

<b>NWS Form E-5</b> U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE  <b>MONTHLY REPORT OF HYDROLOGIC CONDITIONS</b>	<b>HYDROLOGIC SERVICE AREA:</b> Pocatello, Idaho
	<b>REPORT FOR:</b>  <b>MONTH:</b> September <b>YEAR:</b> 2014
<b>TO:</b> Hydrologic Operations Division, W/OH2 National Weather Service National Oceanic and Atmospheric Administration Silver Spring, Maryland 20910	<b>SIGNATURE</b>  Corey Loveland Service Hydrologist
<b>DATE:</b> October 10, 2014	
When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts and hydrologic products issued (NWS Instruction 10-924).	



An X in this box indicates that no flooding has occurred for the month within this hydrologic service area.

### Overview:

For September, we had three large scale precipitation events; two significant hail events early and mid-month and then at the end of the month we received a large wide-scale rain event. Some flash flooding occurred in low lying areas, but no major structure damage was reported. On October 1<sup>st</sup>, the USDA declared eight primary counties within our Hydrologic Service Area (HSA) and a number of adjacent secondary counties across the rest of Idaho for disaster declaration as a result of the flooding/hail events from July 25<sup>th</sup> to September 1<sup>st</sup>. The counties affected were: Bingham, Bonneville, Clark, Minidoka, Blaine, Cassia, Jefferson and Power. Farmers in these and 16 other counties in Idaho and Wyoming qualify for low-interest emergency loans from the Farm Service Agency. With the rain during the summer it was reported that in Fremont county, about 60% of the barley crop was devastated and what could be sold could only get cattle feed rates.

Last month brought widespread rainfall (150 to 600% of normal) across southern Idaho with the largest amounts in Blaine, Butte and Custer counties. With the summer rainfall, most of the HSA is near normal with Bannock and parts of Power counties well above normal for the year to date with most mountainous areas near to above normal according to AHPS data. AHPS water year-to-date precipitation ranks most of Bannock, Power, eastern Bonneville and Bear Lake counties receiving well above normal amounts with the remainder of the area capturing 50 to 90% of normal. Two daily maximum rainfall records were set for September 28<sup>th</sup>, Idaho Falls received 0.88 inch (record was 0.79 inch in 1965) and Stanley gained 0.70 inch (record was 0.06 inch in 2013).

It was a mixed bag for the precipitation deficit for eastern Idaho for the 2014 water-year, with most of the Snake River plain near normal; Bannock, Bear Lake and parts of Power and Bonneville counties were well above normal (over 5 inches) and the central mountains and the Idaho side of the Continental Divide being five to seven inches in deficit.

September brought an average of around two to four inches of precipitation within the mid to higher elevations in the HSA according to AHPS data. The temperature departure from normal for September shows that across the HSA, temperatures were mostly 1 to 6 degrees F above normal with the upper Snake River plain in the 3-6 degrees above normal range.

For the month, only one Flash Flood Watch was issued on the 28th over Blaine county and the central mountains. No flooding or debris flows were reported over the Beaver Creek fire burn scar area as a result of that event.

As far as the short term 8-14 day Climate Prediction Center Outlook is concerned, the forecast is for well above normal temperatures across the whole intermountain west with more than a 60% chance. For the three-month outlook, we stand to have a 33 to 40% chance of above normal temperatures in eastern Idaho. For precipitation, the short-term forecast is for near to 33% chance of below normal for eastern Idaho and near normal for the three-month outlook.

Of the data available for the month, the station within the HSA reaching the highest 24-hour temperature (non-SNOTEL) were the Massacre Rocks S.P. COOP and Raft River RAWS station which reached 95°F on the 18<sup>th</sup> and 17<sup>th</sup> respectively. The station with the lowest recorded temperature was the Copper Basin RAWS station at 7°F on September 12<sup>th</sup>. The highest recorded 24-hr precipitation (non-SNOTEL) occurred at the Idaho Falls 16 SE COOP where 1.80 inch fell on the 28<sup>th</sup>. The highest recorded precipitation total (non-SNOTEL) occurred at the Grace WBAN where 3.85 total inches was recorded. The Sedgwick Peak SNOTEL station received 5.20 inches of precipitation total for the month. The CoCoRaHS station reporting the highest total precipitation accumulation was 3.39 inches at the Soda Springs 0.3W station with 16 stations recording over an inch for the month.

Reservoirs last month decreased capacity overall by around 7% in the upper Snake River basin system (a decrease of about 286 KAF occurred over the month and is currently sitting at 42% of capacity overall). Compared to last year at this time, it was about 11% of capacity. Water storage varies across eastern Idaho; according to NRCS reservoir data, the most notable decreases last month were Lake Walcott and Grassy Lake dropping 43 and 20 percent capacity respectively. Henrys Lake gained 18% of capacity last month.

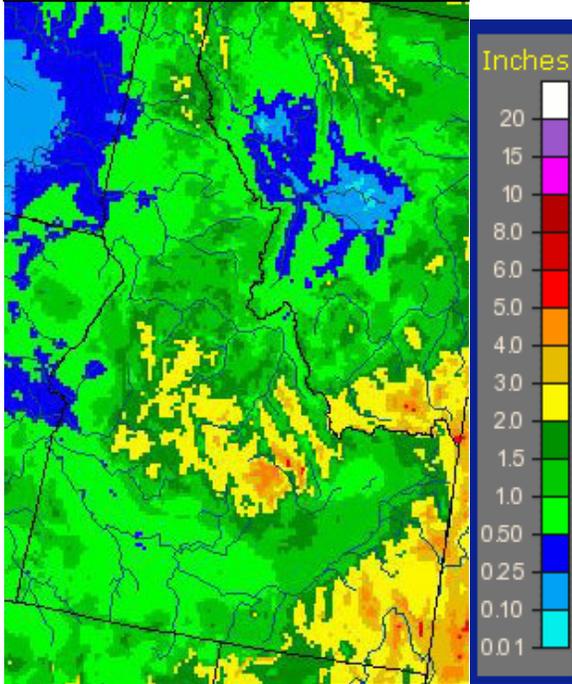
Current streamflow conditions in eastern Idaho are mostly near to above normal for monthly streamflows for the majority of the unregulated streams (see graphic below).

Drought conditions across eastern Idaho have remained the same since last month. The U.S. Seasonal Drought Outlook continues to forecast drought to persist/intensify across the central mountains and most of the Snake River plain where the extreme eastern Idaho and southeast counties are excluded from the outlook.

