Impacts](#) during the past week.

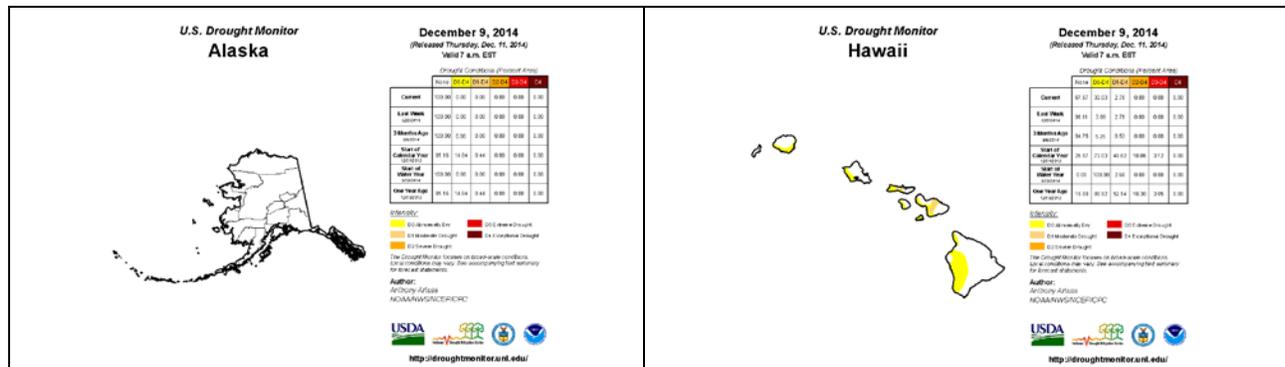
[Current Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are scattered across CA, NV, TX, and OK.

The latest [drought indicator blend and component percentiles](#) spreadsheet is a great resource for climate division drought statistics. This link is for the latest [Drought Outlook](#) (forecast). See [climatological rankings](#).

For more drought news, see [Drought Impact Reporter](#). **New:** [ENSO Blog](#).

#### Drought Management Resources:

- ✓ <http://www.usda.gov/oce/weather/Drought/AgInDrought.pdf>
- ✓ [Watch AgDay TV](#)
- ✓ [Drought Impacts Webinar Series](#)
- ✓ [NIDIS Quarterly Climate Impacts and Outlook](#)
- ✓ [The Spring 2014 edition of DroughtScope](#)
- ✓ [U.S.Crops in Drought](#)



"The [49th](#) and [50th](#) States show normal to moderate drought conditions. No changes were noted for Alaska this week. Hawaii had a large increase in D0 from a week ago. A comprehensive narrative describing drought conditions across other parts of the nation can be found toward the end of this document. For drought impacts definitions for the figures that follow, click [here](#)."

## Weekly Water and Climate Update

### U.S. Drought Monitor West

**December 9, 2014**  
(Released Thursday, Dec. 11, 2014)  
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	34.32	65.68	55.16	34.01	18.98	8.45
<b>Last Week</b> <small>12/2/2014</small>	34.32	65.68	55.16	34.01	18.98	8.45
<b>3 Months Ago</b> <small>9/9/2014</small>	28.38	71.62	57.36	39.26	19.83	8.90
<b>Start of Calendar Year</b> <small>12/31/2013</small>	22.20	77.80	51.44	31.11	7.75	0.63
<b>Start of Water Year</b> <small>9/30/2014</small>	31.48	68.52	55.57	35.65	19.95	8.90
<b>One Year Ago</b> <small>12/1/2013</small>	25.14	74.86	49.50	30.56	7.56	0.63

*Intensity:*

D0 Abnormally Dry

D1 Moderate Drought

D2 Severe Drought

D3 Extreme Drought

D4 Exceptional Drought

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

**Author:**  
Anthony Artusa  
NOAA/NWS/NCEP/CPC

<http://droughtmonitor.unl.edu/>

There was no change in drought categories in the West this week.

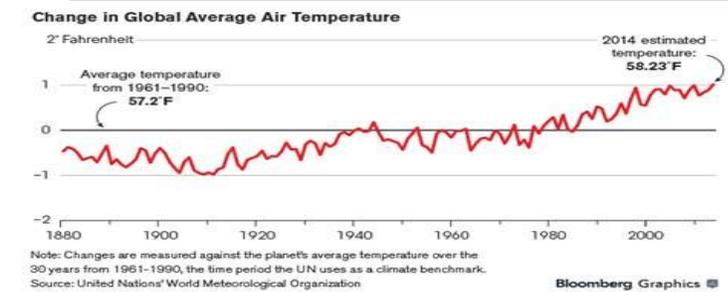
[Click to enlarge maps](#)

### Risk Management Web Resources

Drought Monitor for the [Western States](#). Drought Impact Reporter for [New Mexico](#). [California Data Exchange Center](#) & [Flood Management Intermountain West Climate Dashboard](#)  
[California Sierra Nevada-related snow pack](#)

U.S. [Impacts](#) during the past week:

U.S. [Drought in U.S. and Brazil Linked to Hottest Year Ever](#) – Dec 3



KS - [Cattle prices could lead to thefts](#) – Nov 22

SC - [Drought creeps into SC, but wet winter may follow](#) – Nov 30

AK - [Weather system brings end to 'Nosnowvember' in Fairbanks](#) – Nov 25

# Weekly Water and Climate Update

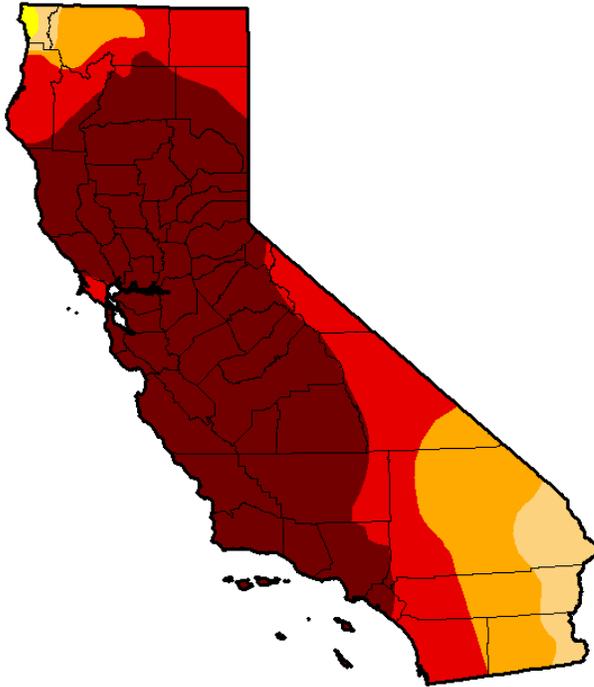
State with D-4 Exceptional Drought

## U.S. Drought Monitor California

**December 9, 2014**

(Released Thursday, Dec. 11, 2014)

Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	99.72	94.42	79.69	55.08
<b>Last Week</b> 12/2/2014	0.00	100.00	99.72	94.42	79.69	55.08
<b>3 Months Ago</b> 9/9/2014	0.00	100.00	100.00	95.42	81.92	58.41
<b>Start of Calendar Year</b> 12/1/2013	2.61	97.39	94.25	87.53	27.59	0.00
<b>Start of Water Year</b> 9/30/2014	0.00	100.00	100.00	95.04	81.92	58.41
<b>One Year Ago</b> 12/1/2013	2.61	97.39	94.15	82.53	27.59	0.00

*Intensity:*



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**

Anthony Artusa  
NOAA/NWS/NCEP/CPC



<http://droughtmonitor.unl.edu/>

**No change in California this past week.**

[CA Drought Information Resources](#)

**[Drought News from California:](#)**

[Drought aftermath in Terra Bella: 'We survived ... we're hurting'](#) – Nov 29

[Drought revives 'forgotten art' at wineries: Farming without irrigation](#) – Nov 22

[Drought saps supply of Christmas trees in California](#) – Dec 3

[Fire conditions worst on record for Orange County](#) – Nov 24

[California drought the worst in 1,200 years, new study says](#) – Dec 5

[Flash flooding strands drivers in California](#) - Dec 4

[Coho salmon vanish in Muir Woods, fanning fears of extinction](#) - Nov 30

[Orphaned baby squirrels just one wildlife casualty of drought](#) – Nov 25

[Plants have little wiggle room to survive drought, UCLA life scientists report](#) – Nov 13

