



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

## Weekly Water and Climate Update November 20, 2014

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### Agricultural Weather Highlights – Wednesday - November 19, 2014

- In the **West**, temperatures are rebounding to near- or above-normal levels, except for some lingering cold weather across the interior Northwest. Precipitation is mostly light and limited to parts of the Northwest, although freezing rain is causing some travel disruptions in parts of Oregon and Washington.
- On the **Plains**, very cold weather lingers across the Dakotas and eastern Nebraska. In contrast, mild air is starting to overspread portions of the High Plains. Snow continues to insulate the northern Plains’ winter wheat from weather extremes, but the remainder of the crop is exposed. Wheat-related concerns include continuing drought across parts of the southern Plains and the effects of recent cold weather on the central High Plains.
- In the **Corn Belt**, snow squalls are returning to the Great Lakes region as another surge of cold air arrives. A widespread snow cover and very cold conditions continue to inhibit the emergence of late-planted winter wheat and hamper late-season corn and soybean harvest operations.
- In the **South**, dry weather favors fieldwork—including winter wheat planting and cotton, peanut, and soybean harvesting—despite cool conditions. Freeze warnings are in effect again this morning across parts of southern Georgia and northern Florida.

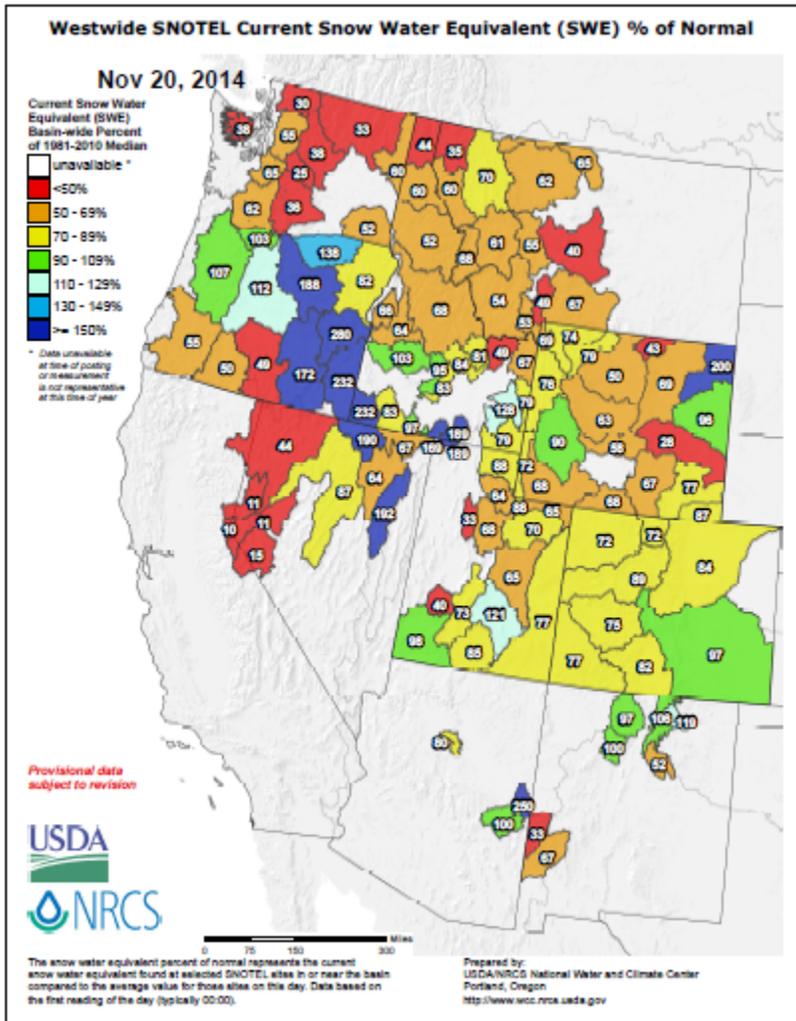
**Weather Outlook:** Lingering cold will be confined to the eastern U.S. by Saturday. In other areas of the country, the weekend will feature near- to above-normal temperatures. By early next week, however, cool weather will return—in the wake of a departing storm—to the Rockies, Plains, and Midwest. Meanwhile, precipitation will become more widespread. For today, snow squalls will plague areas downwind of the Great Lakes. Farther west, a developing storm system will produce late-week and weekend rain (locally 1 to 3 inches) along and east of a line from the southeastern Plains to the upper Mississippi Valley. Elsewhere, mostly dry weather during the next 5 days from southern California into the Southwest will contrast with very wet conditions from the Pacific Northwest (locally 2 to 6 inches or more) to the northern Rockies (1 to 3 inches). The NWS 6- to 10-day outlook for November 25-29 calls for below-normal temperatures nationwide, except for warmer-than-normal weather in New England and west of the Rockies. Meanwhile, below-normal precipitation from California to the lower and middle Mississippi Valley will contrast with wetter-than-normal conditions along the Atlantic Seaboard and across the nation’s northern tier.

**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

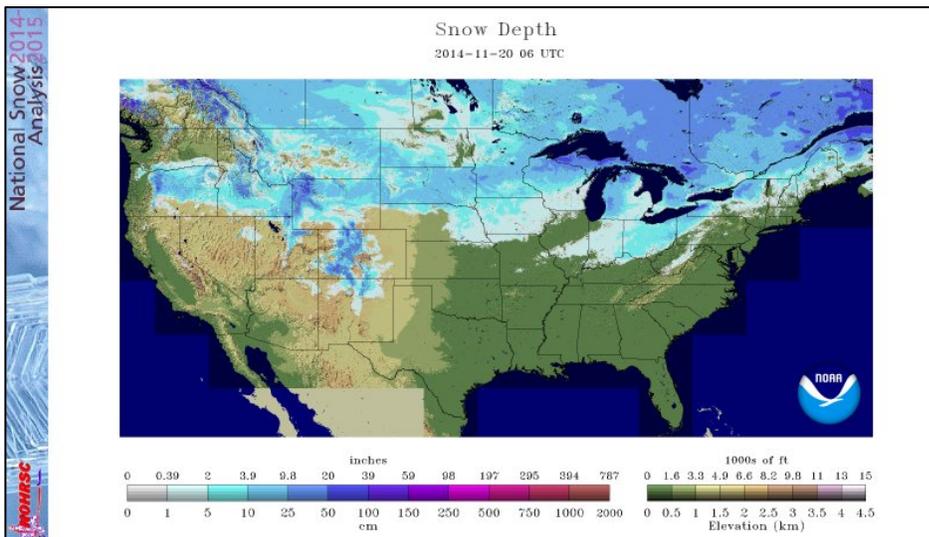
# Weekly Water and Climate Update

## Snow



For the [2015 Water Year](#) that began on October 1, 2014, a few areas in eastern Oregon, southern Idaho, northern Nevada, and a basin in northeastern Colorado have recorded much above normal Snow Water Equivalent (SWE) values (dark blue areas).

The largest snowpack deficits (red areas) are in the Sierra Nevada of California and Nevada. Washington, south central Oregon, northern Idaho, parts of Montana and Wyoming, Utah, and New Mexico also have below normal basins.



Snow depth from the [NWS NOHRSC](#) as of November 20, 2014. Cold and precipitation over most of the U.S. has resulted in snow across much of the northern tier states. Snow is unusually deep in western New York from lake-effect snow storms. Other areas with a substantial snowpack include the upper peninsula of Michigan and the Rocky Mountains.

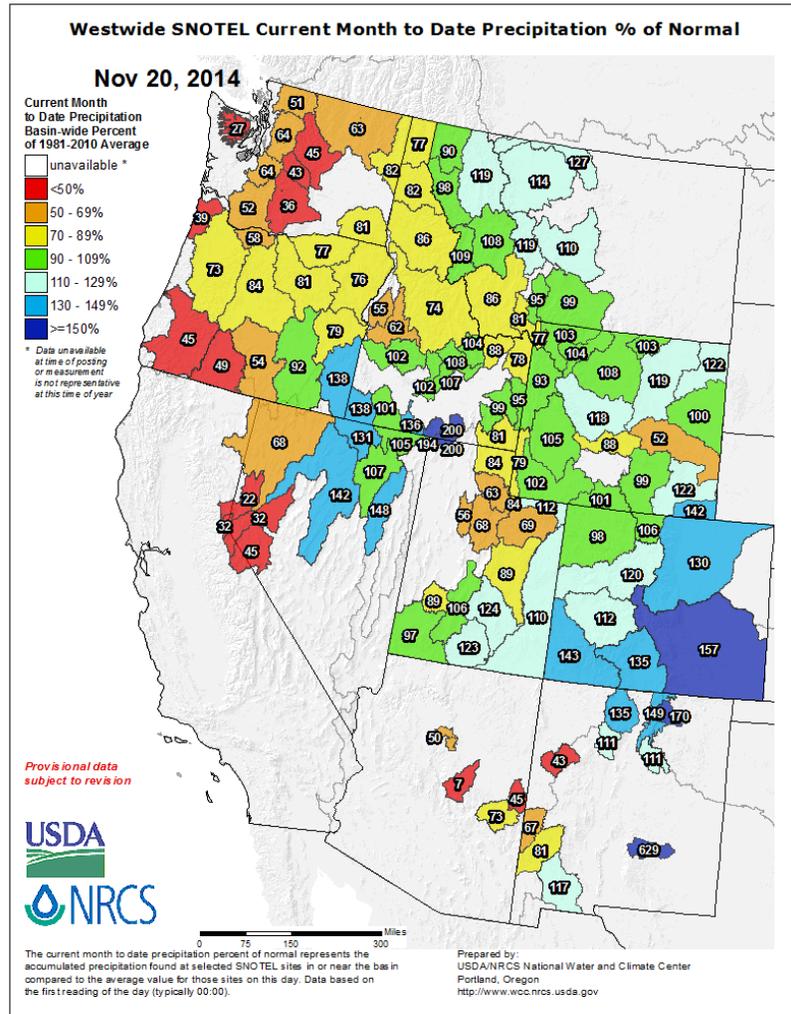
# Weekly Water and Climate Update

## Precipitation

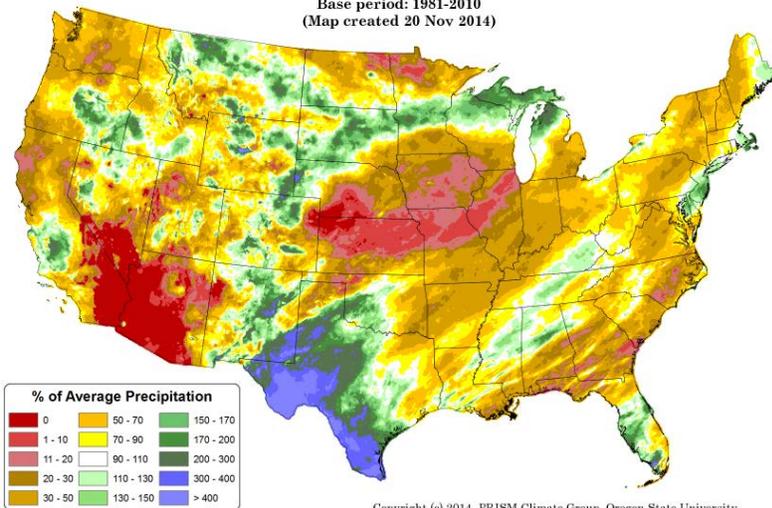
In the West, the [SNOTEL](#) precipitation percent of normal map for November shows most of Colorado, New Mexico, northern Nevada, and southern Idaho are much above normal for the period. Near or below normal precipitation occurred in basins in western Nevada, California, western Oregon, and Washington. A few basins in New Mexico and Arizona are also below average.