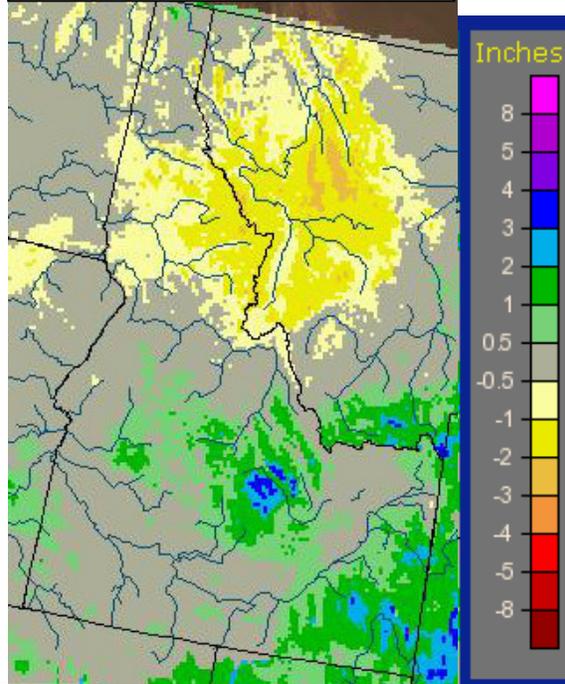
The Idaho NRCS Snow Survey October 1<sup>st</sup> Idaho Surface Water Supply Index (SWSI) was not available for the month.

**Precipitation:**

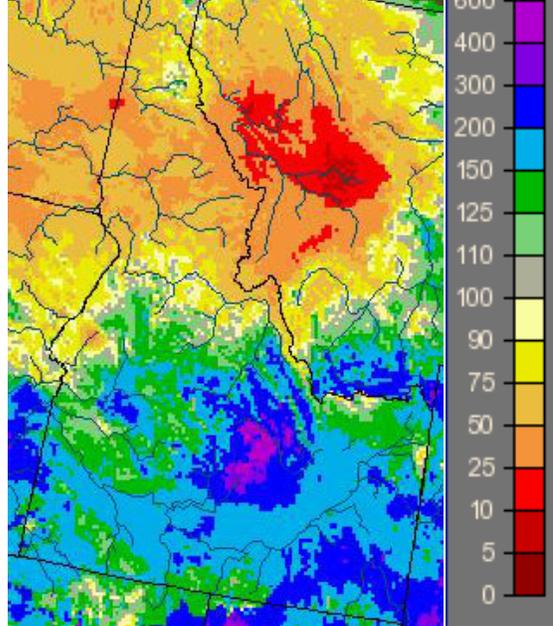
September 2014, Observed Precipitation



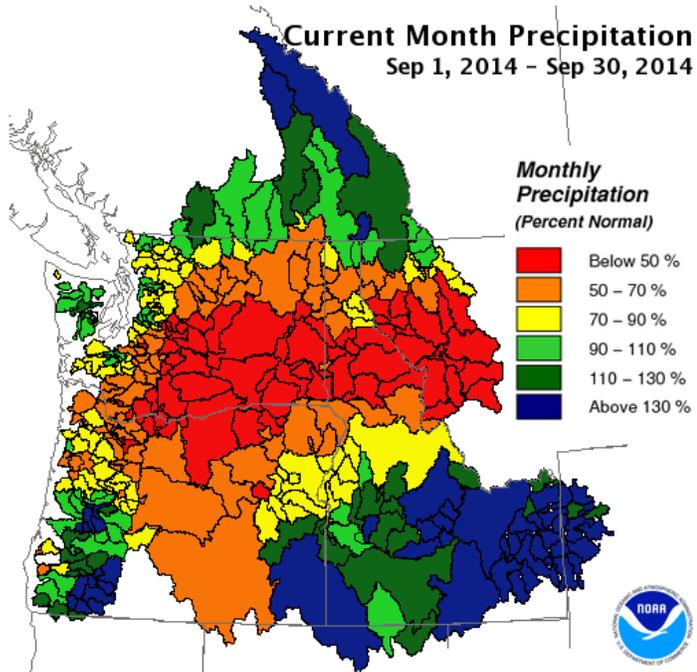
September 2014, Departure from Normal Precipitation



September 2014, Percent of Normal Precipitation

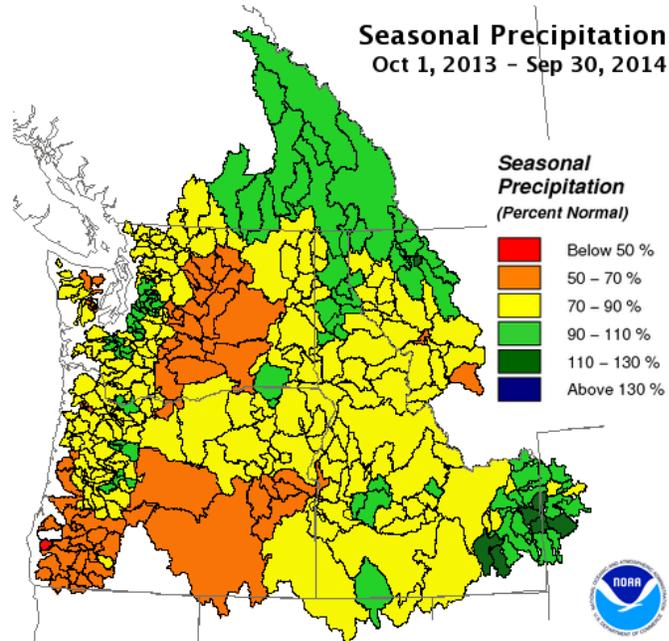


[water.weather.gov/precip/index.php](http://water.weather.gov/precip/index.php)



Creation Time: Wednesday, Oct 1, 2014 Northwest River Forecast Center

[nwrfc.noaa.gov/WAT\\_RES\\_wy\\_summary/20141001/CurMonMAP\\_2015Sep30\\_2014100116.png](http://nwrfc.noaa.gov/WAT_RES_wy_summary/20141001/CurMonMAP_2015Sep30_2014100116.png)