[Southern and Northern California Unite in Support Of the Emergency California Drought Relief Act of 2014 by Christmas](#) – Dec 4

[Yosemite Falls Revives After Hard Rain](#) – Dec 5

[California drought: S.F. wants to add groundwater to tap](#) – Nov 24

[California falls short of water conservation goals](#) – Dec 3

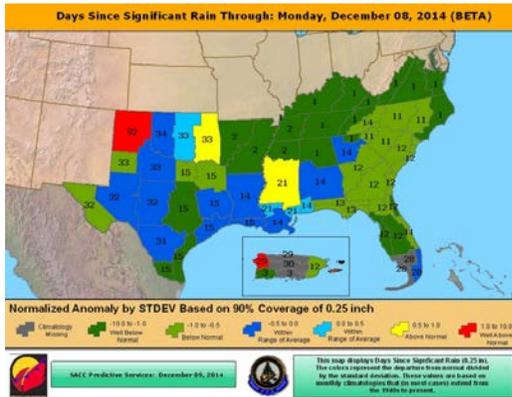
[California SWP users could get 10% allocation in 2015](#) – Dec 2

[Government water dump down the gutter irks Visalia leaders](#) – Nov 25

# Weekly Water and Climate Update

Texas Drought [Website](#).  
 Texas Reservoirs.  
[Texas Drought Monitor Coordination Conference Call](#): on Monday's 2:00 PM - 3:00 PM CST

**Texas Drought News:**  
[Gov. Perry Again Renews Proclamation Extending Drought Emergency – Nov 24 In Wichita Falls, a record rainfall provides hope – Nov 24](#)  
[Water emergency in Mineral Wells – Dec 2](#)



[Days since Significant Rain Summary](#)

## State with D-4 Exceptional Drought

### U.S. Drought Monitor Texas

December 9, 2014  
(Released Thursday, Dec. 11, 2014)  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
<b>Current</b>	33.63	66.37	43.39	23.32	10.05	2.57
<b>Last Week</b> 12/02/14	34.05	65.95	43.29	22.05	9.50	2.57
<b>3 Months Ago</b> 09/09/14	13.77	86.23	57.62	36.26	13.07	1.54
<b>Start of Calendar Year</b> 01/01/14	28.48	71.52	43.84	21.15	5.62	0.79
<b>Start of Water Year</b> 09/01/14	29.92	71.00	40.95	29.54	11.26	2.69
<b>One Year Ago</b> 12/09/13	25.73	74.27	44.89	20.63	5.70	0.96

**Intensity:**

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

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**  
Anthony Artusa  
NOAA/NWS/NCEP/CPC

USDA National Drought Mitigation Center

http://droughtmonitor.unl.edu/

**There was a slight increase in D0 – D3 in Texas this past week. The drought-free area decreased slightly.**

## State with D-4 Exceptional Drought

### U.S. Drought Monitor Nevada

December 9, 2014  
(Released Thursday, Dec. 11, 2014)  
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
<b>Current</b>	0.00	100.00	97.04	68.25	48.38	11.89
<b>Last Week</b> 12/02/14	0.00	100.00	97.04	68.25	48.38	11.89
<b>3 Months Ago</b> 09/09/14	0.00	100.00	99.64	80.96	50.30	11.89
<b>Start of Calendar Year</b> 01/01/14	0.39	99.61	96.01	77.66	28.55	5.37
<b>Start of Water Year</b> 09/01/14	0.00	100.00	97.04	68.89	48.38	11.89
<b>One Year Ago</b> 12/09/13	0.39	99.61	96.01	77.66	28.55	5.37

**Intensity:**

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

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

**Author:**  
Anthony Artusa  
NOAA/NWS/NCEP/CPC

USDA National Drought Mitigation Center

http://droughtmonitor.unl.edu/

**There was no change in Nevada this past week.**

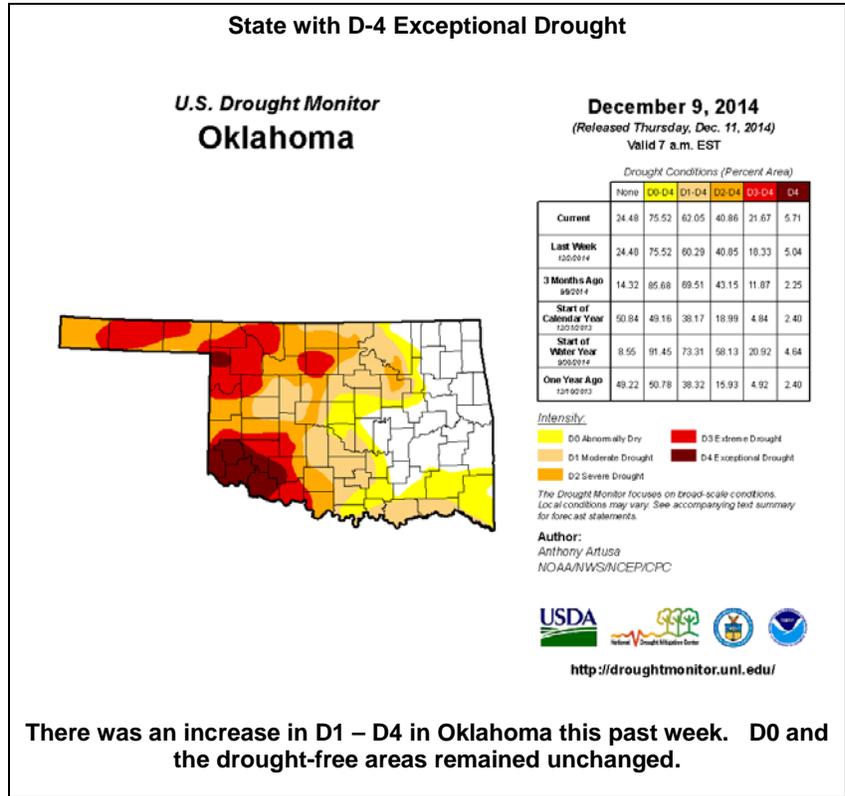
**Nevada Drought News:**  
[Water woes among topics for 8 governors in Vegas – Dec 5](#)  
[Washoe Lake north of Carson City nearly dry after five years of drought – Nov 29](#)

## Weekly Water and Climate Update

### Related Area News:

[2014 Kansas Drought Report and Summary](#)

- [Past 30 days precipitation totals](#)
- [Past 30 days precipitation percent of normal](#)
- [Calendar Year precipitation totals](#)
- [Calendar Year Precip percent of normal](#)
- [Short Crop ET](#)



### U.S. Population in Drought

**Number of people in each drought category in the U.S. for the week ending November 4, 2014**

Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
2014-12-09	194,853,407	110,544,048	68,771,953	50,076,405	41,101,514	29,445,231
2014-12-02	197,057,716	108,339,739	67,800,983	49,294,740	40,270,690	29,404,569