The percent of normal values (especially in 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 November 2014 - 19 November 2014**  
 Period ending 7 AM EST 19 Nov 2014  
 Base period: 1981-2010  
 (Map created 20 Nov 2014)



Thus far in November 2014, the national [precipitation anomaly](#) pattern reveals some higher than normal precipitation, primarily across Texas, southeast New Mexico, and in small areas of Wyoming and Nebraska. Parts of southern California, Arizona, Kansas, Nebraska, Iowa, Missouri, Illinois, and Montana received less than normal precipitation. (red areas).

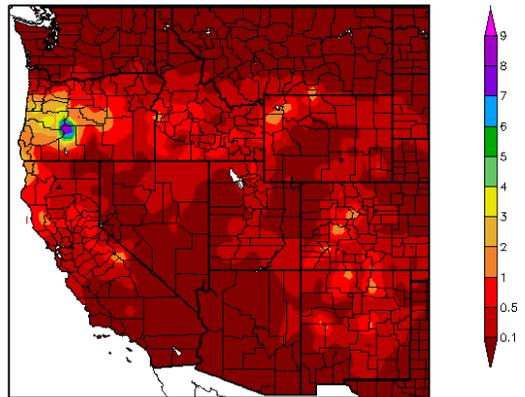
*This preliminary daily PRISM precipitation anomaly map contains all available network data, including SNOTEL data, and is updated periodically as additional data become available and are quality controlled.*

## 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 a few scattered areas of central and western Oregon and northern California. Other areas of precipitation occurred in the central and southern Rocky Mountains.

Other scattered areas that received precipitation are in Idaho, Wyoming, Nevada, and Utah.

Precipitation (in)  
11/13/2014 - 11/19/2014



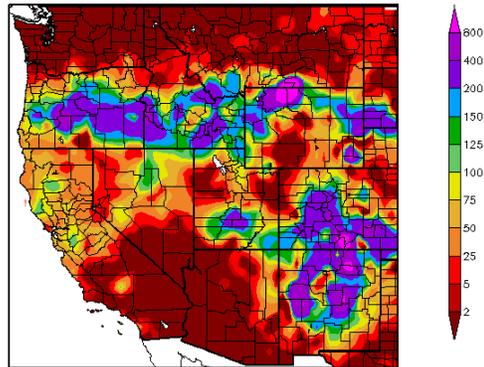
Generated 11/20/2014 at HPRCC using provisional data.

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 a plume from the Pacific coast through Oregon and eastward, dropping moisture in southern Idaho, Wyoming, and south Dakota. Another area of heavy precipitation was centered in southern Colorado and northern New Mexico. Parts of Utah, California, Nevada, southern Montana, and eastern Arizona also received precipitation.

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

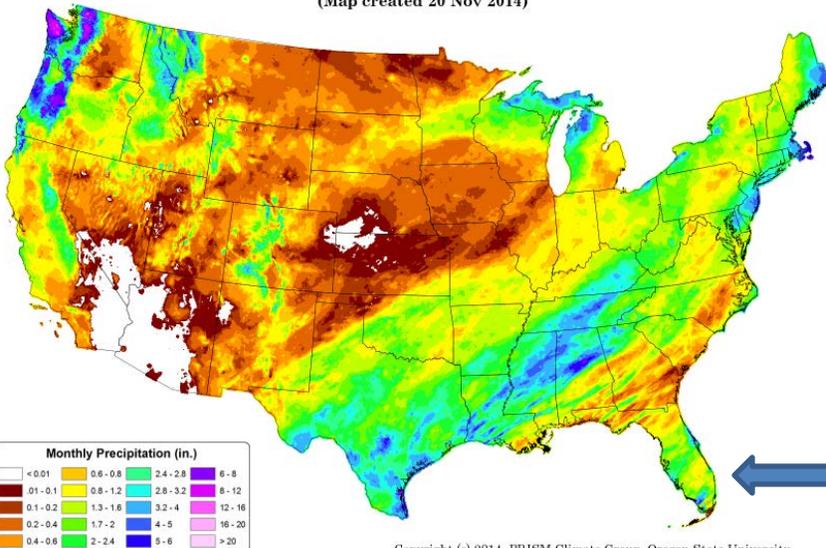
Percent of Normal Precipitation (%)  
11/13/2014 - 11/19/2014



Generated 11/20/2014 at HPRCC using provisional data.

Regional Climate Centers

Total Precipitation: 01 November 2014 - 19 November 2014  
Period ending 7 AM EST 19 Nov 2014  
(Map created 20 Nov 2014)



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

For November 2014, the [total precipitation](#) across the continental U.S. was heaviest in the Pacific Northwest. Isolated high precipitation was also recorded in Texas, Louisiana, Mississippi, and Alabama into Tennessee. Northern Idaho, Montana, and parts of Maine, Massachusetts, New Jersey, Delaware, and Michigan also received above 4 inches for the time period. In contrast, much of the central U.S., Southwest, and Southeast were mainly dry.

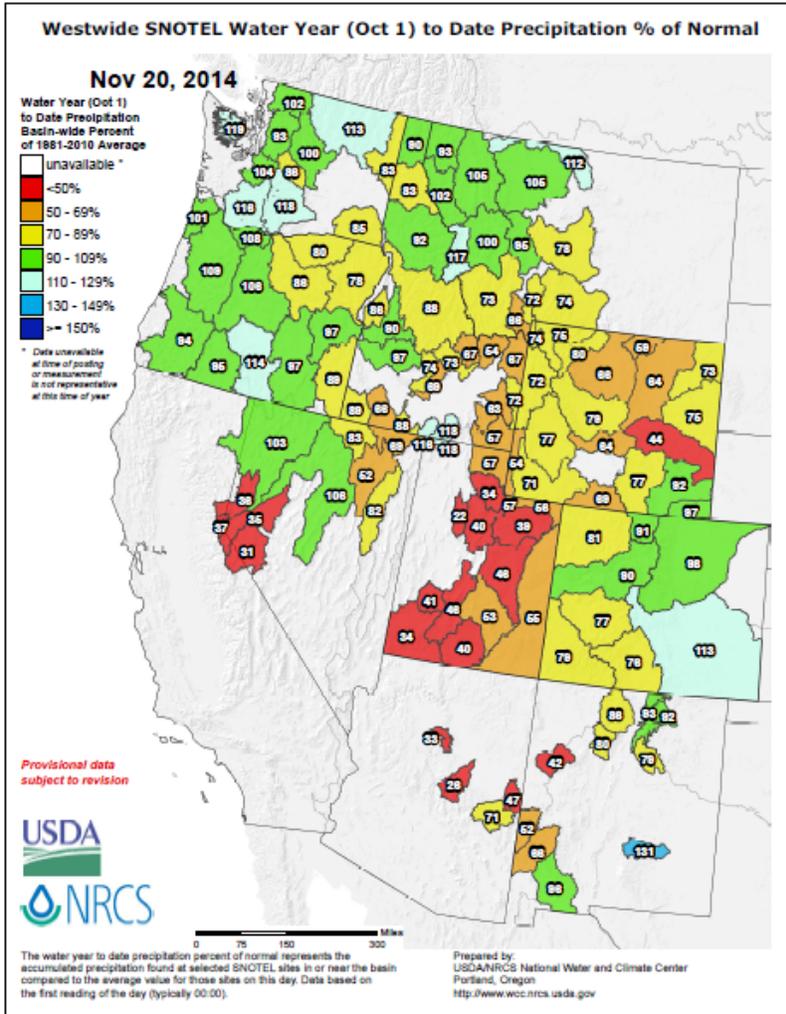
See [Go Hydrology](#) for current and forecast conditions over southern Florida.

## Weekly Water and Climate Update

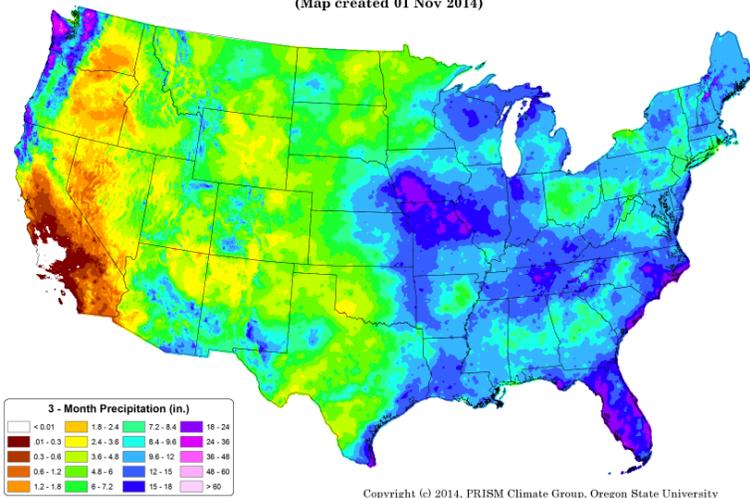
For the [2015 Water Year](#) that began on October 1, 2014, surpluses have occurred in a few basins in the West. Washington, Montana, Idaho, and a basin in Colorado and New Mexico have received above normal precipitation.

Many basins across the West have near normal conditions for this part of the water year. A few areas have less than normal precipitation for this water year. These include basins in California, Nevada, Utah, Arizona, and a few in Wyoming 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: August 2014 - October 2014  
 Period ending 7 AM EST 31 Oct 2014  
 (Map created 01 Nov 2014)



The national map of the [three-month period](#) (August-October) shows that the eastern half of the nation received precipitation in the range from 6 inches to greater than 18 inches in Iowa, northern Missouri, Florida, the North and South Carolina coasts, Vermont, and Maine. In the West, Oregon and Washington received over 24 inches for the period.