Creation Time: Wednesday, Oct 1, 2014 Northwest River Forecast Center

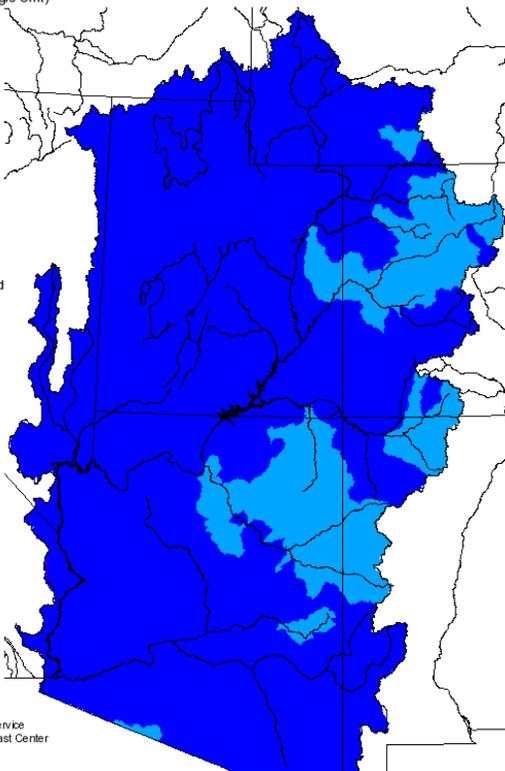
[nwrfc.noaa.gov/WAT\\_RES\\_wy\\_summary/20141001/SeasonalMAP\\_2014Sep30\\_2014100116.png](http://nwrfc.noaa.gov/WAT_RES_wy_summary/20141001/SeasonalMAP_2014Sep30_2014100116.png)

### Monthly Precipitation for September 2014

(Averaged by Hydrologic Unit)

#### % Average

- > 150%
- 129 - 150%
- 110 - 129%
- 100 - 109%
- 90 - 99%
- 70 - 89%
- 50 - 69%
- < 50%
- Not Reported



Prepared by  
NOAA, National Weather Service  
Colorado Basin River Forecast Center  
Salt Lake City, Utah  
[www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)

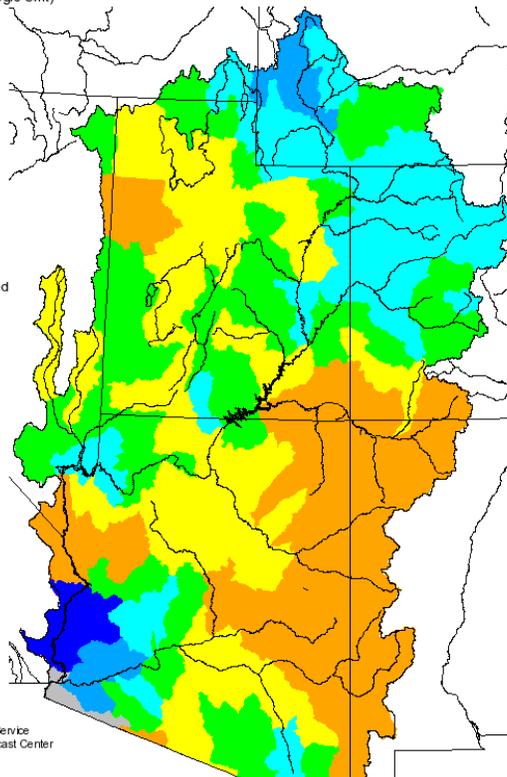
[cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?M?2014?09](http://cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?M?2014?09)

### Seasonal Precipitation, October 2013 - September 2014

(Averaged by Hydrologic Unit)

#### % Average

- > 150%
- 129 - 150%
- 110 - 129%
- 100 - 109%
- 90 - 99%
- 70 - 89%
- 50 - 69%
- < 50%
- Not Reported



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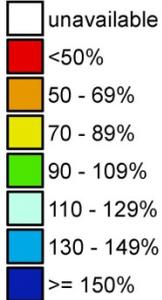
[cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?S?2014?09](http://cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?S?2014?09)

New Water Year (2015):

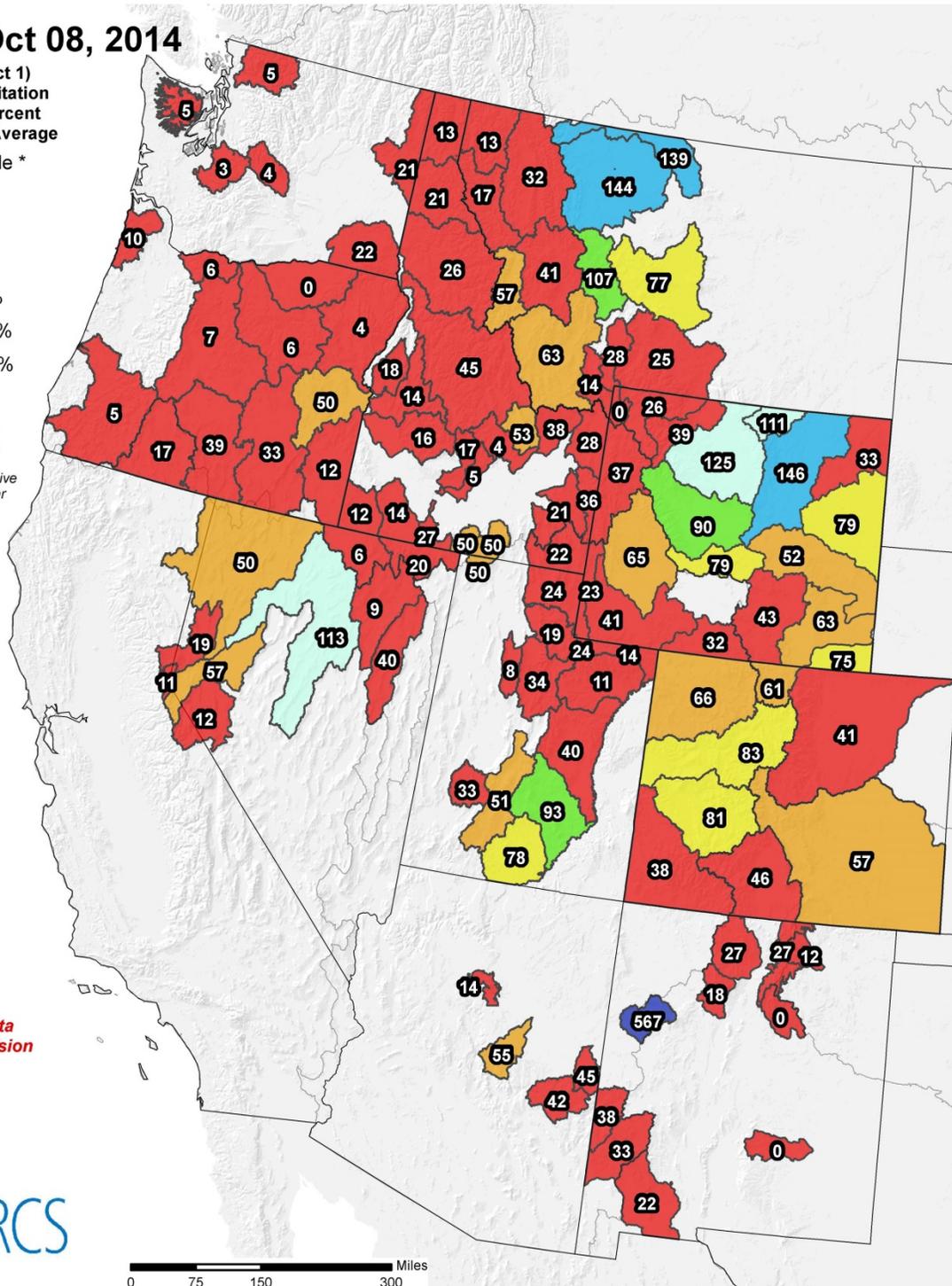
Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Oct 08, 2014