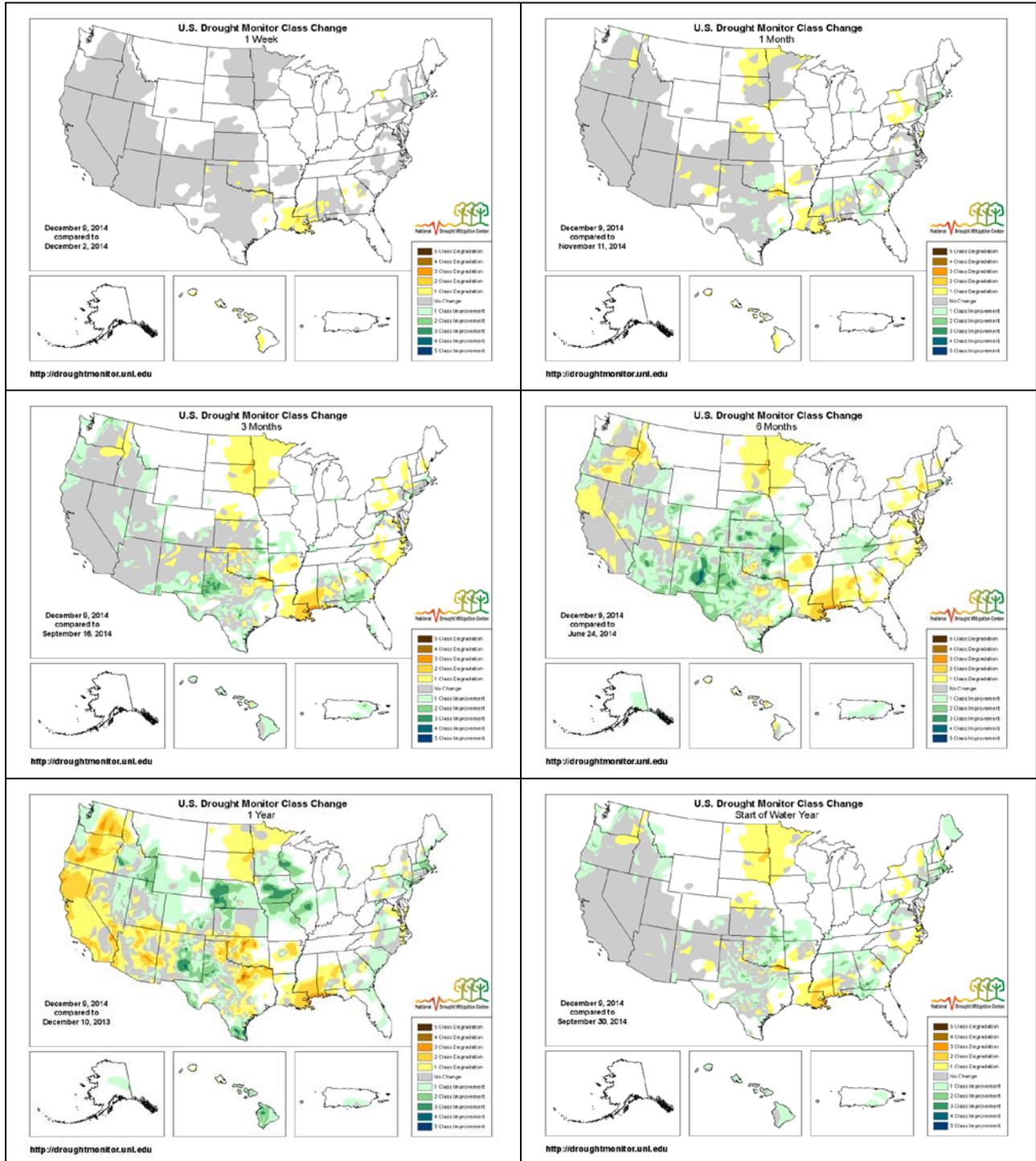
**Population figures affected by drought in the U.S. Drought Monitor website show that for this week, more than 68,000,000 people in the United States were in a drought-affected area, which increased by over 970,900 people from last week.**

Population Statistics Methodology:  
The U.S. Drought Monitor population statistics are calculated at the county level, and aggregated to the state, regional, and national levels. The population densities have been calculated for each county. The proportion of the physical area of the county that is in drought is multiplied by the uniform population density in order to obtain a number for each county. The county values are then summed at the state, regional, and national level.

# Weekly Water and Climate Update

## Changes in Drought Monitor Categories

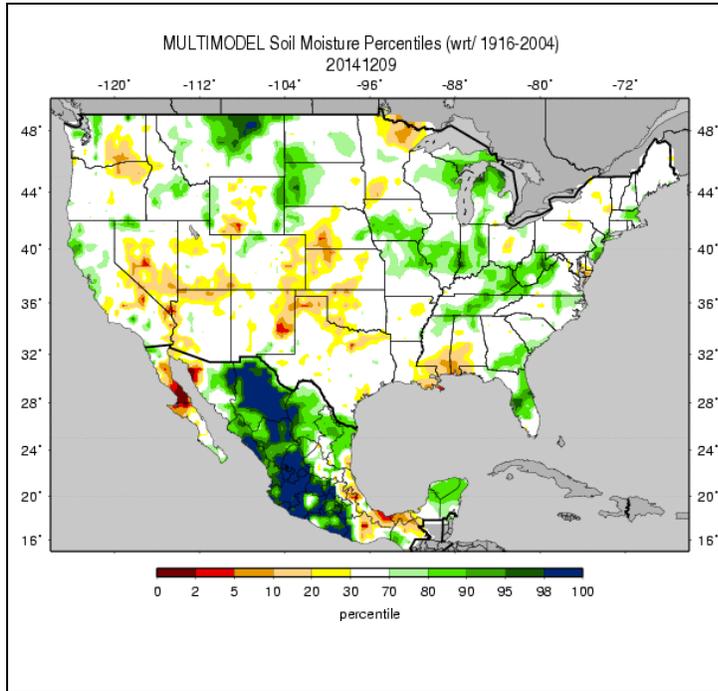
### Over Various Time Periods



Click on any of these maps to enlarge. Note how the conditions over the Rockies and central Great Plains have improved between 6 to 12 months (middle right to lower left maps). However, also note that since a year ago, conditions over parts of the Northeast, the South, parts of the southern Great Plains, and the Pacific coast states have deteriorated significantly (lower left map).

# Weekly Water and Climate Update

## Soil Moisture

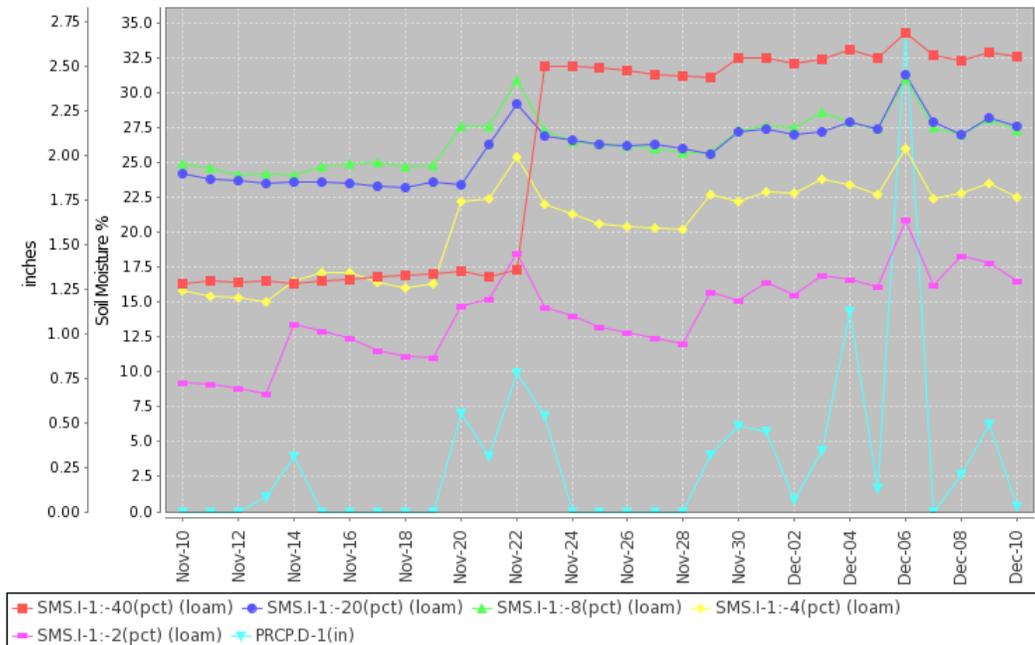


The national soil moisture model ranking in [percentile](#) as of December 9, 2014, shows dryness over most of the Southwest and south central U.S. The driest areas were centered in southern California, Nevada, Arizona, New Mexico, northern Texas, Oklahoma, Nebraska, and Wyoming. There were also scattered dry areas in Minnesota, Kansas, Louisiana, Alabama, Mississippi, eastern Oregon, Washington, and in a few scattered areas of the eastern states. Moist soils dominated north central Montana, northern Michigan, northern Wisconsin, and central Florida. Slightly moist soils were also scattered elsewhere throughout the country.