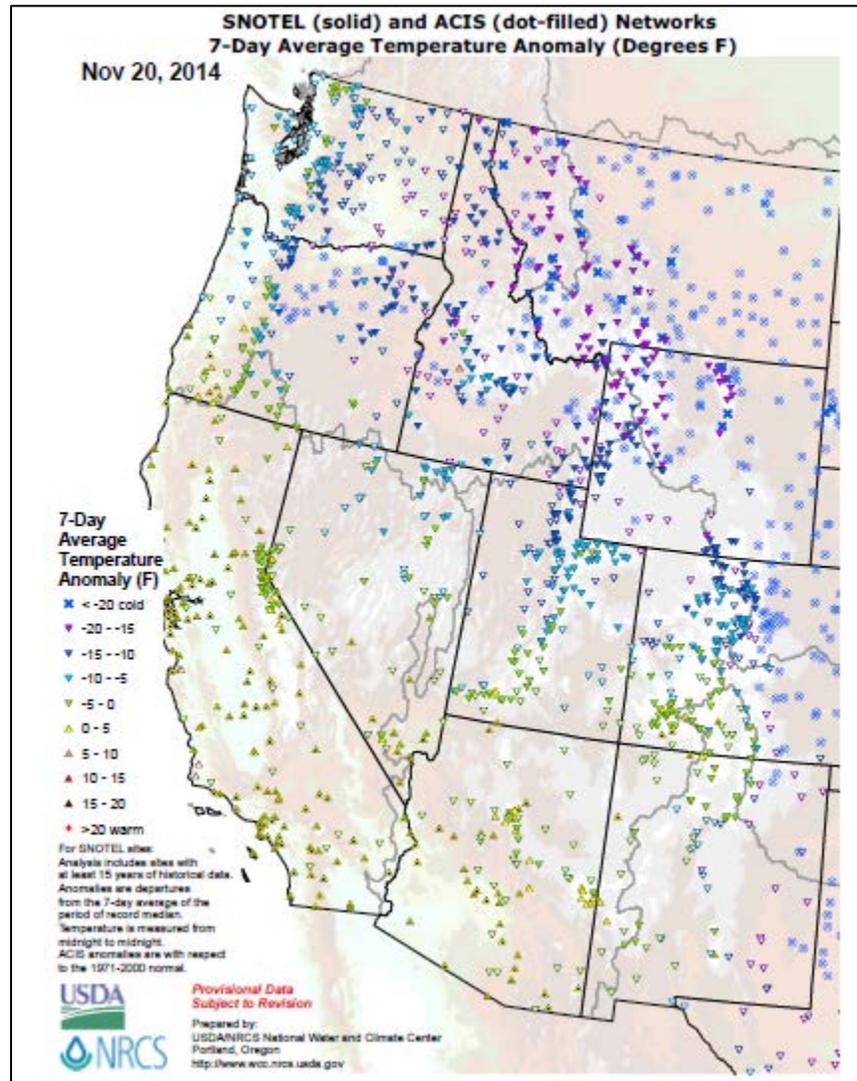
In contrast, parts of the West received totals of less than 1.8 inches. Central and southern California had little to no precipitation for the period.

# Weekly Water and Climate Update

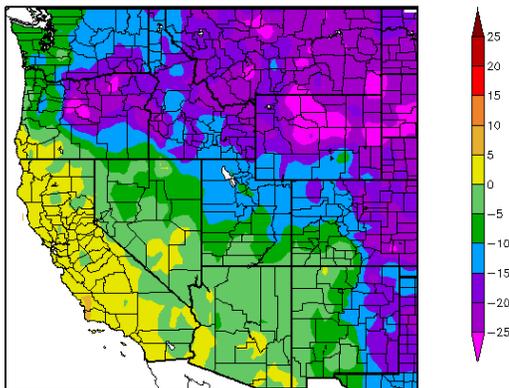
## Temperature

The SNOTEL and ACIS [7-day temperature anomaly](#) map for the western U.S. shows very cold temperatures across most of the West. This includes Washington, Oregon, Idaho, Montana, Wyoming, Colorado, Utah, Nevada, and New Mexico. This coincides with the weather cold front that engulfed most of the U.S. this past week.

The remainder of the West, primarily California, part of Nevada, and Arizona, was near normal for the week.



Departure from Normal Temperature (F)  
11/13/2014 – 11/19/2014



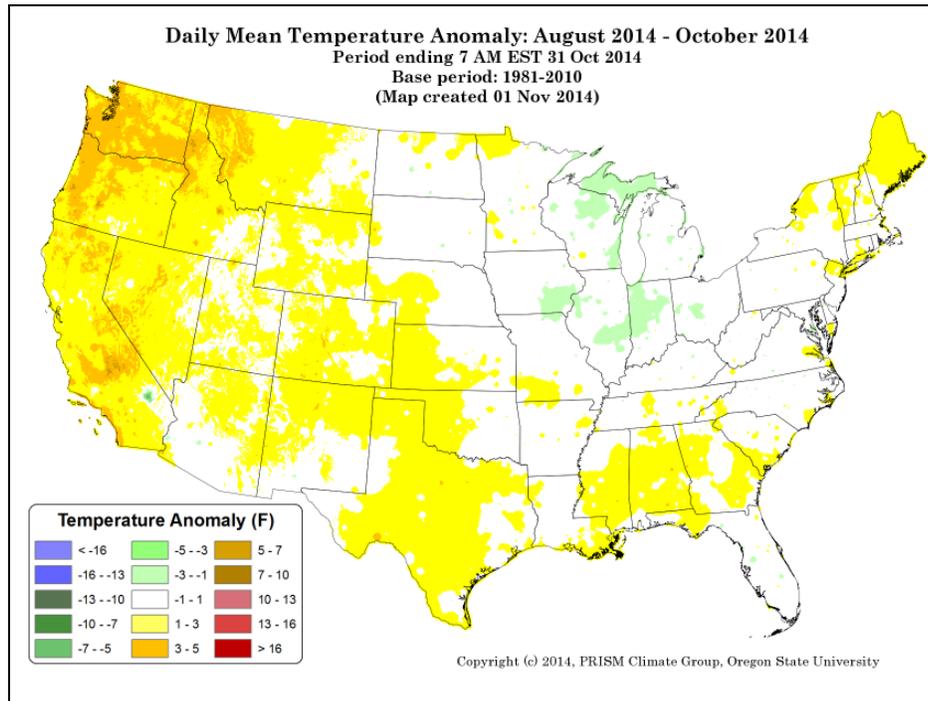
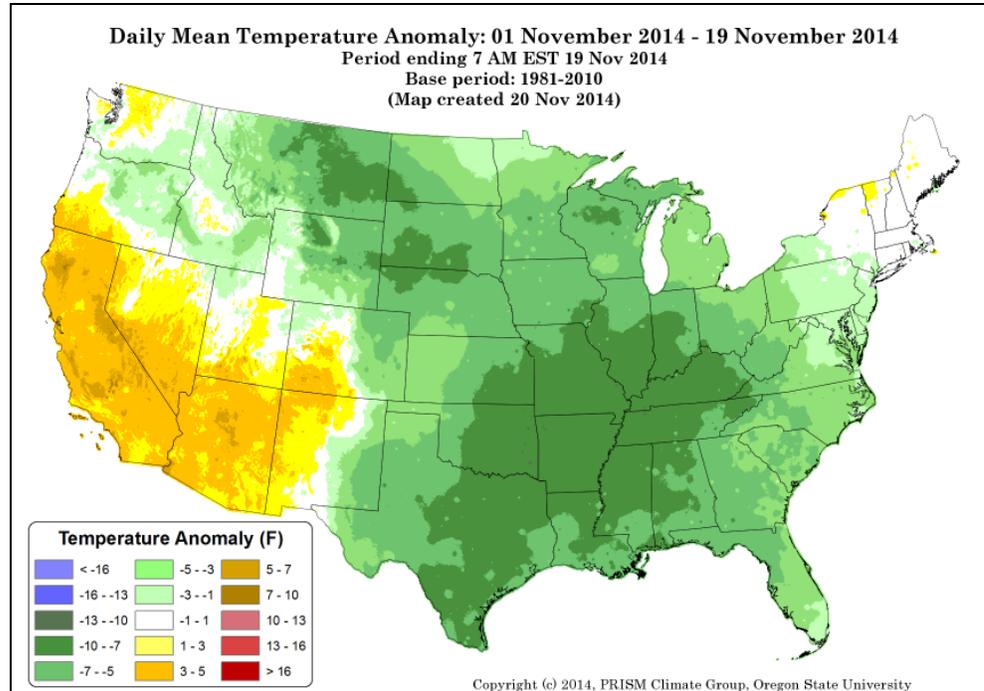
The [ACIS](#) map of the 7-day average temperature anomalies in the West ending November 19, shows the greatest negative temperature departures in Oregon, Montana, Wyoming, South Dakota, and Colorado ( $<-25^{\circ}\text{F}$ ). The greatest positive temperature departures occurred in California ( $>+5^{\circ}\text{F}$ ). Much of the West experienced very cold temperatures.

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 November 2014, the national daily mean temperature anomaly [map](#) shows a large cool pattern in the central U.S. ( $< -10^{\circ}\text{F}$ ). Above normal temperatures were recorded mainly in the West. Areas in California, Nevada, and Arizona had the highest warm anomalies ( $> +7^{\circ}\text{F}$ ).



August - October 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, Oregon, Idaho, and Washington ( $> +5^{\circ}\text{F}$ ). The north central portion of the country reported normal to slightly cooler than normal temperatures for this period, with the coolest temperatures in Michigan, Wisconsin, Iowa, Illinois, and Indiana ( $< -1^{\circ}\text{F}$ ).

# Weekly Water and Climate Update

## Weather and Drought Summary

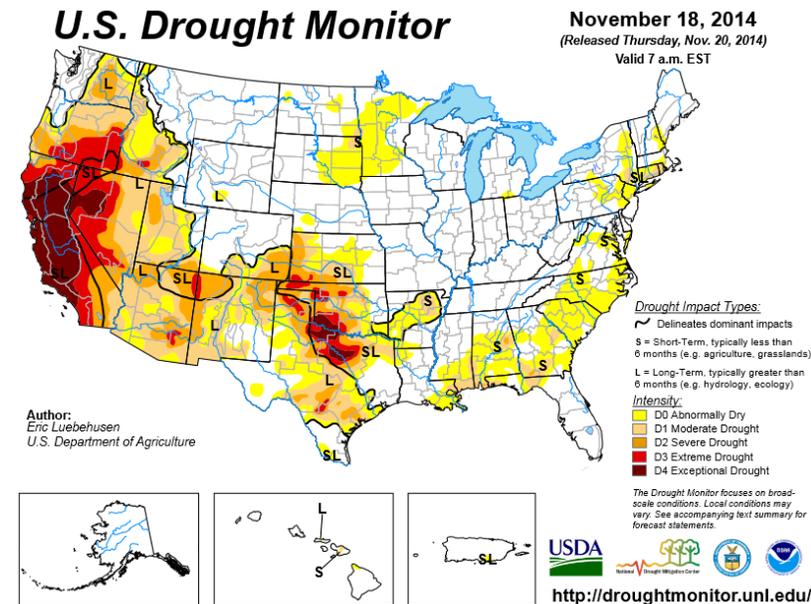
### National Drought Summary – November 18, 2014

The following **Weather and Drought Summary** is provided by this week's NDMC Drought Author, Eric Luebehusen, U.S. Department of Agriculture.