Water Year (Oct 1) to Date Precipitation Basin-wide Percent of 1981-2010 Average



\* Data unavailable at time of posting or measurement is not representative at this time of year



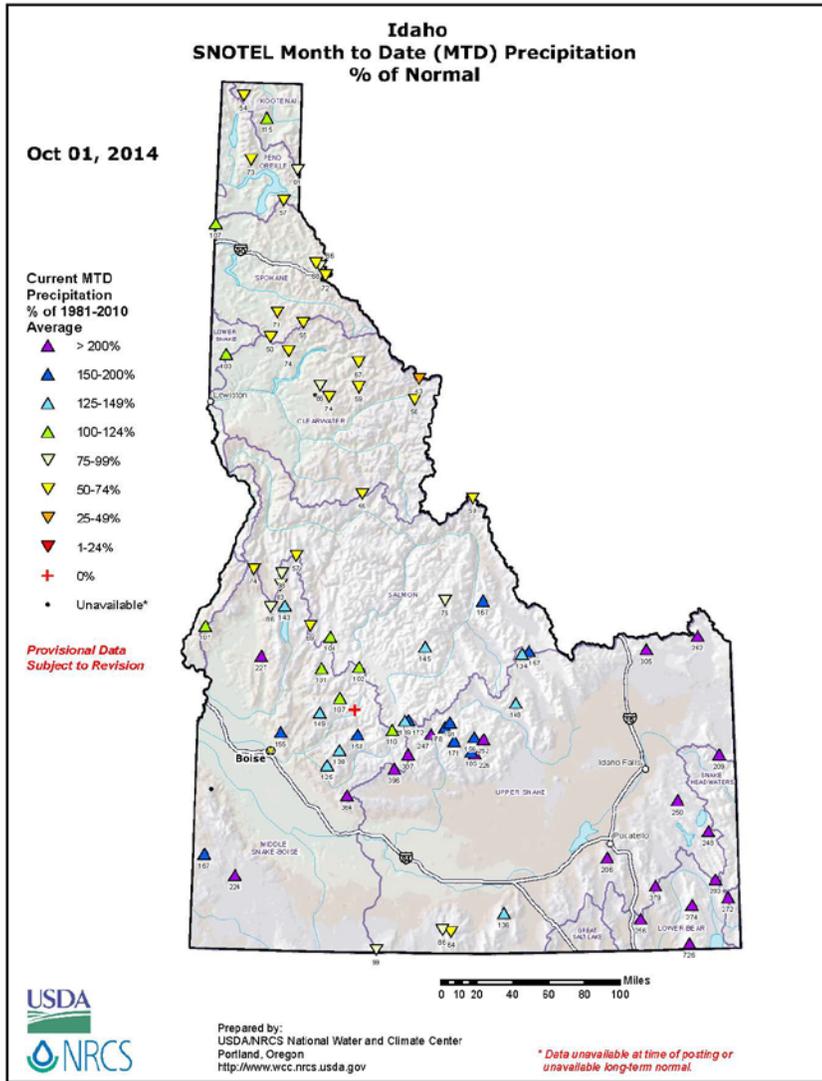
Provisional data subject to revision



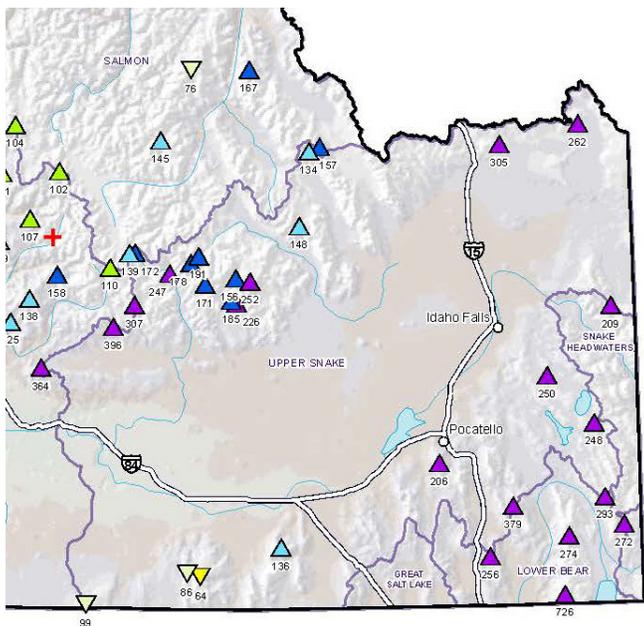
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by:  
USDA/NRCS National Water and Climate Center  
Portland, Oregon  
<http://www.wcc.nrcs.usda.gov>

[wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west\\_wytdprecpcnormal\\_update.pdf](http://wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_wytdprecpcnormal_update.pdf)