Useful Hydrological Links: [Crop Moisture Index](#); [Palmer Drought Severity Index](#); [Standardized Precipitation Index](#); [Surface Water Supply Index](#); [Weekly supplemental maps](#); [Minnesota Climate Working Group](#); [Experimental High Resolution Drought Trigger Tool](#); [NLDAS Drought Monitor](#); [Soil Moisture](#)

## Soil Climate Analysis Network (SCAN)

Station (2218) MONTH=2014-11-10 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Wed Dec 10 21:28:14 PST 2014

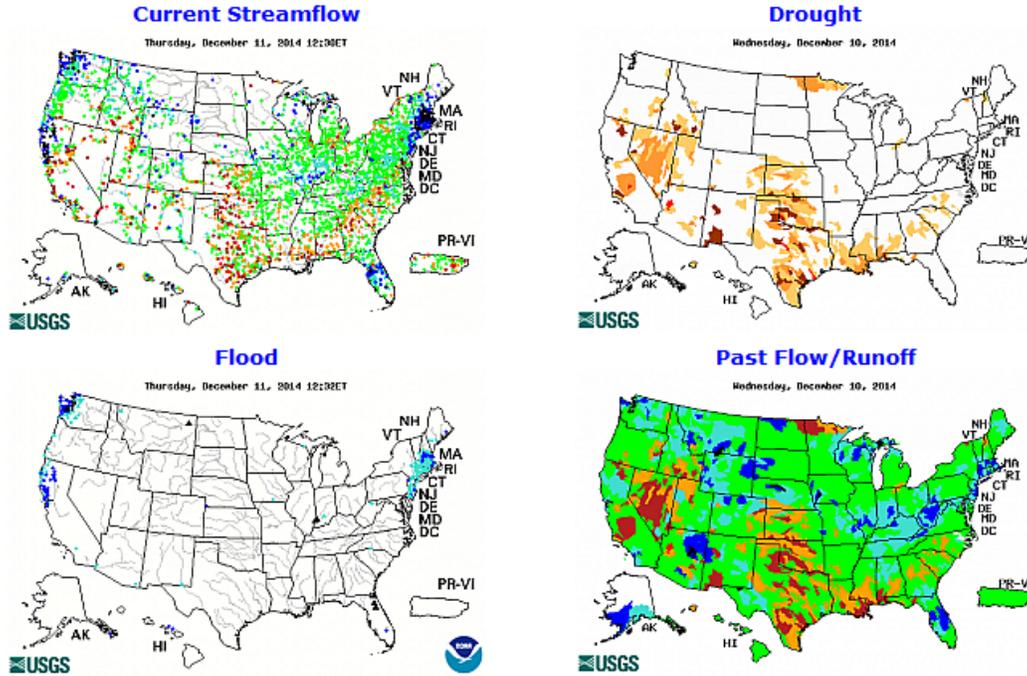


This NRCS resource shows soil moisture data for the last month at the [French Gulch \(2218\) SCAN site](#) in northern California. The precipitation in the area had four days of precipitation in late November, and recently over 2.5 inches on December 6 (graphed in light blue). This rainfall resulted in a sharp increase in soil moisture in late November followed by another sharp peak on December 6 at all depths.

Useful Agriculture Links: [Vegetation Drought Response Index](#); [Evaporative Stress Index](#); [Vegetation Health Index](#); [NDVI Greenness Map](#); [GRACE-Based Surface Soil Moisture](#); [North American Soil Moisture Network](#); [Monthly Wild Fire Forecast Report](#).

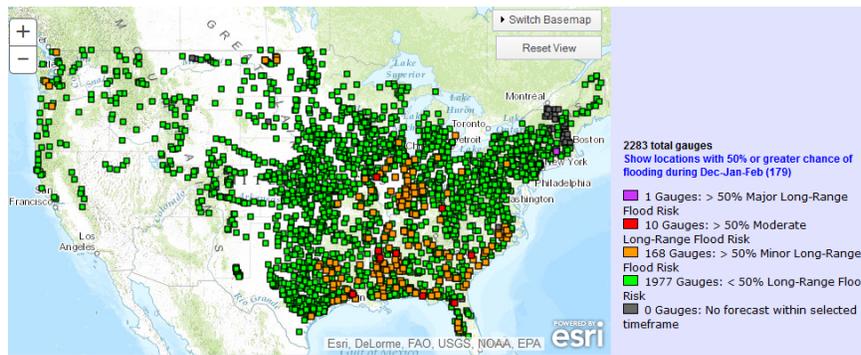
# Weekly Water and Climate Update

## Streamflow



Scattered gages in the U.S. are reporting above normal streamflow. The high streamflow is reported in Florida, Massachusetts, Connecticut, New Hampshire, Vermont, Maine, northern Michigan and Wisconsin, Montana, Wyoming, Colorado, northern California, and Washington (left maps). Southeast Alaska and Hawaii are also reporting a few rivers with high streamflow. The rivers above flood stage are the Skokomish River near Potlatch, WA, Poplar River near Poplar, MT, White River above Petersburg, IN, White River at Petersburg, IN, White River at Hazelton, IN, St Johns River at Jacksonville, FL, St. Johns River at Buffalo Bluff near Satsuma, FL, Dunns Creek near Satsuma, FL, and St. Johns River at Astor, FL.

## National Long-Range Outlook



Click maps to enlarge and update

Currently the Upper Midwest part of the map has not been calculated for the long range flood outlook (dark gray dots).

During the next three months, there is a risk of flooding in much of the eastern U.S. The Southeast, the Northeast, the Pacific Northwest, and northern Great Plains have gages with a slight to higher risk of flooding. Currently, **1** gage has a greater than 50% chance to experience major flooding; **10** gages for moderate flooding, and **168** gages for minor flooding.

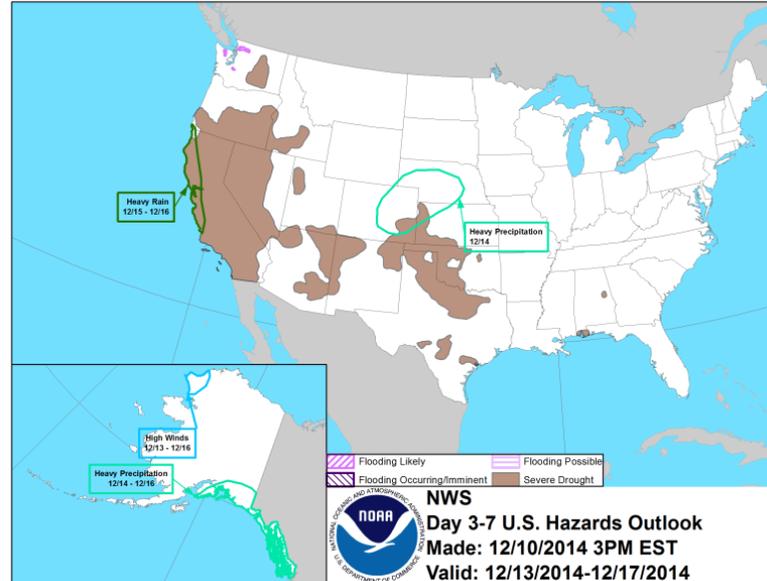
These numbers represent a 6 gage decrease in the greater than 50 percent chance of minor flooding category in the last 2 weeks.

## Weekly Water and Climate Update

### National [Weather Hazards](#)

Heavy rain (outlined in light blue) is expected during the next week in Colorado, Nebraska, and Kansas (12/14). Heavy rains are also expected along the northern California coast (12/15-16). In Alaska, heavy precipitation is expected in the south and southeast regions, as well as high winds in the northwest.

Severe drought remains a large issue in much of the south central and western U.S.



### [National Drought Summary for December 9, 2014](#)

Prepared by the Drought Monitor Author: Anthony Artusa, NOAA/NWS/NCEP/CPC.

#### Summary

“During the past week, widespread heavy precipitation (2-6 inches) was reported across much of northern California, and along portions of the central and southern coastline. Moderate to heavy precipitation (0.5-3.0 inches) fell in California’s central Sierras, western portions of both Washington and Oregon, the northern Rockies, the Mogollon Rim area of south-central Arizona, and in a broad band stretching from eastern Kansas and Oklahoma eastward into the Tennessee and lower Ohio Valleys, central Appalachians, the northern mid-Atlantic, and eastern New England. Most other areas of the contiguous United States received less than a half-inch of precipitation during this period. In Hawaii, leeward areas have been fairly dry over the past 5 weeks, while windward areas have received rainfall closer to normal during the same time.