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

"For the contiguous 48 states, the U.S. Drought Monitor showed 29.45 percent of the area in moderate drought or worse, compared with 29.59 percent a week earlier. Drought now affects 70,460,314 people, compared with 71,441,087 a week earlier.

For all 50 U.S. states and Puerto Rico, the U.S. Drought Monitor showed 24.61 percent of the area in moderate drought or worse, compared with 24.72 percent a week earlier. Drought now affects 70,483,866 people, compared with 71,464,640 a week earlier."



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

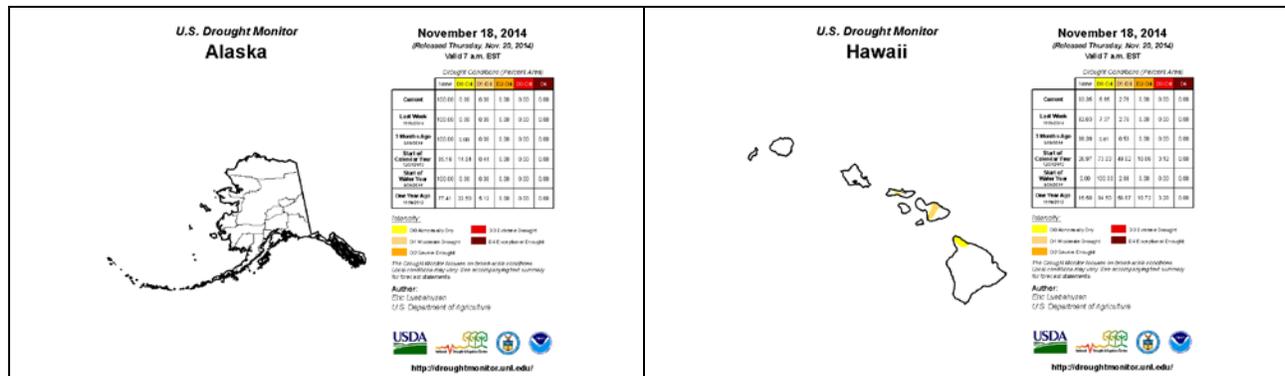
[Current Drought Monitor](#) weekly summary. The exceptional D4 levels of drought are scattered across CA, NV, TX, and OK.

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 slight decrease 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

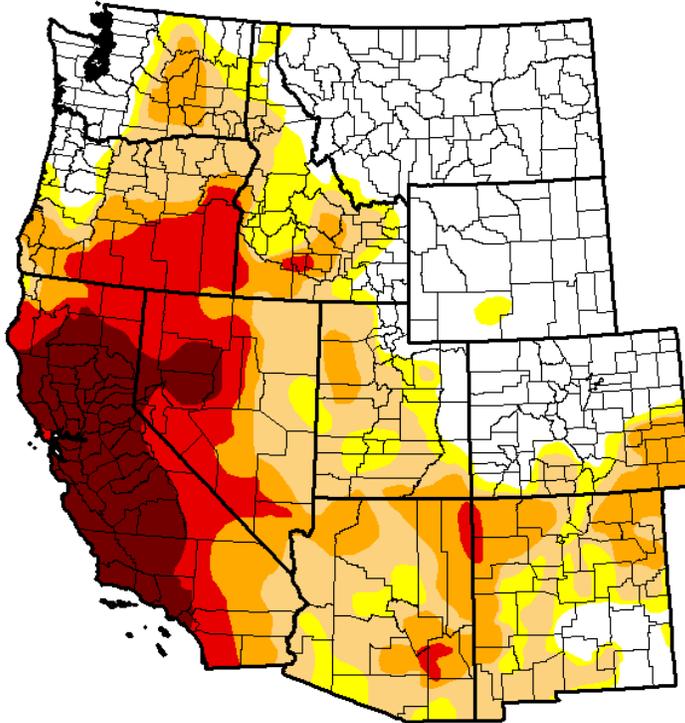
**November 18, 2014**

(Released Thursday, Nov. 20, 2014)

Valid 7 a.m. EST

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	34.66	65.34	54.99	33.88	18.75	8.45
<b>Last Week</b> <i>11/11/2014</i>	34.62	65.38	54.45	34.16	18.75	8.45
<b>3 Months Ago</b> <i>8/19/2014</i>	27.21	72.79	59.27	42.84	20.97	8.90
<b>Start of Calendar Year</b> <i>12/1/2013</i>	22.20	77.80	51.44	31.11	7.75	0.63
<b>Start of Water Year</b> <i>9/30/2014</i>	31.48	68.52	55.57	35.65	19.95	8.90
<b>One Year Ago</b> <i>11/19/2013</i>	27.36	72.64	53.20	32.23	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:**

*Eric Luebbehusen  
U.S. Department of Agriculture*



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

A slight increase in drought free area (none) and in D1 – D3 occurred this past week. D0 decreased slightly. D4 remained unchanged.

*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:**

- West - [California, Nevada governors team up on drought](#) – Nov 13
- PA- [Pennsylvania American Water Issues Voluntary Conservation Notice For Customers In Nazareth](#) – Nov 13

**International News:**

- Brazil: [Brazil's drought brews high coffee price](#): Nov 13

# Weekly Water and Climate Update

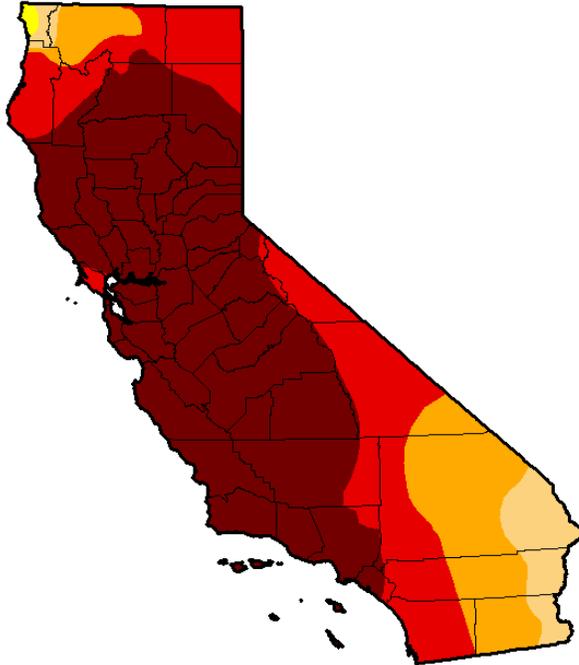
## State with D-4 Exceptional Drought

### U.S. Drought Monitor California

**November 18, 2014**

(Released Thursday, Nov. 20, 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> <i>11/11/2014</i>	0.00	100.00	99.72	94.42	79.69	55.08
<b>3 Months Ago</b> <i>9/19/2014</i>	0.00	100.00	100.00	97.59	81.92	58.41
<b>Start of Calendar Year</b> <i>12/1/2013</i>	2.61	97.39	94.25	87.53	27.59	0.00
<b>Start of Water Year</b> <i>9/30/2014</i>	0.00	100.00	100.00	95.04	81.92	58.41
<b>One Year Ago</b> <i>11/19/2013</i>	2.61	97.39	96.00	84.12	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:**

Eric Luebehusen

U.S. Department of Agriculture



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

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

[CA Drought Information Resources](#)

[Drought News from California:](#)

[Drought Brings Early Harvest For Mandarin Oranges in Placer County](#) – Nov 13

[For California farmers, relentless drought spells financial disaster](#) – Nov 12

[Orange growers assess drought impact on crop](#) – Nov 12

[With Drought The New Normal, Calif. Farmers Find They Have To Change](#) – Nov 14

[California's Severe Drought Brings Wildlife Into Backyards as Animals Search for Water](#) – Nov 14

[Cranes crowd Staten Island as other Valley habitat dries up](#) – Nov 7

[Drought drying up Torrey Pines State Reserve](#) – Nov 7

[Preserving an Accident, the Salton Sea in California, for the Good of Nature](#) – Nov 10

[Drought Monitor authors encourage growers' input](#) – Nov 10

[Drought reveals historic ruins of old South Bay towns](#) – Nov 12

[Drought threatens Southern California gardeners' survival](#) – Nov 8

[Heat, drought worsen smog in California, stalling decades of progress](#) – Nov 10

[Preserving an Accident, the Salton Sea in California, for the Good of Nature](#) – Nov 10

[City Of Santa Monica Joins "Dirty Car Pledge" To Help Fight Drought](#) – Nov 13

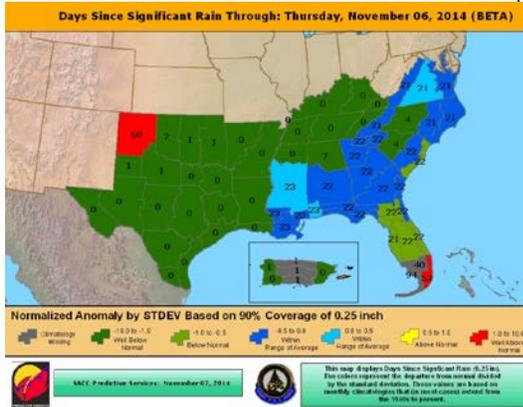
[Byproduct of drought: Water thieves](#) – Nov 7

[Drought Photos: See Lake Oroville Fall Near Historic Low Over 20 Months](#) – Nov 14

[Help Coming As More Tulare County Wells Run Dry](#) – Nov 7

# 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



## State with D-4 Exceptional Drought

### U.S. Drought Monitor Texas

**November 18, 2014**  
(Released Thursday, Nov. 20, 2014)  
Valid 7 a.m. EST

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	21.21	68.79	43.91	23.89	9.82	3.45
<b>Last Week</b> 11/10/2014	20.29	69.71	43.91	23.89	9.82	3.45
<b>3 Months Ago</b> 8/18/2014	19.17	80.83	59.20	34.23	15.16	2.76
<b>Start of Calendar Year</b> 1/1/2014	28.48	71.52	43.84	21.15	5.82	0.79
<b>Start of Water Year</b> 9/1/2013	28.92	71.08	43.95	20.54	11.26	2.69
<b>One Year Ago</b> 11/18/2013	18.91	81.09	50.60	24.45	6.99	0.79

**Intensity:**  
■ D0 Abnormally Dry ■ D3 Extreme Drought  
■ D1 Moderate Drought ■ D4 Exceptional Drought  
■ D2 Severe Drought

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

**Author:**  
Eric Luebhusen  
U.S. Department of Agriculture

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

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

## State with D-4 Exceptional Drought

### U.S. Drought Monitor Nevada

**November 18, 2014**  
(Released Thursday, Nov. 20, 2014)  
Valid 7 a.m. EST

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.00	100.00	97.04	68.25	48.38	11.89
<b>Last Week</b> 11/10/2014	0.00	100.00	97.04	69.89	48.38	11.89
<b>3 Months Ago</b> 8/18/2014	0.00	100.00	100.00	86.92	55.21	11.89
<b>Start of Calendar Year</b> 1/1/2014	0.39	99.61	96.81	77.66	28.55	5.37
<b>Start of Water Year</b> 9/1/2013	0.00	100.00	97.04	69.89	48.38	11.89
<b>One Year Ago</b> 11/18/2013	0.39	99.61	96.81	79.11	28.55	5.37