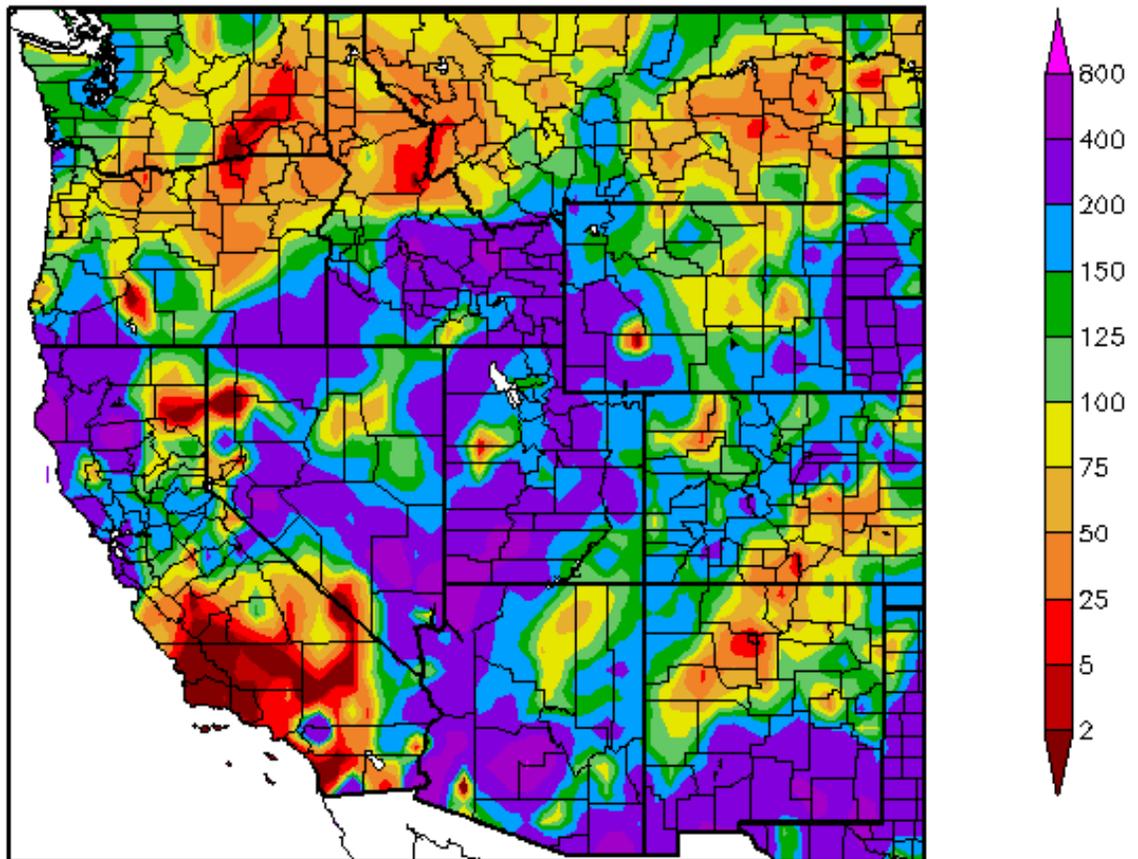
[ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/1stmonth/id/prec/id\\_mtdprecptnormal\\_Oct.pdf](ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/1stmonth/id/prec/id_mtdprecptnormal_Oct.pdf)



**SNOTEL MTD % of Normal  
Precipitation for end of September 2014  
(image is cropped from above image)**

September had a very similar precipitation pattern with August where above normal precipitation fell across south and eastern Idaho. This wet pattern is not normal for this part of the year which was over 200 percent of Normal for the month across eastern Idaho. The “driest” counties were Cassia, southern Minidoka and Power counties with most of Cassia county at roughly just below to near normal for rainfall. The wettest county was Butte county with over 400 percent of Normal. Most of the intermountain West received well above normal rainfall for the month including N. CA, S. AZ, S. NM and W. TX. The drier parts were the Pacific Northwest, MT, S. CA, and CO/NM areas.

## Percent of Normal Precipitation (%) 9/1/2014 – 9/30/2014



Generated 10/5/2014 at HPRCC using provisional data.

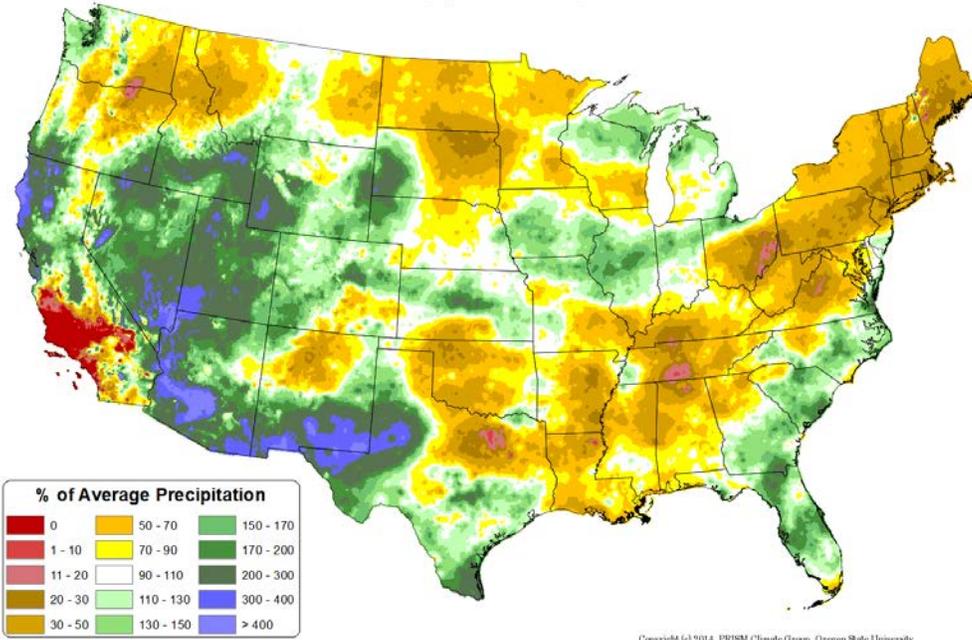
Regional Climate Centers

[hprcc.unl.edu/maps/current/index.php?action=update\\_type&map\\_type=](http://hprcc.unl.edu/maps/current/index.php?action=update_type&map_type=)

# September and August CONUS Precipitation Anomaly and Total Precipitation Comparisons:

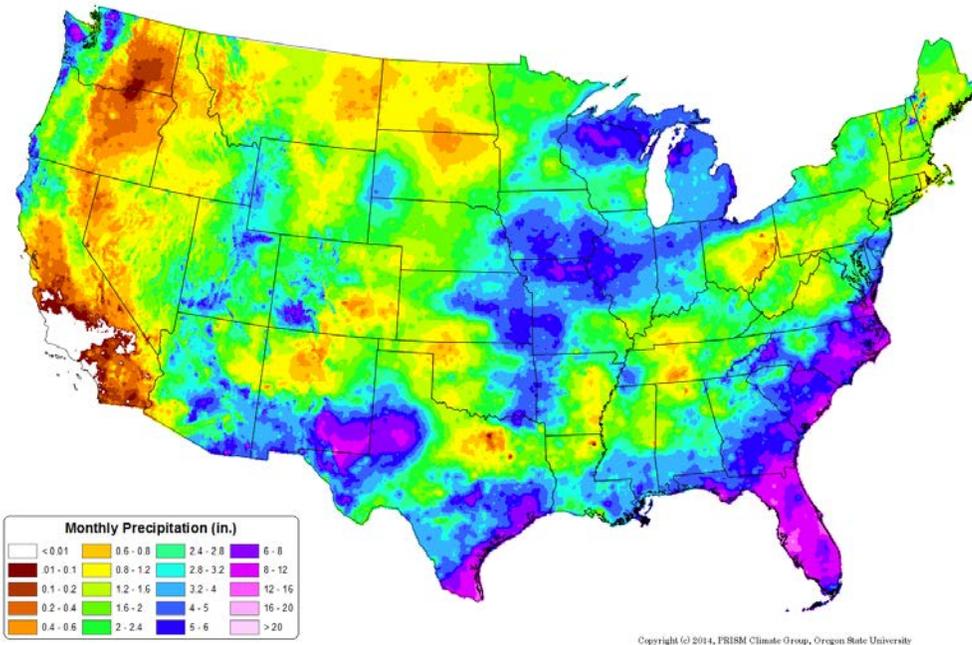
**Total Precipitation Anomaly: September 2014**