#### Alaska, Hawaii, and Puerto Rico

In Hawaii, moderate rain (generally 0.5-2.0 inches, locally heavier) fell across windward portions of the Islands this past week, while leeward areas continue to be quite dry. This dryness has persisted for the past 5 weeks, after a relatively wet October. Therefore, abnormal dryness (D0) has either been introduced to, or expanded across, the leeward regions of Hawaii. Neither the Alaska depiction nor the Puerto Rico depiction was modified this week.

#### California

Locally heavy precipitation fell across portions of the state this past week. Amounts ranged from 1-6 inches (liquid equivalent) across a large portion of northern California, and parts of the central and southern coastal areas. Up to 3 inches of precipitation (liquid equivalent) was reported in the southern Sierras. However, snow pack remains well below-normal in many areas due to the relatively mild temperatures associated with these storm systems. In addition, much more precipitation is needed to replenish lost reservoir storage. There are still deficits in the conservation pool of millions of acre-feet in the Shasta and Oroville reservoirs north of Sacramento. Oroville reservoir gained about 100,000 acre-feet of storage in the recent storm, returning to one million acre-feet in storage capacity. The capacity of this reservoir is 3.5 million acre-feet, with a flood reserve space of 750,000 acre-feet. Well to the south, last week’s storm produced several inches of rain for San Luis Obispo, Santa Barbara, Ventura, and Los Angeles Counties. However, this was not enough to generate runoff in natural streams and therefore did not provide any benefit to surface reservoirs. Since the start of the Water Year (October 1), almost all precipitation gauges in the area are still running below normal. No revisions were made to the California drought depiction this

## Weekly Water and Climate Update

week. With the anticipation of another significant precipitation event in the short-term, alterations could be required next week, pending resulting impacts.

### Mississippi Valley/Delta

Little if any precipitation was observed over the northern half and far southern sections of the Mississippi Valley this past week. The remaining area generally received anywhere from a half-inch to 3 inches of precipitation. Snowpack has been diminishing across portions of the Upper Mississippi Valley. No changes were made to the depiction this week across the Upper Mississippi Valley. However, the Lower Mississippi Valley/Delta region has mounting PNP deficits from 6-months out to the present time, which warrants an expansion of abnormal dryness and drought for southern portions of both Louisiana and Mississippi. Ninety-day PNP deficits become prominent across most of this area (widespread PNP values of 25-75 percent of normal). By 60-days (and up through the present time), PNP deficits of 10-25 percent of normal are showing up in far southeast Louisiana. These values, and consideration of both short and long-term objective drought blends, justifies westward expansion of D0 and D1 conditions across southern Louisiana, and a bit northward across south-central Mississippi. In addition, severe drought (D2) was expanded westward from southern Alabama to include the Mississippi coastal counties of Jackson, Harrison, and Hancock, and into far southeast Louisiana.

### Northeast and mid-Atlantic regions

In western New York, precipitation across counties adjacent to Lake Ontario has totaled only up to an inch this past week. Significant deficits during the last 60- and 90-days (Percent of Normal Precipitation (PNP) values range from 25-75 percent of normal across this region) prompted an expansion of abnormal dryness (D0) from Steuben County into Livingston, Monroe, Wayne, Orleans and Niagara Counties. In southeast New York, stream flows are above- and much-above normal, recent precipitation measured 1-2 inches, and portions of this area received about 7 inches of snow from the nor'easter that moved through just prior to Thanksgiving. These benefits are somewhat offset by precipitation deficits of 2-6 inches in Orange County that accumulated over the last 90-days. Even larger deficits of 4-8 inches have mounted in Ulster County just to the north. Accordingly, much of Orange County was improved one-category from D1 to D0.

In New England, significant improvements were rendered to the drought depiction. Stream flows in the CT/RI/MA area are now running near to above normal at USGS stream gauges. In Rhode Island, precipitation totals of 9-10 inches for the combined October-November period bring rainfall to within 90-115 percent of normal. Therefore, moderate drought (D1) was removed from Rhode Island's depiction. In Connecticut, CoCoRaHS precipitation observing sites (reporting most days from October 1-8am December 9) reported precipitation amounts ranging from 10.4-12.9 inches (liquid equivalent). In the D1 area of eastern Connecticut, COOP observing sites for the same period report precipitation totals of 10.91 inches (Norwich Public Utility Plant), 12.08 inches (Hampton), and 10.83 inches (West Thompson Lake). Connecticut precipitation amounts spanning October 1 to December 9 are now close to normal. Accordingly, moderate drought (D1) was removed from eastern and central Connecticut, and D0 was trimmed out of northern Connecticut, and out of both southern Worcester and western Bristol Counties in nearby Massachusetts.

In northern Virginia, stream flows have improved significantly, and the only substantial precipitation deficits (2-4 inches) are at 90-days. In Strasburg, water restrictions were removed on December 1. No alteration was made to the northern Virginia drought depiction this week, though it appears that some trimming of the abnormal dryness (D0(S)) may be warranted next week.

### Northern and Central Plains

The Dakotas, Nebraska, and approximately northwest half of Kansas received little to no precipitation this past week. The southeast half of Kansas reported moderate rainfall (0.5-2.0 inches) during the same period. The regional drought depiction was unaltered this week.

### Ohio/Tennessee Valleys

During the past 7-days, most of this region received anywhere from 0.5-3.0 inches of precipitation. This helped to offset the 2-4 inch deficits that accumulated in western portions of both Kentucky and Tennessee during the last 90-days. As a result, no abnormal dryness (D0) was introduced to the region this week.

## Weekly Water and Climate Update

### Pacific Northwest

Moderate precipitation (0.5-3.0 inches, locally heavier) fell across western portions of both Washington and Oregon during the past 7-days. The rain-shadow effect was most pronounced just east of the Cascades, where little to no precipitation fell, but amounts picked up again in far eastern sections of Washington and Oregon (where 0.5-2.0 inches was reported). Snowpack has generally been lacking in this region, and continues to be monitored. No modifications were rendered to the drought depiction in either state this week.

### Rockies

Northern and western portions of Idaho received moderate precipitation (0.5-2.0 inches) this past week, as did western portions of Montana and Wyoming. Most of the rest of the Rocky Mountain States received little if any precipitation. Warm, dry weather dominated most of the Upper Colorado River Basin (UCRB) this past week. Most of the region received under 0.10-inch of precipitation, though there were several exceptions. In the Green River Headwaters region, precipitation totals generally ranged between a quarter-inch and one inch, with a swath of 1-2 inch amounts between Lincoln and Sublette Counties in Wyoming. Isolated areas of the San Juan Mountain Range and the central Rockies received over a half-inch of precipitation. Temperatures ranged from about 9-12 degrees F above-normal across a majority of the region, with slightly smaller anomalies to the south. Even though it is still very early in the snow accumulation season, SNOTEL Water-Year-To-Date (WYTD) precipitation percentiles remain very low thus far in the Wasatch and Uintah Ranges.

Across the High Plains of eastern Colorado, generally warm and dry weather prevailed during the past week. The northern Front Range and the northeast Plains received no measurable precipitation, while areas in the foothills and along the Palmer Divide reported up to a quarter-inch of precipitation. The southeast corner of the state received up to a half-inch, which is a bit unexpected at this time of year. The Standardized Precipitation Indices (SPI) on short timescales are low; however, this is a dry time of year and not part of the growing season. In addition, the trend is reversed for longer timescales. Finally, flows along the Arkansas and South Platte Rivers, and reservoirs, are currently in good shape. The drought depiction across this broad region was left unchanged.

### Southeast

Northern Alabama continued to receive precipitation from passing fronts, while southern Alabama has been bypassed. Stream flows in coastal Mobile and Baldwin Counties are in D2-D3 status, as are a few others elsewhere in southwest Alabama, intermingled with a majority of stream flows in the D0-D1 range. The 60- and 90-day deficits depicted by the Advanced Hydrologic Prediction System (AHPS) show large areas of southwest Alabama where PNPs are in the 25-50 percent of normal range. This supports the one-category downgrade (from D-nothing to D0) in Wilcox and Dallas Counties, and the expansion of moderate drought (D1) from near the Mississippi border eastward across Marengo and Clarke Counties. In east-central Alabama, the area of severe drought (D2) appeared less justified, especially since conditions are worse southwest of there. As a result, the D2 area was removed.