**Intensity:**  
■ D0 Abnormally Dry ■ D3 Extreme Drought  
■ D1 Moderate Drought ■ D4 Exceptional Drought  
■ D2 Severe Drought

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

**Author:**  
Eric Luebhusen  
U.S. Department of Agriculture

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

**There was a slight decrease in D2 in Nevada this past week.**

## Nevada Drought News:

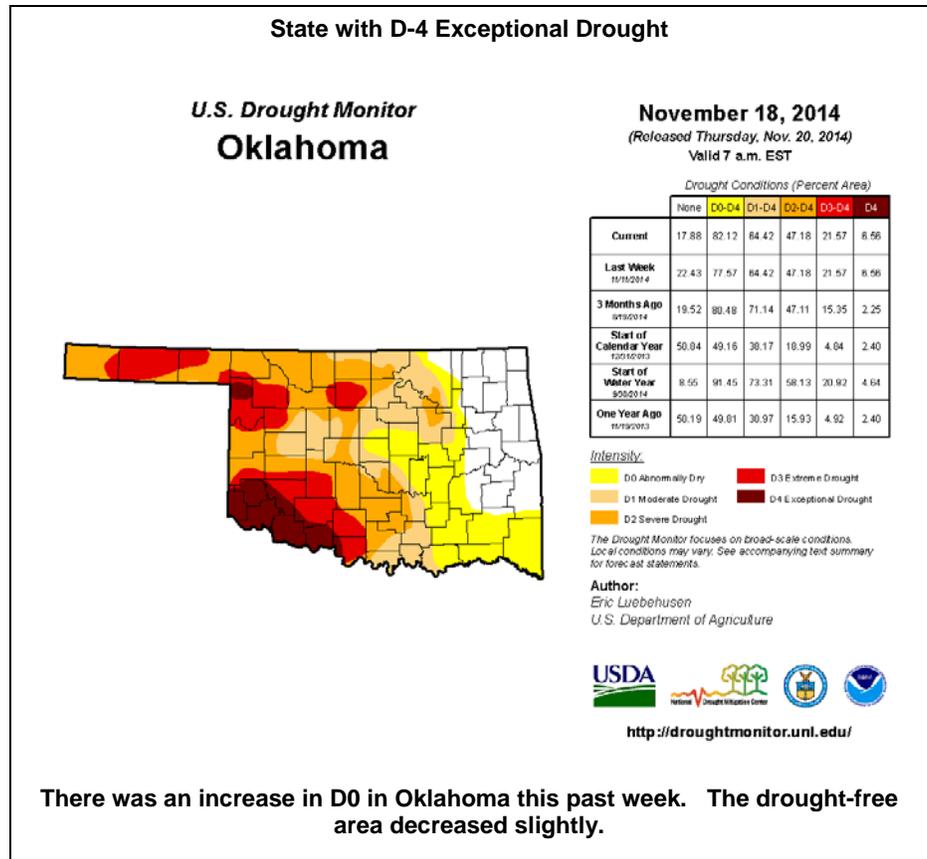
[Contaminated Groundwater Wells Close In South Lake Tahoe](#) – Nov 12

## 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
2014-11-18	171,440,489	133,956,965	70,460,314	49,589,437	40,355,562	29,568,138
2014-11-11	167,291,607	138,105,848	71,441,088	49,646,506	40,355,562	29,568,138

**Population figures affected by drought in the U.S. Drought Monitor website show that for this week, more than 70,000,000 people in the United States are in a drought-affected area, which decreased by over 980,000 people from last week.**

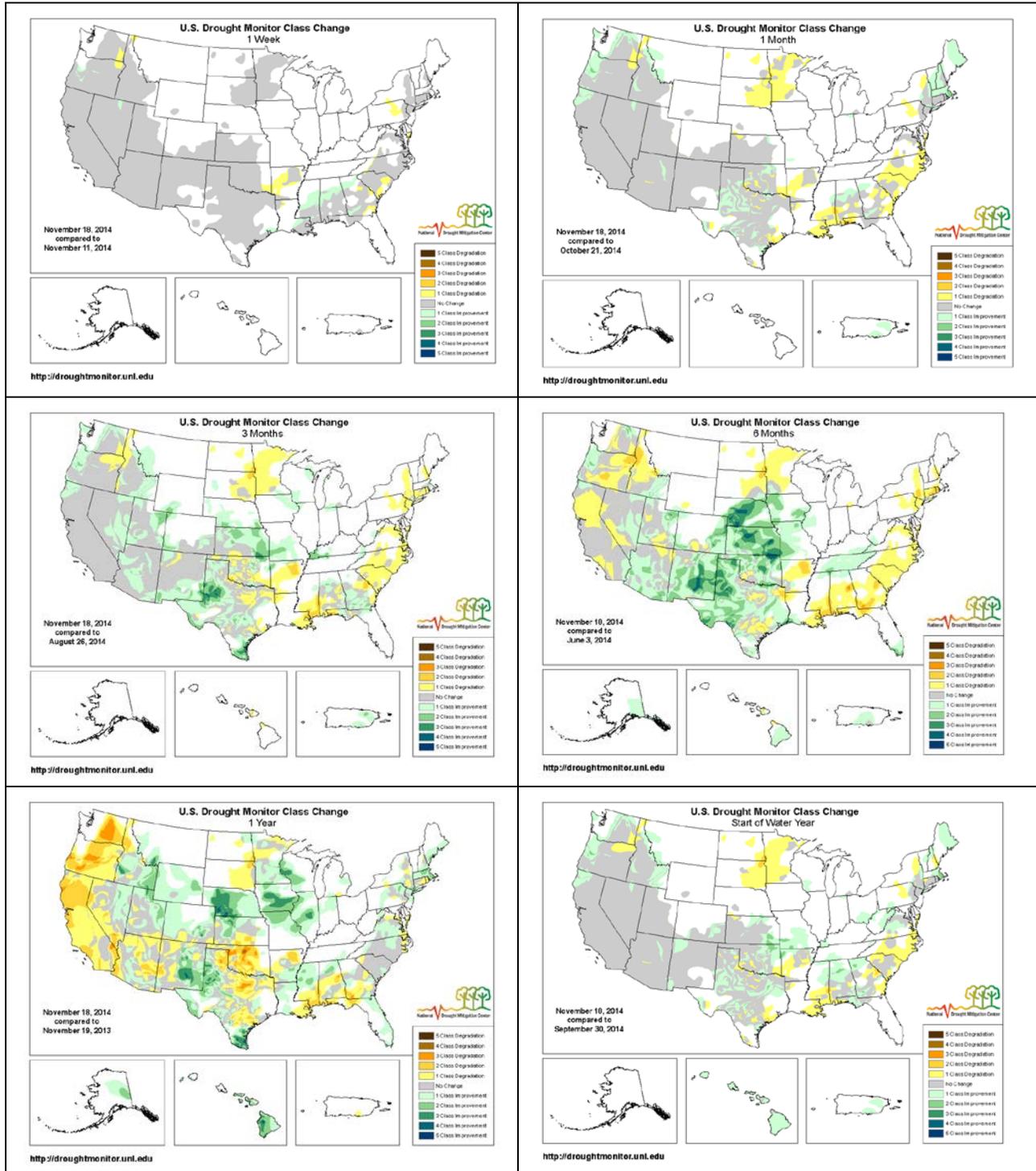
#### Population Statistics Methodology:

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

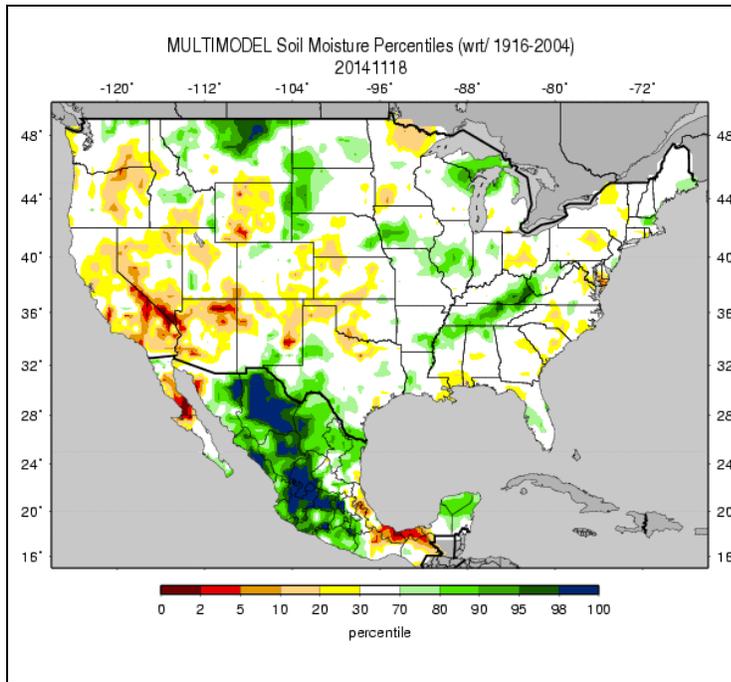
### Over Various Time Periods



Click on any of these maps to enlarge. Note how the conditions over the Rockies and northern 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 the Northeast, Southeast, parts of the southern Great Plains, and the Pacific coast states have deteriorated significantly (lower left map).

# Weekly Water and Climate Update

## Soil Moisture

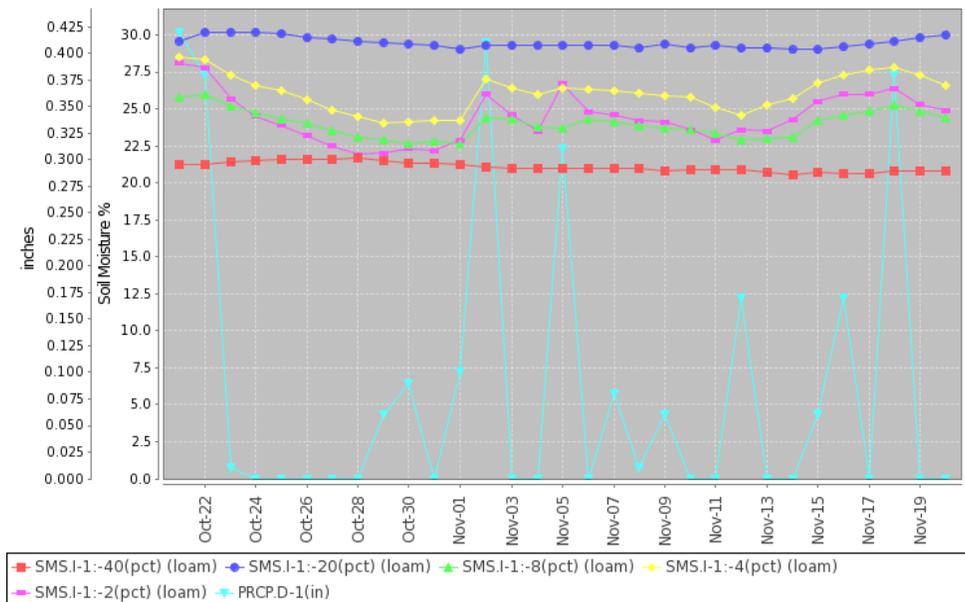


The national soil moisture model ranking in [percentile](#) as of November 18, 2014, shows dryness over most of the West. The driest areas are centered in southern California, Nevada, Wyoming, and Arizona. There are also scattered dry areas in Minnesota, Nebraska, Kansas, northern Texas, and in scattered areas of the eastern states. Another exceptionally dry area is in eastern Maryland. Moist soils dominate central Montana, northern Michigan, northern Wisconsin, Kentucky, Tennessee, northern Missouri, Illinois, and Iowa.