Period ending 30 Sep 2014  
Base period: 1981-2010  
(Map created 02 Oct 2014)



**Total Precipitation: September 2014**

Period ending 30 Sep 2014  
(Map created 02 Oct 2014)

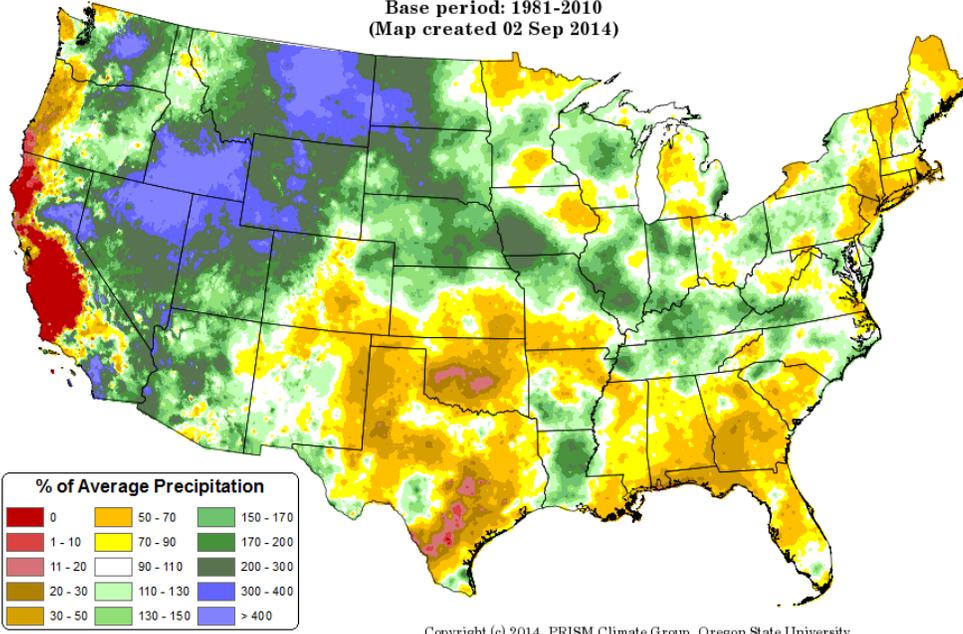


### Total Precipitation Anomaly: August 2014

Period ending 31 Aug 2014

Base period: 1981-2010

(Map created 02 Sep 2014)

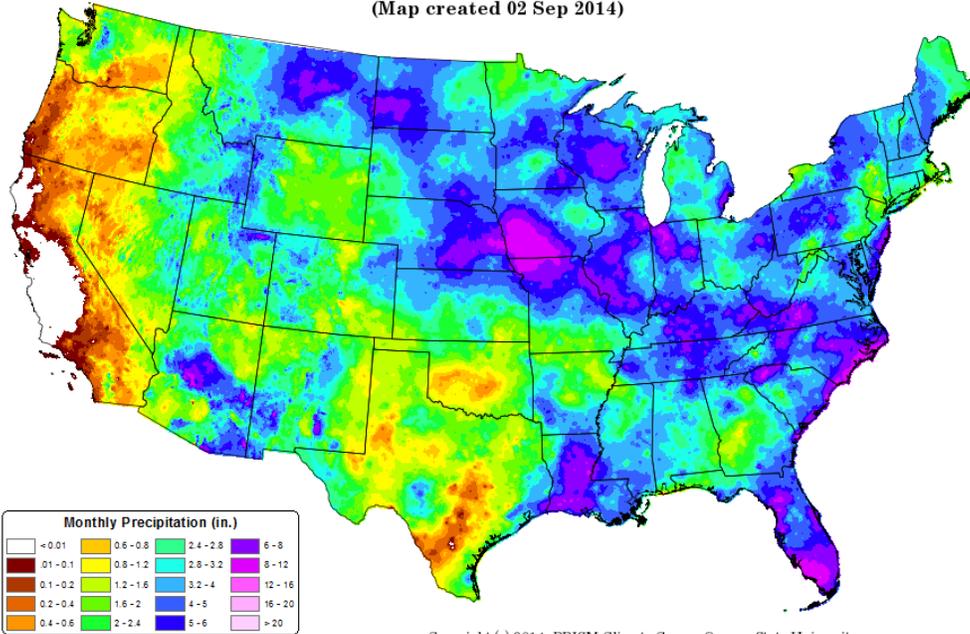


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### Total Precipitation: August 2014

Period ending 31 Aug 2014

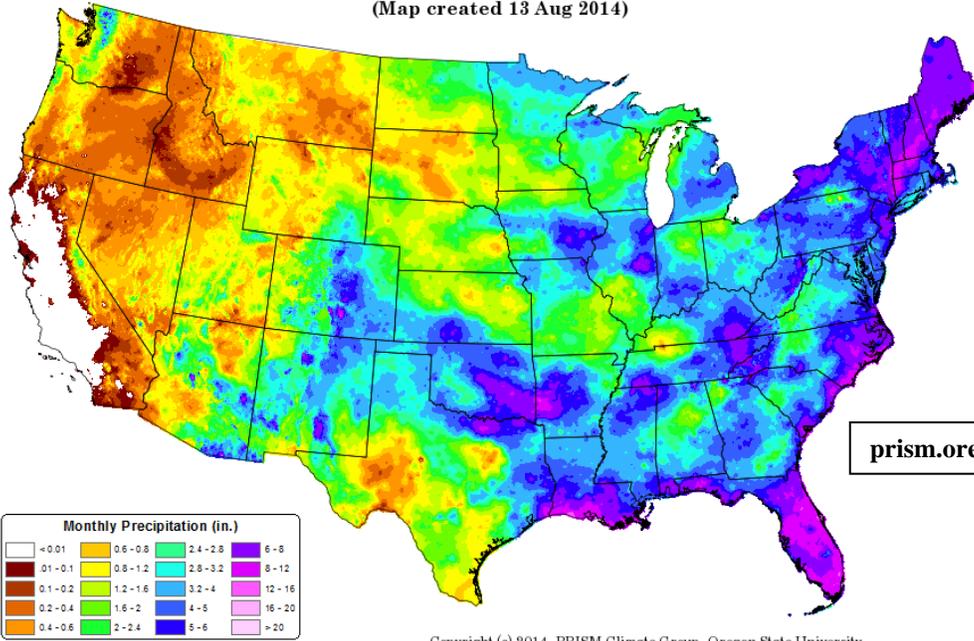
(Map created 02 Sep 2014)