Ninety-day Departure from Normal Precipitation (DNP) values in west-central, east-central, and southwest portions of Georgia range from 2-6 inches below normal. This factor, combined with little to no precipitation this past week, and near to below-average stream flows favor 1-category deteriorations to the drought depiction in these areas.

In North Carolina, little to no rain fell across much of the state this past week. Still, hydrologic conditions remain fairly good across a large part of the state, with the exception of parts of the central Piedmont and the Sand Hills, where 7- and 28-day stream flows are below-normal at 21 and 7 stream gauges, respectively, in a scattered pattern across these areas. Declining temperatures, decreased evaporation and diminished water demands have helped to maintain overall conditions. No changes were made to the drought depiction in North Carolina this week.

### Southern Plains

Most of the region was dry this past week, with the exceptions of the eastern Panhandle of Oklahoma, eastern and southeastern Oklahoma, and a few locales near the Texas Coast, where 0.5-1.0 inch of rain fell. Short-term dryness is emerging across parts of northeast and southeast Texas, and in the Panhandle. The 30-day PNP values range from 10-50 percent of normal in northeast Texas and the Panhandle, and 25-50 percent of normal in interior southeast Texas (Polk and San Jacinto Counties north of Houston).

## Weekly Water and Climate Update

Minor degradations were made to the depiction in these Texas regions (for Polk and San Jacinto Counties, abnormal dryness (D0) was introduced.

In northwestern Oklahoma during the last 90-days, the Oklahoma Climatological Survey reports PNP values between 20-40 percent of normal (1981-2010 base period), and the Daily Averaged Fractional Water Index (FWI, from the Oklahoma Mesonet) 24 inches deep into the soil ranged from 0.1-0.3. The 32-inch Percent Plant Available Water (32PPAW), which considers column soil moisture from the soil surface down to a depth of 32 inches, is running between 18-34 percent in the Counties of Harper and Woods. Most plants experience water stress when less than 50-percent of the maximum plant available water remains in the active root zone. In western Oklahoma (northern Roger Mills County), PNP's during the past 90-days were about 60 percent of normal, with FWI values ranging from 0.1 in the far west part of the County to 0.6 in the far east. In extreme southeast Oklahoma, the 90-day PNP values range from 60-80 percent of normal, while the FWI bottoms out near 0.2 in southern Bryan County. The relative dryness over the past 3-months roughly coincides with the secondary rainy season in this region and this is on top of at least 4 years of significant drought. As a result, one-category degradations were made to the depiction in northwest Oklahoma (southeast half of Harper County, and Woods County), western Oklahoma (northern Roger Mills County), and extreme southeast Oklahoma (Bryan and Choctaw Counties). Finally, in southwest Oklahoma, extreme and exceptional drought (D3 and D4) was expanded slightly to include more of Comanche County. A COOP site at Lawton reported 89.66 inches of precipitation since October 1, 2010 (normal is 137 inches), when the drought began. This is a deficit of nearly 50 inches during this period.

### Southwest

Southern stream energy was attended by moderate to heavy precipitation (0.5-3.0 inches) this week across central and south-central Arizona, and northwest parts of New Mexico. Most other areas of the Southwest remained dry. The regional depiction was not altered this week.

### Looking Ahead

For the upcoming 5-day period (December 11-15, 2014) very heavy precipitation (5-9 inches, liquid equivalent) is anticipated across northern and central portions of California, with moderate precipitation (0.5-2.0 inches) predicted from the southern Sierras westward to the coast. Between 4-5 inches of precipitation (liquid equivalent) is also forecast for the Olympic Range of Washington state. Moderate precipitation (0.5-2.0 inches) is also predicted for portions of the northern Rockies, the Wasatch Range in northern Utah, the central and southern Great Plains, upstate New York and northern New England. Most remaining areas are expected to receive light precipitation (up to 0.5-inch), if any.

For the ensuing 5-day period (December 16-20, 2014), above-median precipitation is favored for most areas west of the Continental Divide (about a 60-65 percent chance in central California), the central and southern Plains, most of the Mississippi-, Ohio-, and Tennessee Valleys, and most of the Southeast. Below-median precipitation is favored over the Northeast and mid-Atlantic regions, much of the Great Lakes region, the northern Great Plains, and southern Florida."

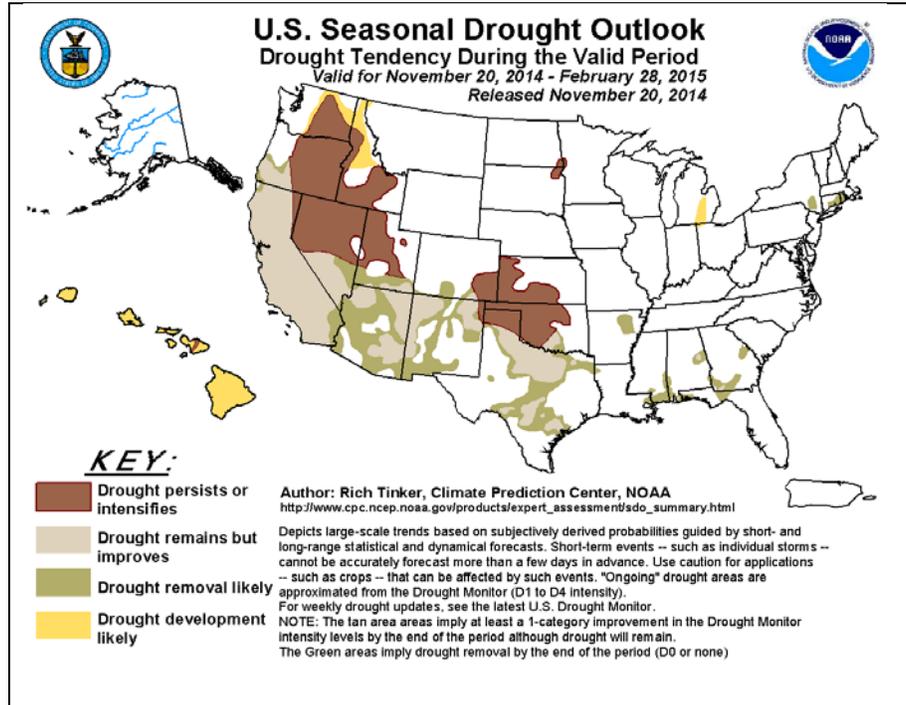
# Weekly Water and Climate Update

## Supplemental Drought Information

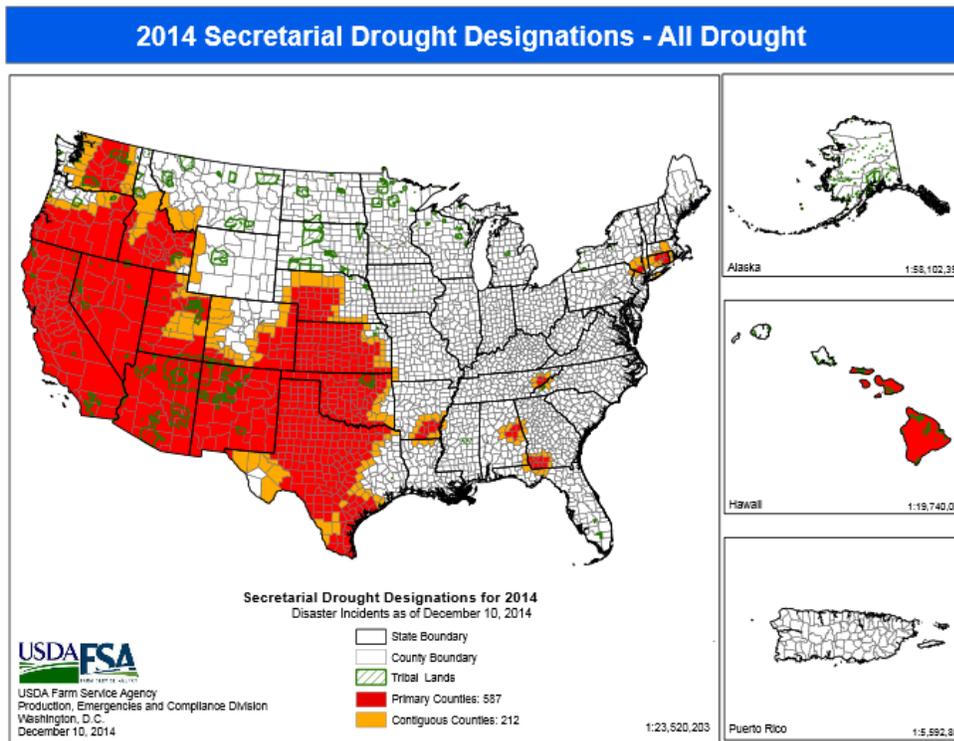
### National Seasonal Drought Outlook

Nationally, [drought](#) is expected to persist or intensify over much of the West and south central U.S., including Nevada, Oregon, Washington, Idaho, Utah, Texas, Oklahoma, Nebraska, and Colorado. Improvements are expected in California and in parts of the Southwest and Texas. Some areas of drought are likely to develop in Washington, Idaho, and Michigan.