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 (2073) MONTH=2014-10-21 (Daily) NRCS National Water and Climate Center - Provisional Data - subject to revision  
Thu Nov 20 11:09:17 PST 2014

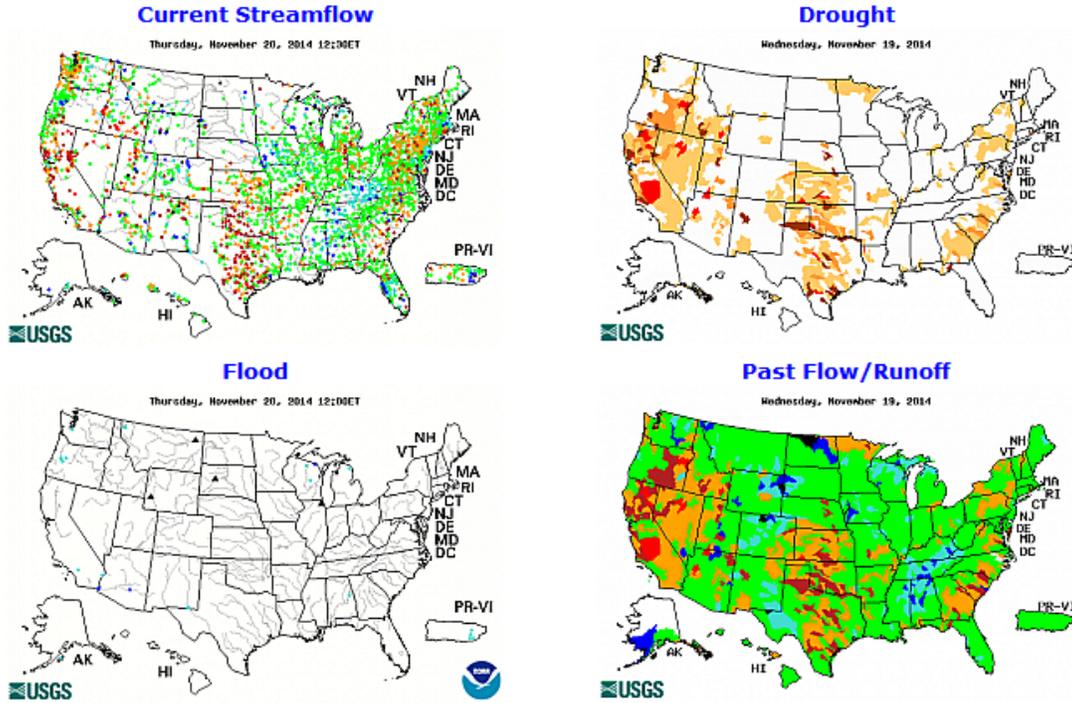


This NRCS resource shows soil moisture data for the last month at the [Sunleaf Nursery \(2073\) SCAN site](#) in Ohio. The precipitation in the area was heavy on November 2 and 18 (graphed in light blue). This resulted in increased soil moisture for the 2-, 4-, and 8-inch sensors. The 20-inch sensor is only responding slightly to the precipitation, whereas the 40-inch depth sensor shows little change.

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



The rivers are high over parts of the central U.S. Scattered gages in the U.S. are reporting above normal streamflow. The highest concentration of high streamflow is in Kentucky, Tennessee, Mississippi, Alabama, and Florida (left maps). Western Alaska and eastern Puerto Rico are also reporting a few rivers with high streamflow. The rivers above flood stage are Poplar River near Poplar, MT, Cheyenne River near Plainview, SD, Green River near La Barge, WY, Elkhorn River at Waterloo, NE, Marmaton River near Nevada, MO, and the Des Plaines River near Des Plaines, IL.

## 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 some central and southern Mississippi and lower Missouri Rivers, the Southeast, the Connecticut River, and western Washington. Currently, **1** gage has a greater than 50% chance to experience major flooding; **7** gages for moderate flooding, and **122** gages for minor flooding.

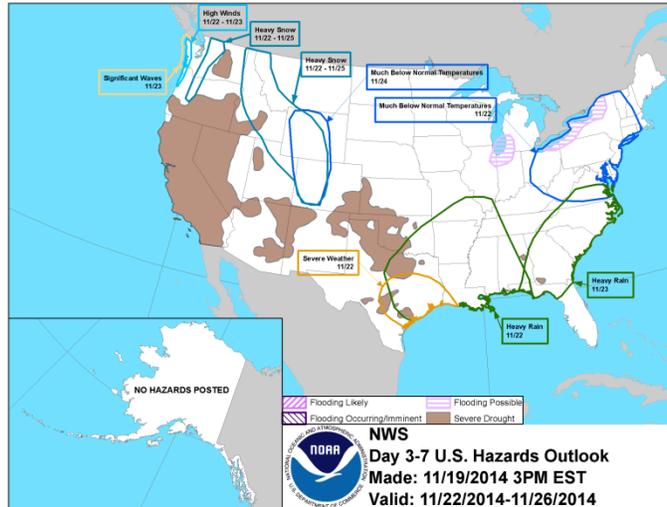
These numbers represent a 1 gage increase in the greater than 50 percent chance of minor flooding category in the last week.

## Weekly Water and Climate Update

### National [Weather Hazards](#)

Heavy snow (outlined in medium blue) is expected during the next week in Washington, Idaho, Montana, Wyoming, northern Utah, and Colorado (11/22-25). Much below average temperatures are expected in the Mid-Atlantic and Northeast states (11/22) and in Wyoming, and Colorado (11/24). Heavy rains are expected across most of the Southeast states (11/22-23). Severe weather is expected in southeast Texas (11/22). Significant waves are also forecast for the Washington coast (11/23). Flooding is likely along the Great Lakes in New York, Pennsylvania, Ohio, Illinois, and Michigan.

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



### [National Drought Summary for November 18, 2014](#)

Prepared by the Drought Monitor Author: Eric Luebehusen, U.S. Department of Agriculture.

#### Summary

“Bitter cold along with some snow settled over the central U.S., affording little — if any — drought relief. Farther east, soaking rainfall eased drought conditions in the Southeast, while highly variable rainfall in the Mid-Atlantic and Northeast mostly prevented expansion of abnormal dryness. Out west, most of the region’s core drought areas remained dry, though locally heavy rain and mountain snow were observed in parts of the Northwest. A shallow to moderate snow cover encompassed more than 50 percent of the contiguous U.S. at the end of the period, establishing a new benchmark for the date.

#### Alaska, Hawaii, and Puerto Rico

There were no changes made to the drought depiction in Alaska and Puerto Rico this week, and only a minor change on Hawaii. In Alaska, unseasonably warm weather (10°F or more above normal) was in sharp contrast to the bitter cold in the contiguous U.S., with precipitation (locally more than an inch) confined to southern-most portions of the state. In Hawaii, showers tallied 1.3 inches over the Moderate Drought (D1) of Molokai, but were not heavy enough to warrant drought reduction. In contrast, additional assessment from the field noted some improvement – albeit minor – in Abnormal Dryness (D0) on the Big Island. In Puerto Rico, the heaviest rain (greater than 2 inches) fell west of the island’s remaining D0, where streamflows still remain below the 20th percentile.

#### Central Plains

Despite a mostly dry week, the drought depiction over the central Plains remained unchanged due to bitter cold. A historically cold air mass settled over the region, with temperatures averaging 20°F or more below normal. Long-term drought remained entrenched over the central High Plains, where precipitation dating back 36 months has tallied 60 to 75 percent of normal.

#### Delta and Southeast

Locally heavy rainfall led to reductions in drought coverage and intensity in the south, while mostly dry but cool weather resulted in little, if any, change elsewhere. From central Mississippi into central and northern Georgia, a strong cold front generated 2 to 4 inches of rain (locally more), easing or eradicating Abnormal Dryness (D0) to Severe Drought (D2). Despite the rain, streamflows in the remaining D0 and D1 areas remained below the 30th percentile, and were locally below the 10th percentile in southern Georgia, where D1 and D2 persist. Farther north and east, rain generally bypassed the eastern half of the Carolinas, with some increases in D0 and Moderate Drought (D1) noted where streamflows were historically low. The D1 area south of Augusta, Georgia has reported 30 to 50 percent of normal rainfall over the past 90 days, and streamflows have dropped below the 20th percentile. Likewise, D0 expanded across central and

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southwestern Arkansas, where rainfall of 50 to 75 percent of normal over the past 60 days has caused soil moisture and streamflows to decline.

### Mid-Atlantic and Northeast

Cool, showery weather was mostly sufficient to prevent widespread expansion of Abnormal Dryness (D0) in the region, with rainfall amounts averaging a half inch to locally more than one inch from central Virginia into New England. However, D0 was expanded to include central Pennsylvania and southern New York, where amounts were less than 0.5 inch and 90-day precipitation was 50 to 75 percent of normal. Despite the cool weather, streamflows across much of central Pennsylvania and southern New York have dropped below the 20th percentile, indicative of the gradually increasing dryness impacts. The rainfall across the remainder of the Mid-Atlantic and Northeast prevented a more widespread increase in Abnormal Dryness and Moderate Drought (D1), as the region copes with pronounced precipitation shortages dating back over the past 3 months.

### Midwest

Bitter cold along with some shallow to moderate snow cover resulted in no change to the drought depiction during the monitoring period. Temperatures averaged 10 to 20°F below normal in eastern portions of the region, and locally more than 25°F below normal in western portions of the Midwest. Parts of the Upper Midwest, particularly from the eastern Dakotas into Minnesota, are still contending with significant short-term dryness, with precipitation over the past 90 days totaling a meager 40 to 70 percent of normal, resulting in unfavorably low soil moisture for winter crops.