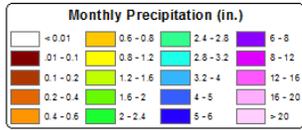
Copyright (c) 2014, PRISM Climate Group, Oregon State University

**July CONUS Total Precipitation for Comparison:**

**Total Precipitation: July 2014**  
 Period ending 31 Jul 2014  
 (Map created 13 Aug 2014)



[prism.oregonstate.edu/comparisons](http://prism.oregonstate.edu/comparisons)

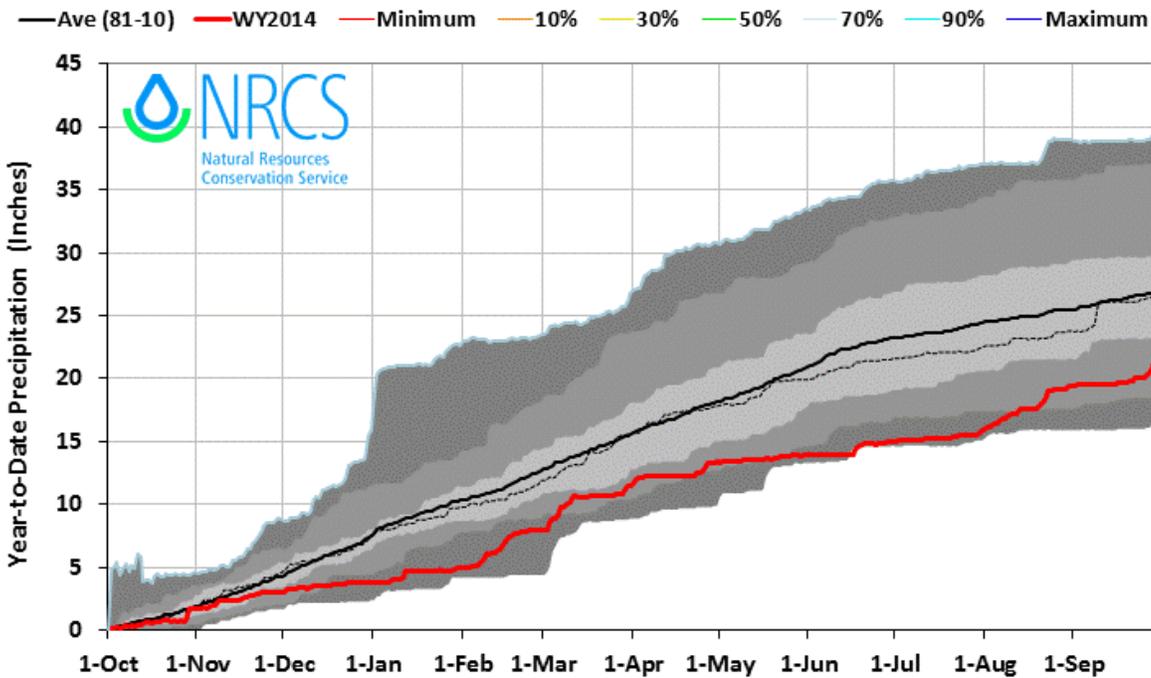


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**Big Lost Basin Final WY14 Precipitation Projection showing well under normal precipitation:**

**Big Lost Basin 2014 Precipitation with Non-Exceedence Projections (5 sites)**

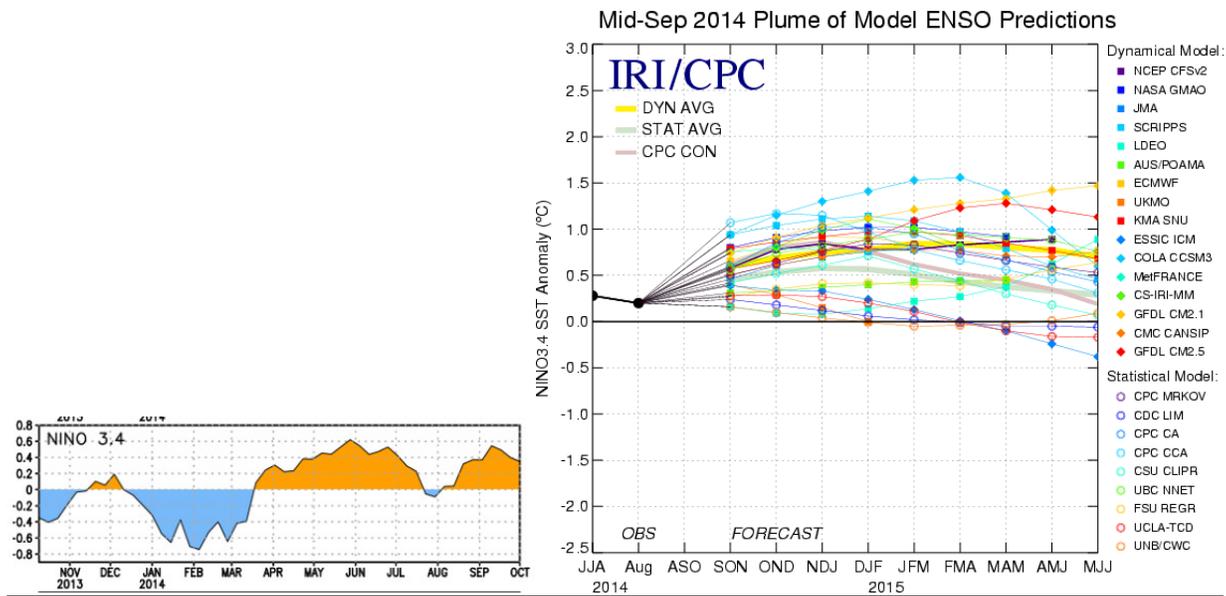
*Based on Provisional SNOTEL data as of Sep 30, 2014*



[nrcs.usda.gov/wps/portal/nrcs/detail/id/snow/?cid=stelprdb1241667](http://nrcs.usda.gov/wps/portal/nrcs/detail/id/snow/?cid=stelprdb1241667)

**ENSO Update:**

**Latest Observed SST Departure: Niño 3.4 ~ 0.3 Deg C**



[cpc.ncep.noaa.gov](http://cpc.ncep.noaa.gov), [iri.columbia.edu/climate/ENSO](http://iri.columbia.edu/climate/ENSO) and [cpc.ncep.noaa.gov/products/analysis\\_monitoring/enso\\_advisory/ensodisc.pdf](http://cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf)

**CPC Synopsis:** ENSO-Neutral conditions continue, an El Niño watch remains in effect with probabilities between 60%- 65% chance of an El Niño developing during the fall/earlywinter.