Also see: [National Significant Wildland Fire Potential Outlook](#) (updated on the first of each month) contains a content summary of the previous month's conditions.



### 2014 USDA Secretarial Drought Designations



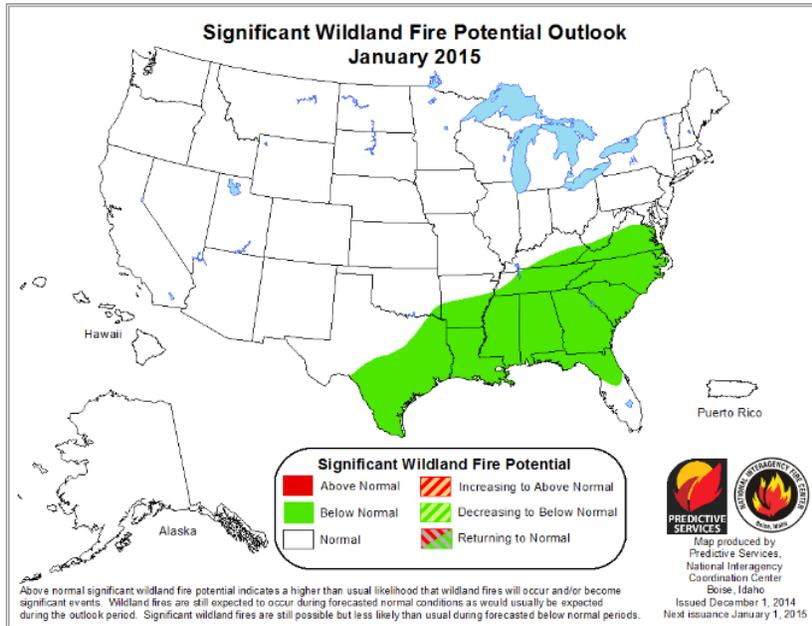
Refer to the USDA Drought Assistance [website](#) and [National Sustainable Agriculture Information Service](#).

Read about the new [USDA Regional Climate Hubs](#).

[New useful resource: NASS Quick Stats](#)

## Weekly Water and Climate Update

### National Fire Potential Outlook



### January Fire Forecast

In January, much of the U.S. has normal [fire potential](#).

The below normal fire potential area in green on the map is forecast for Texas, through the Southeast, to the mid-Atlantic states.

### Additional Maps

U.S. Maps PowerPoint presentation: <http://dmcommunity.unl.edu/maps/US-Maps.ppt>.

Regional zooms of ACIS station data percent-of-normal precipitation:  
<http://dmcommunity.unl.edu/maps/All-CONUS-ACIS-PNP.pptx>.

National Water and Climate Center (NWCC) Surface Water Supply Index (SWSI) maps:  
<http://www.wcc.nrcs.usda.gov/wsf/swsi.html>

### Supplemental Drought-Agriculture News

Download [archived](#) "U.S. Crops in Drought" files.

This is a collection of drought-related news stories from the past seven days or so from this past week. Past Impact information from these articles is entered into the [Drought Impact Reporter](#). A number of these articles are posted on the [Drought Headlines](#) page at the NDMC website. The list is compiled by Denise D. Gutzmer, Drought Impact Specialist, and National Drought Mitigation Center.

#### "Western governors meet to discuss water in Colorado River basin

Eight Western governors are meeting this weekend to discuss regional water concerns as each state grasps at every last drop of water they have a right to take. Governors from Nevada, Colorado, Idaho, Montana, New Mexico, South Dakota, Utah and Wyoming are taking part in the meeting.

#### Emergency California Drought Relief Act of 2014

A broad-based statewide coalition of businesses, urban and rural residents, farmers, water districts and municipalities are pushing Congress to pass emergency legislation introduced in Congress this week to offer temporary operational flexibility for California's two main water systems. The California Drought Relief Act of 2014 will ease human suffering and impact on people and businesses, and protect people and the environment.

## Weekly Water and Climate Update

### **California water conservation results**

Despite Gov. Brown's request for conservation of 20 percent, Californians only curbed their water use by 6.7 percent in October, compared with the previous year, and by 11.6 percent in August, the state residents' best showing since the appeal for conservation. The state Water Resources Control Board said that 90 billion gallons of water have been conserved since June. The state's primary reservoirs held 39 percent to 60 percent of normal water levels for this time of year. In addition, the average Northern Sierra snowpack was 79 percent of normal, while the southern Sierra was 47 percent of normal.

### **Sacramento, California moving ahead of schedule on installing water meters**

Sacramento officials were aiming to install water meters for the remaining 62,000 unmetered homes as the city strives to monitor water use during drought. The Sacramento city manager said that he was eager to get more of the meters installed to keep track of the amount of water being used and pinpoint some of the larger water wasters in the city.

### **Initial water allocation of 10 percent for State Water Project customers**

California's Department of Water Resources announced an initial water allocation of 10 percent, based on a more optimistic rain and snow forecast for 2015. The estimate could be revised downward if the precipitation does not materialize. Only 5 percent was delivered in 2014.

### **Visalia, Calif. officials, residents annoyed by water waste**

Visalia officials and residents were irritated by the release of 540,000 gallons of water into a street gutter while city residents are striving to save water during drought. California Water Service and two governmental agencies were searching for the source of chemical contamination in a well in southwest Visalia when they dumped the water. City officials were displeased because they were not informed of the plan, and such blatant water waste was offensive to residents.

### **Coho salmon possibly extinct in Muir Woods in Marin County, California**

Coho salmon that typically swim up Redwood Creek into Muir Woods did not appear this year and may be nearing extinction. No salmon eggs were found in Muir Woods this past winter, and no baby Coho were seen this summer. Biologists think the 2014 generation was extinct, but that suspicion has not yet been confirmed. Officials blamed decades of environmental pollution, habitat degradation, and drought for the fishes' disappearance.

### **Texas cities desperately low on water**

The town of Gordon has enough water to last through early 2015 unless more rain falls to fill Lake C.B. Long. Recent rainfall caused the lake's level to rise nearly one foot.