### Ohio and Tennessee Valleys

There were no changes the drought designation as increasingly cold weather along with a shallow to moderate snow cover developed over much of the area. Precipitation — in the form of rain and snow — was heaviest in southern and eastern portions of the region, where amounts during the period totaled more than an inch (liquid equivalent). However, dryness concerns persist in central and eastern Ohio, where 90-day precipitation has averaged 50 to 75 percent of normal

### Southern Plains and Texas

Bitter cold — albeit dry — weather resulted in no change to the drought depiction except along the Texas Gulf Coast. Temperatures averaged 15 to 25°F below normal for the week, with some shallow snow noted over northern portions of the region at the end of the monitoring period. Despite the frigid, mostly dry conditions, some Abnormal Dryness (D0) was reduced along the southeastern coast of Texas where rainfall totaled locally more than 2 inches. Short-term drought remained most intense (Exceptional Drought – D4) along the Texas-Oklahoma border west of Wichita Falls, where 90-day precipitation has totaled less than 50 percent of normal. In contrast, many of the long-term drought areas (“L” designation) from Texas into Colorado have received above-normal precipitation over the past 90 days, but are still wrestling with the impacts of longer-term deficits (60-80 percent of normal over the past three years).

### Western U.S.

Variable conditions in the north contrasted with ongoing drought elsewhere. In addition, Santa Ana winds developed in California, exacerbating drought and enhancing the risk for wildfires. The current Water Year has been largely a disappointment in central and southern portions of the region, but has gotten off to a good start in the Northwest.

In northern portions of the region, a steady plume of Pacific moisture helped produce 1 to more than 4 inches (liquid equivalent) of precipitation in the Cascade Range, providing localized relief from Abnormal Dryness (D0) to Severe Drought (D2) in southwestern Oregon. Despite the beneficial moisture, the drought areas of southwestern Oregon are still contending with the impacts of last season's poor end to the Water Year; 12-month precipitation averaged 60 to 85 percent of normal in the state's remaining drought areas despite this week's higher totals. In contrast to the localized Northwestern improvements, D0 was increased northward in Idaho and far northwestern Montana, where 60-day precipitation has tallied locally less than 60 percent of normal

Farther south, the 2014-15 Water Year has afforded little — if any — drought relief to California. Despite some light to moderate precipitation (0.2 to 1 inch, liquid equivalent) during the period across central and northern California, the totals still fell short of normal and did nothing to offset the impacts of the ongoing three-year drought. The current Water Year (which began October 1) has gotten off to an abysmal start;

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rainfall to-date (since October 1) has totaled 10 to 35 percent of normal in the Exceptional Drought (D4) areas around San Francisco, and locally less than 20 percent of normal in the D4 around Los Angeles. Likewise, the dry, mostly mild start to the winter has left snowpacks in the Sierra Nevada well short of normal. The dryness has been exacerbated by Santa Ana winds, which gusted over 40 m.p.h. in southern California.

In the Great Basin and Four Corners, there were no changes to this week's drought depiction despite the very poor start to the current Water Year, particularly in western portions of the region. The season's poor initial prospects are reflected by season-to-date (since October 1) precipitation, which has totaled locally less than 10 percent of normal in the Great Basin and western portions of the central and southern Rockies, with most areas reporting less than 30 percent of normal. Changes to the drought depiction across much of the west are typically slow to occur during the early part of winter, as the development of the Water Year will be crucial to the region's drought relief (or development) prospects.

### Looking Ahead

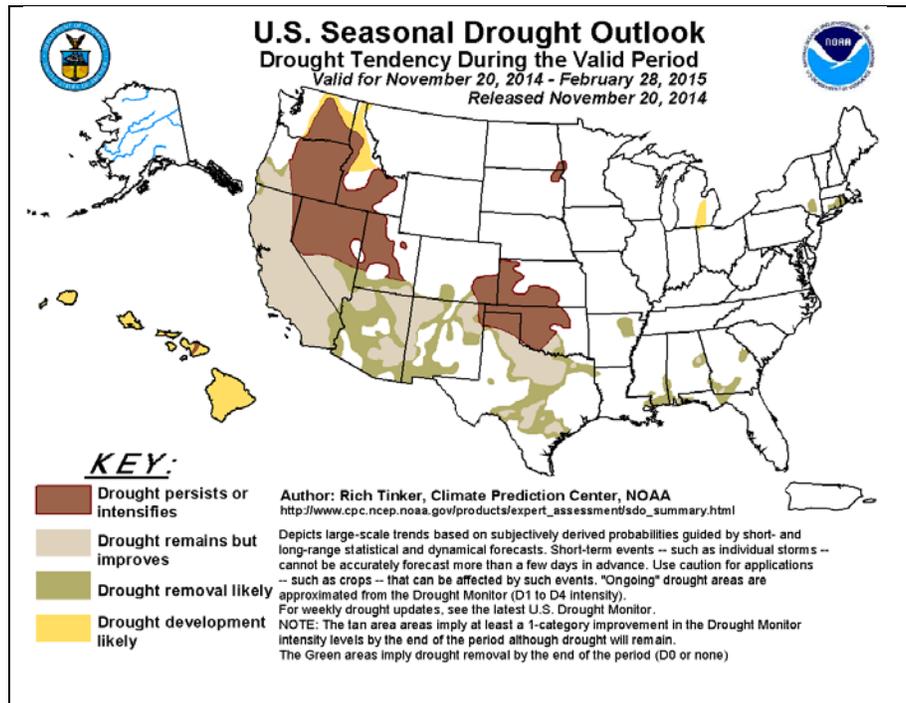
Milder weather will gradually develop over much of the nation, with precipitation chances greatest east of the Plains and in the Northwest. Following bitter cold early in the period, intensifying southerly flow will allow above-normal temperatures to develop across much of the nation. The moist, warm flow from the Gulf will set the stage for locally heavy rain from the southeastern plains and Mississippi Valley to the Appalachians. Meanwhile, an additional influx of Pacific moisture will produce locally heavy rain and mountain snow in the Northwest, with some moisture expected to spread into the northwestern quarter of California. However, the southern Rockies will remain mostly dry. The NWS 6-10 day outlook for November 25 – 29 calls for below-normal temperatures across much of the U.S., with warmer-than-normal weather confined to New England and west of the Rockies. Meanwhile, below-normal precipitation from California to the central and southern Plains and Delta will contrast with wetter-than-normal conditions along the East Coast and across the nation's northern tier."

## Supplemental Drought Information

### National Seasonal Drought Outlook

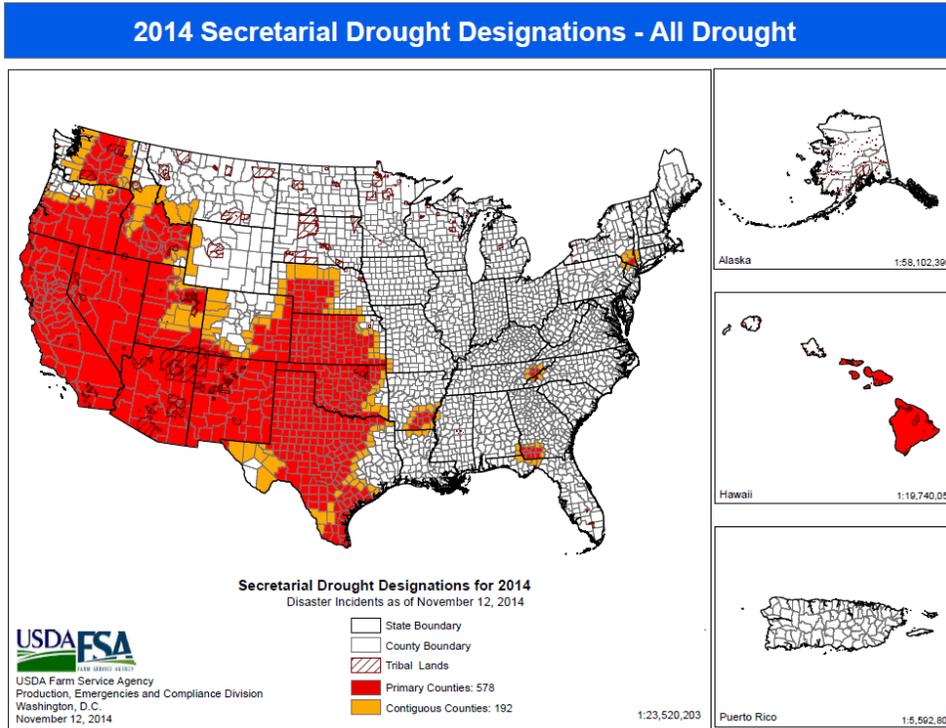
Nationally, [drought](#) is expected to persist or intensify over much of the West and south-central U.S., including Nevada, Oregon, Washington, Idaho, Utah, Texas, Oklahoma, Nebraska and Colorado. Improvements are expected in California and in parts of the Southwest and Texas. Some areas of drought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



# Weekly Water and Climate Update

## 2014 USDA Secretarial Drought Designations

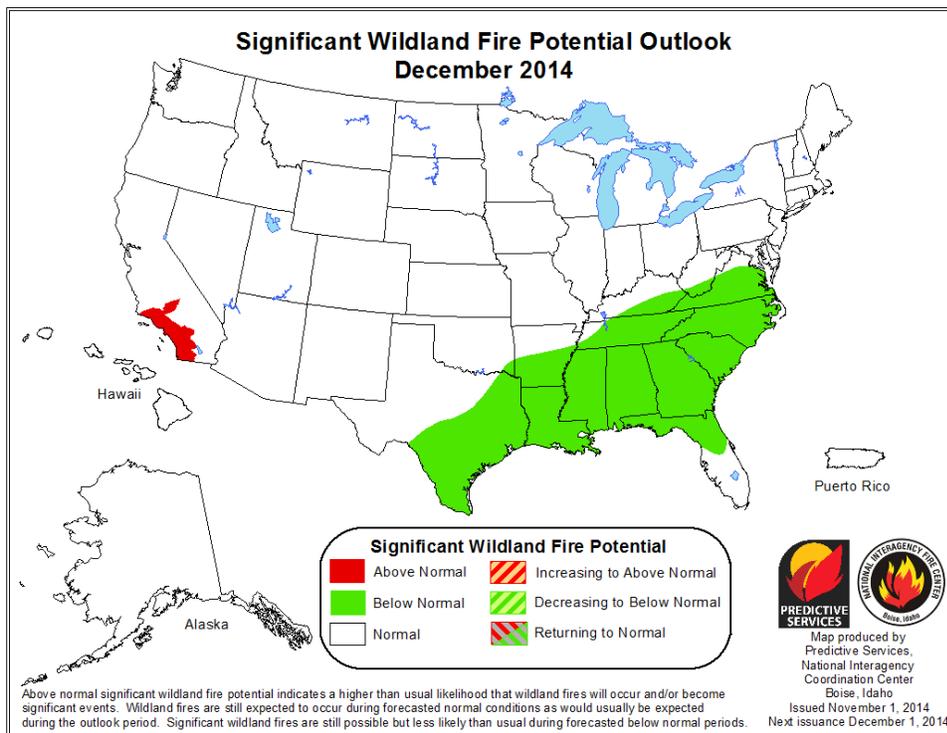


Refer to the USDA Drought Assistance [website](#) and [National Sustainable Agriculture Information Service](#).

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

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

## National Fire Potential Outlook



### December Fire Forecast

In December, above normal [fire potential](#) will persist in parts of southern California.

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

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### 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.

The following is a collection of drought-related news stories from the past seven days or so. Impact information from these articles is entered into the [Drought Impact Reporter](#). A number of these articles will also be 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' Association meeting

"The Western Governors' Association met with the goal of devising the best ways of coping with the epic drought parching the western U.S. for the past three years. Discussions included managing drought's effects on agriculture.

#### DM authors met with California ag community

U.S. Drought Monitor authors attended a seminar at the University of California in Davis on Nov. 7 to explain to California growers how the drought map comes together each week. People were also invited to share drought impact information to provide a more accurate picture of drought conditions statewide for the DM and the Drought Impact Reporter.

#### 784 dry domestic wells in Tulare County, California

Some domestic wells in Tulare County have been dry for as long as one year. The Tulare County Office of Emergency is aware of 784 dry wells in the county and is working out how best to help. Portable showers will be set up within two weeks.

The county would like funds from the recently passed water bond to pay for long-term projects, but those may not reach completion for three to five years.

#### Contaminated wells near Lake Tahoe, California

Three wells in South Lake Tahoe were found to have high levels of a carcinogen, PCBE, often associated with dry cleaning, as drought causes groundwater levels to fall, concentrating contaminants in the remaining water. The PCBE concentration was nine times the allowable level in two wells.

A well near Stateline was contaminated with MTBE from a gas station. The gas station owner has to buy bottled water for a motel that depends on the well.

#### Heat and drought contributing to poor air quality in California

Air pollution in California has been worse this past year, due to heat and extreme drought. The drought has led to more temperature inversions, holding pollution near the ground. Last winter, the San Joaquin Valley Air Pollution Control District saw the worst air pollution in more than 10 years. During the first week of November 2014, air quality took a dive.

#### Water thefts becoming more common in California

Water thefts are becoming more common in the Bay Area and from urban suppliers in California. Some water rustlers fill up at water hydrants during the night, while others are bolder and take water in broad daylight. A number of cities including Lemoore, Modesto, Los Gatos, Dublin, San Ramon, and others have recently dealt with such thefts.

#### California mandarins, oranges

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Mandarins in Placer County have ripened earlier during drought. In 2013, harvest began during the first week of November, the earliest harvest ever. This year, harvest began two weeks earlier in mid- to late October. On the bright side, the mandarins are sweeter than usual, but they are also a bit smaller.

California oranges were unevenly sized, due to drought and insufficient water. Survey data showed that fruit had an average circumference of 2.205 inches, compared to the five-year average of 2.256 inches.

### **More waterfowl than usual at Staten Island in the San Joaquin Delta in California**

About twice as many sandhill cranes as usual have come to winter on Staten Island in the Sacramento-San Joaquin Delta. A much larger population of greater white fronted geese has also arrived. A conservation scientist with The Nature Conservancy and other scientists were unsure of the exact reason for the change, but think that drought and a shift in cultivated crops are responsible for the vast number of birds showing up on the island.

### **Salton Sea in southern California shrinking**

Drought and less water from the Colorado River are combining to allow the salty Salton Sea to slowly shrink. Less shallow water and fewer fish leave the migrating pelicans and grebes hungry. As more of the lakebed is exposed, more dust blows and affects children's respiratory systems. The highest childhood asthma rates in the state are near the Salton Sea.

### **Water conservation in eastern Pennsylvania**

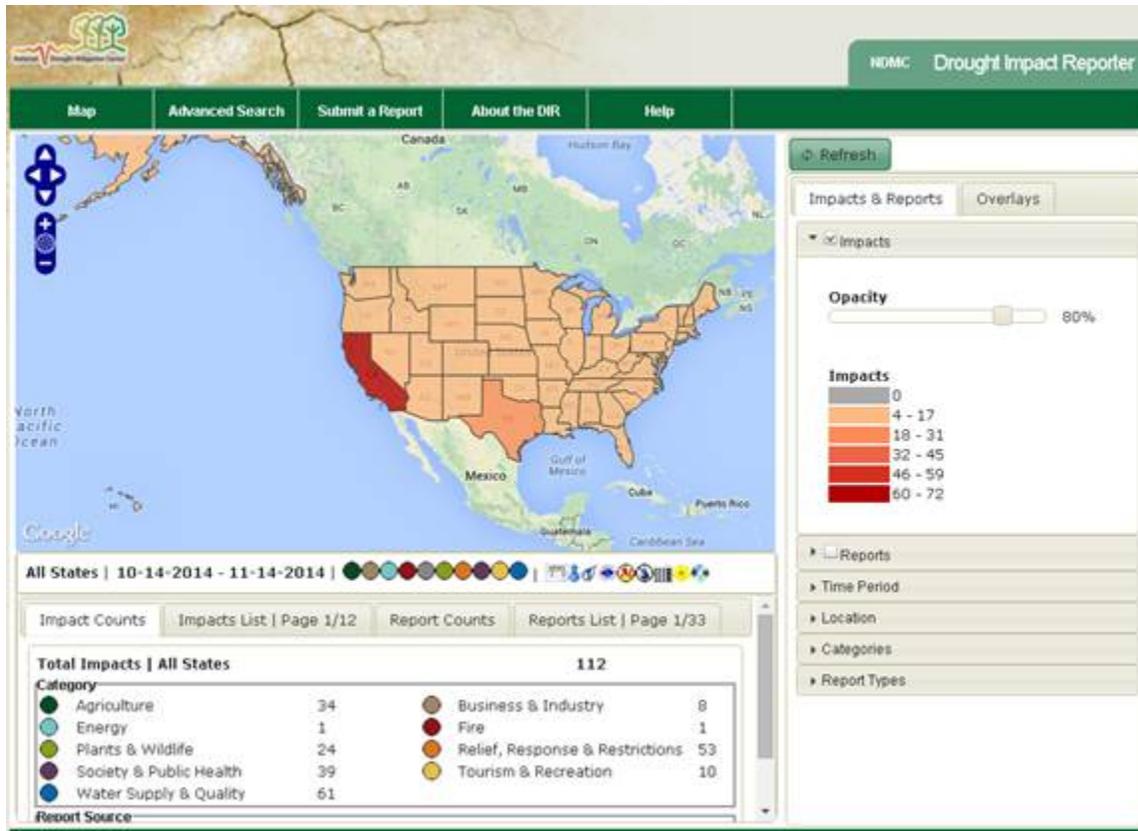
Pennsylvania American Water has asked its customers in the Nazareth service area to voluntarily conserve water due to below normal rainfall for several months.

Los Angeles Waterkeeper has a "[Go Dirty for the Drought](#)" campaign to conserve water by not washing cars.



The [Drought Impact Reporter](#) always looks the same with California and Texas in drought. It's a function of population and area that explains the media attention to those states."

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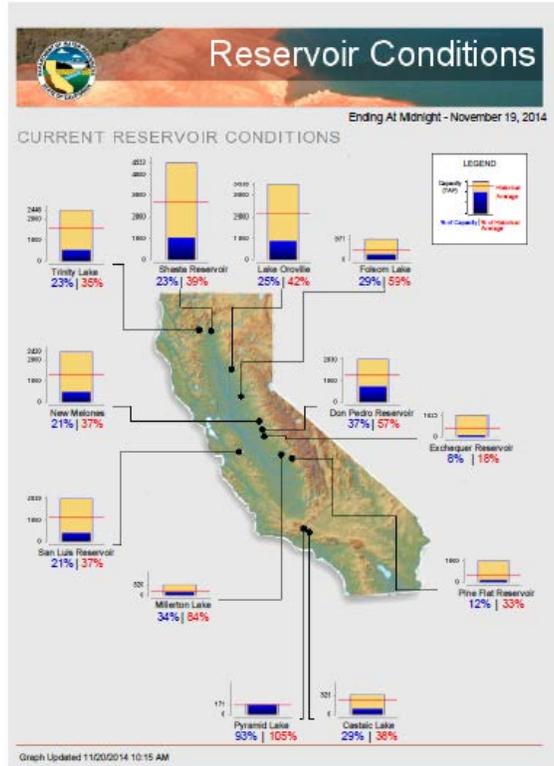
### Tea Cup Reservoir Depictions

- <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)

# Weekly Water and Climate Update

## California Reservoir Conditions

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



### CA Reservoir NEWS: [California drought not likely to end this winter, experts say](#) – Nov 13

San Jose Mercury News (Calif.)

Nov 13, **California**. The last three years have been the driest in California's recorded history, and one wet winter, even if it's a whopper, will not end the drought. Officials urge Californians to keep conserving even after the winter storms start rolling through.

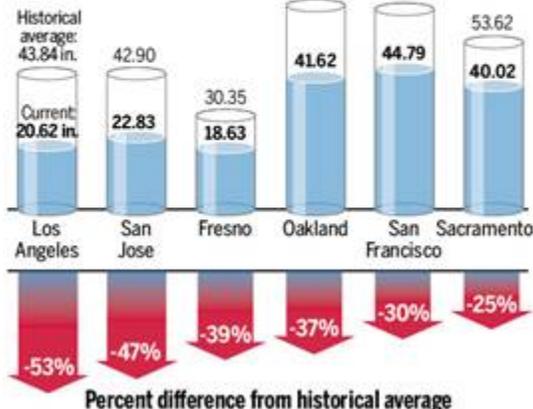
### Graphics from the Bay Area News Group:

#### A long way to go

Despite recent rains, California is so far behind after three record dry years that it's highly unlikely the drought will end this winter.

#### Three-year rainfall totals

June 2011-June 2014



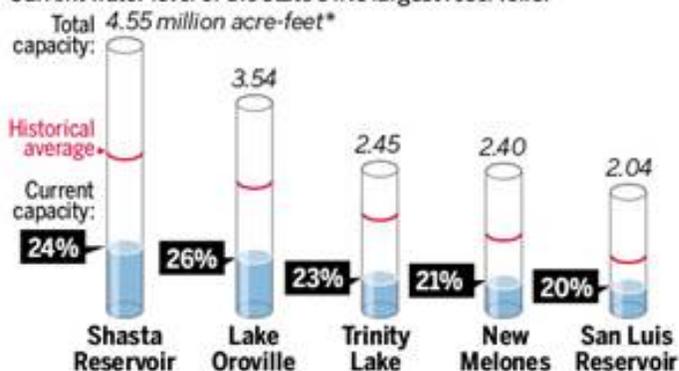
Source: Golden Gate Weather Services

BAY AREA NEWS GROUP

## Weekly Water and Climate Update

### Low reservoirs

Current water level of the state's five largest reservoirs:



\*One acre-foot is approximately 325,851 gallons, or about the amount of water a family of five uses in one year. Figures as of Nov. 12.  
Source: California Department of Water Resources   BAY AREA NEWS GROUP

### 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