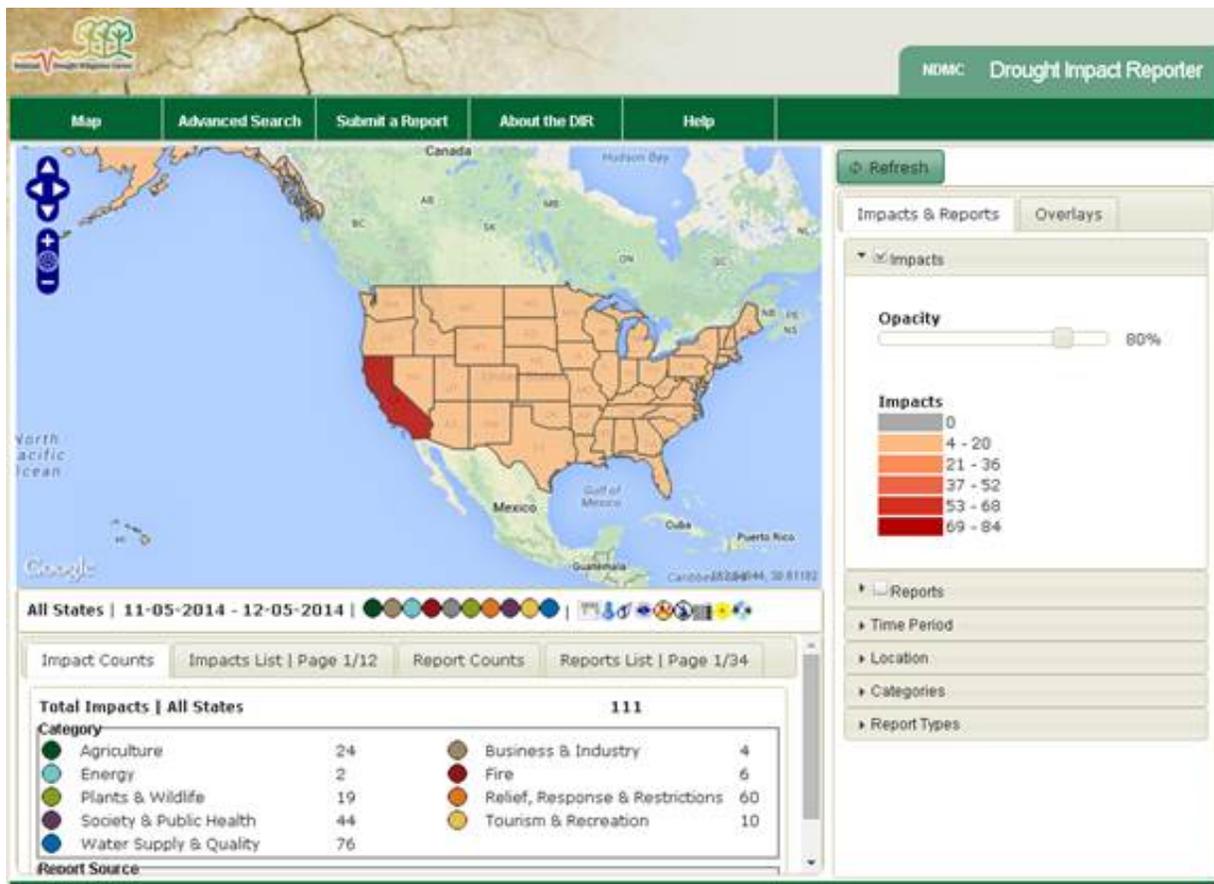
Mineral Wells only water supply, Lake Palo Pinto, is at 10 percent of capacity. Town officials are scrambling to find an alternate water source. Mineral Wells is one of fifty-eight cities in Texas that also have an estimated 180 days' worth of water left.

### **Kansas cattle producers warned to watch their livestock**

Kansas farmers and ranchers were warned to be on guard against cattle rustlers. A livestock production agent with the Central Kansas Extension District cautioned that record high cattle prices could make cattle an attractive way to make a quick buck. Steers were selling for \$1,300 to \$2,000, according to the Farmers & Ranchers Livestock Commission.

## Weekly Water and Climate Update

The [Drought Impact Reporter](#) shows that California has the most impacts by far.



## Tea Cup Reservoir Depictions

- <http://www.usbr.gov/uc/water/basin/> ← Upper Colorado
- [http://www.usbr.gov/uc/wcao/water/basin/tc\\_gr.html](http://www.usbr.gov/uc/wcao/water/basin/tc_gr.html); ← Upper Snake
- <http://www.usbr.gov/pn/hydromet/burtea.html> ← Upper Colorado
- [http://www.usbr.gov/uc/water/basin/tc\\_cr.html](http://www.usbr.gov/uc/water/basin/tc_cr.html) ← Upper Colorado
- <http://www.usbr.gov/pn/hydromet/select.html> ← Pacific Northwest
- <http://www.sevierriver.org/reservoirs/teacup-diagram-of-reservoirs/> ← Sevier River Water (UT)

## [California drought the worst in 1,200 years, new study says](#)

San Jose Mercury News (Calif.)

Dec 5, **California**. Research from the Massachusetts' Woods Hole Oceanographic Institution and University of Minnesota found that the current drought is the worst California has seen in at least 1,200 years. Blue oak tree rings dating back to 800 A.D. revealed no three year time span when precipitation was as low and temperatures as high as the past three years.

# Weekly Water and Climate Update

Graphic from the Bay Area News Group

## California rainfall totals

Storms this week pushed the rainfall totals in most California communities above seasonal normal levels to date. But the state has a long way to go before the drought is over.

City	Rainfall level		Seasonal total	% of normal
	July 1- Nov. 27	Nov. 27- Thursday		
San Jose	1.27 in.	3.79 in.	5.06 in.	169%
San Francisco	2.46 in.	4.43 in.	6.89 in.	136%
Oakland	2.41 in.	3.01 in.	5.42 in.	127%
Concord	1.56 in.	2.73 in.	4.29 in.	n/a
Outside the Bay Area				
Los Angeles	0.48 in.	1.82 in.	2.30 in.	105%
Fresno	1.08 in.	0.43 in.	1.51 in.	75%
Monterey	3.11 in.	1.33 in.	4.44 in.	n/a

### State still in drought

The majority of the state remains in "exceptional drought" — the worst condition, according to the federal government.

#### Drought intensity

- Exceptional
- Extreme
- Severe
- Moderate
- Abnormally dry

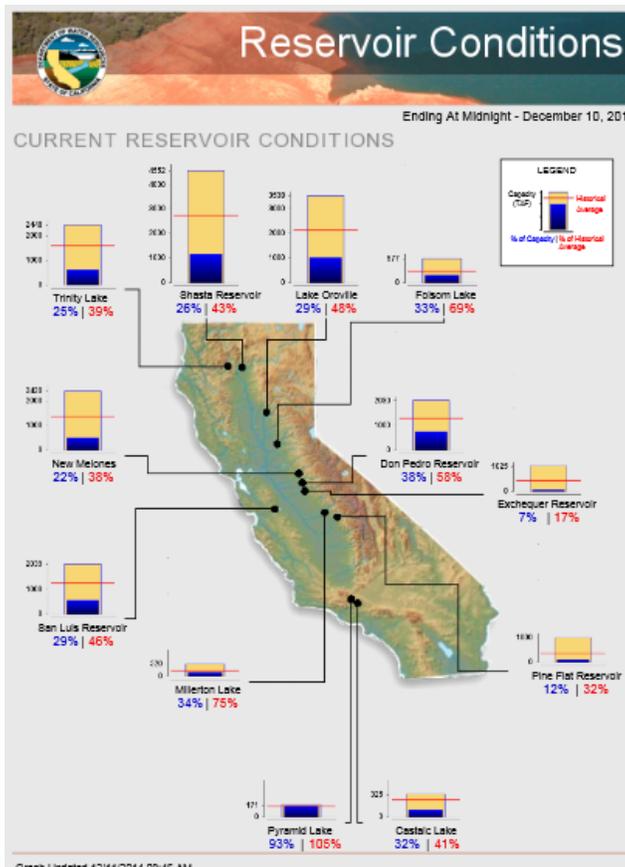
As of Dec. 2



Source: National Weather Service, National Drought Mitigation Center and NOAA  
BAY AREA NEWS GROUP

## California Reservoir Conditions

[California Major Reservoir conditions from the CA Department of Water Resources](#)



## Weekly Water and Climate Update

### State Activities

[State government drought activities](#) can be tracked through their drought plans. NRCS Snow Survey and Water Supply Forecasting (SSWSF) Program State Office personnel are participating in state drought committee meetings and providing the committees and media with appropriate SSWSF information. Additional information describing the [tools](#) available from the Drought Monitor can also be found at the [U.S. Drought Portal](#).

### More Information

The National Water and Climate Center (NWCC) [Homepage](#) provides the latest available snowpack and water supply information. This document is available [weekly](#). CONUS Water and Climate Updates from 2007 are available online. Reports from 2001-2006 are available on request.

This report uses data and products provided by the Interagency Drought Monitor Consortium members and the National Interagency Fire Center.

/s/

David W. Smith

Deputy Chief, Soil Science and Resource Assessment