**Note:** The ENSO-Neutral climate pattern is forecast to continue in the Northern Hemisphere and transition to El Niño by fall/winter. Positive equatorial sea surface temperatures (SSTs) anomalies continue across most of the Pacific Ocean. MJO signal remains weak but with some strengthening and more coherent signal expected in a few weeks.

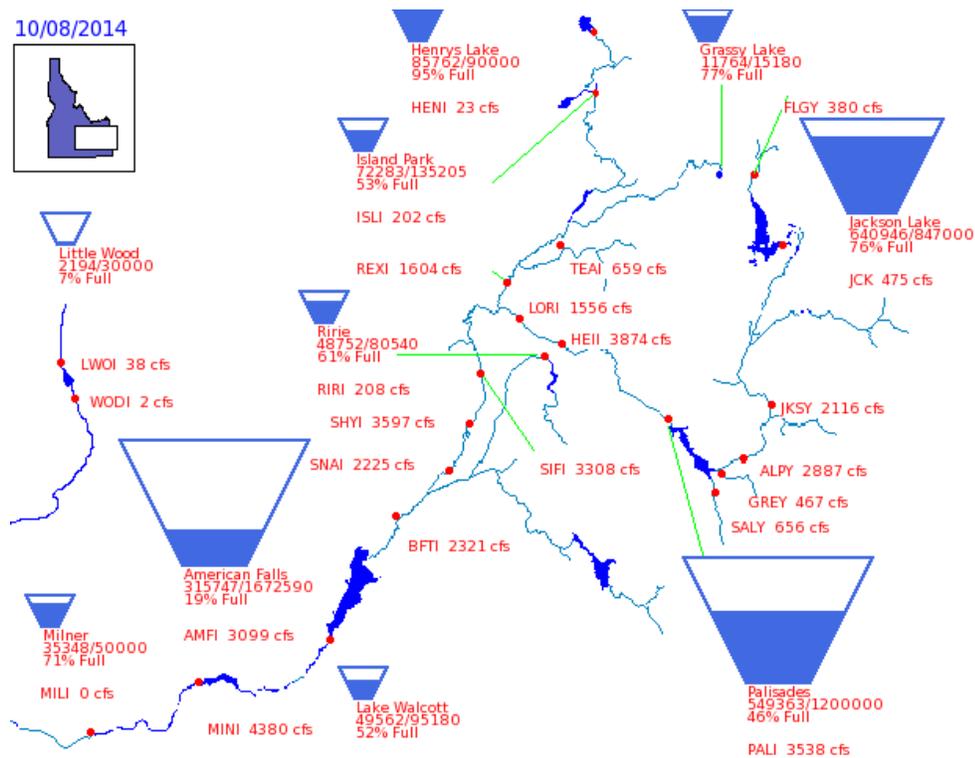
**Reservoirs:**

Reservoir	% Capacity August 31 <sup>1</sup>	% Capacity September 30 <sup>2</sup>	Percent Change	% of Average <sup>2</sup>	% of Last Year <sup>2</sup>
Henrys Lake	77	95	18	113	129
Island Park	51	52	1	115	197
Grassy Lake	97	77	-20	104	93
Jackson Lake	84	76	-8	152	411
Palisades	58	52	-6	97	263
Ririe	75	64	-11	115	129
Blackfoot	44	41	-3	91	101
American Falls	26	17	-9	65	510
Bear Lake	37	36	-1	72	77
Magic	7	9	2	35	169
Little Wood	7	5	-2	25	100
Mackay	23	23	0	141	250
Oakley	17	14	-3	70	118
Lake Walcott	95 <sup>3</sup>	52 <sup>4</sup>	-43	n/a	n/a
Milner	71 <sup>3</sup>	71 <sup>4</sup>	0	n/a	n/a

Source: (1) NRCS August 31, 2014; (2) NRCS September 30, 2014.  
 (3) US Bureau of Reclamation (BOR) September 2, 2014 (4) BOR October 8, 2014

[wcc.nrcs.usda.gov/ftpref/data/water/basin\\_reports/idaho/wy2014/bareid9.txt](http://wcc.nrcs.usda.gov/ftpref/data/water/basin_reports/idaho/wy2014/bareid9.txt)

10/08/2014

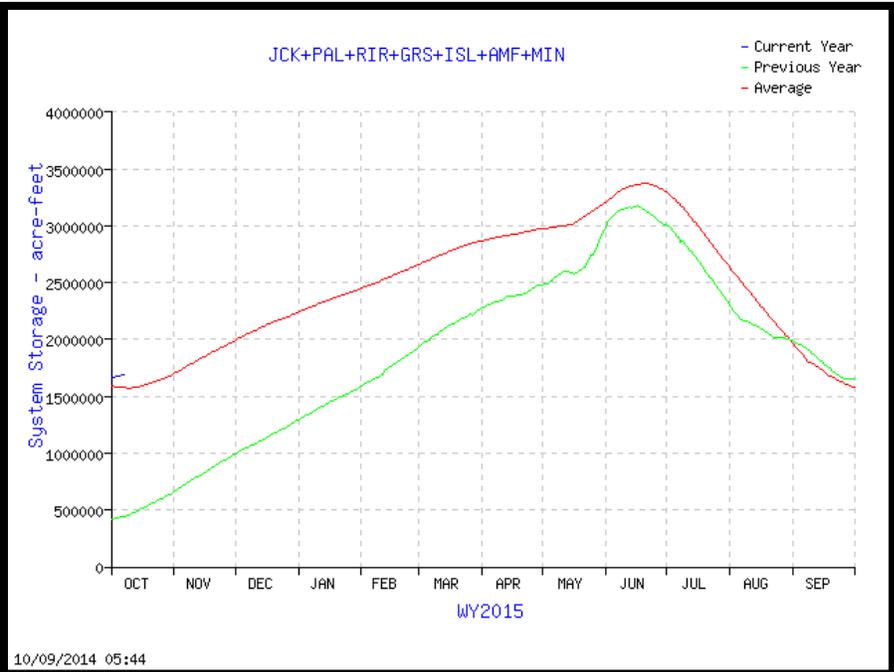


**42% of Capacity in Upper Snake River System**  
 (Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls & Lake Walcott)

[usbr.gov/pn/hydromet/burtea.html](http://usbr.gov/pn/hydromet/burtea.html)

**Upper Snake River:**  
 Total Space Available: 2,357,278 AF  
 Total Storage Capacity: 4,045,695 AF

**Graph of Upper Snake River Current Total System Reservoir Storage (new WY)**



[usbr.gov/pn-bin/graphwy2.pl?snasys\\_af](http://usbr.gov/pn-bin/graphwy2.pl?snasys_af)

## Bear River Basin Current Reservoir Conditions:

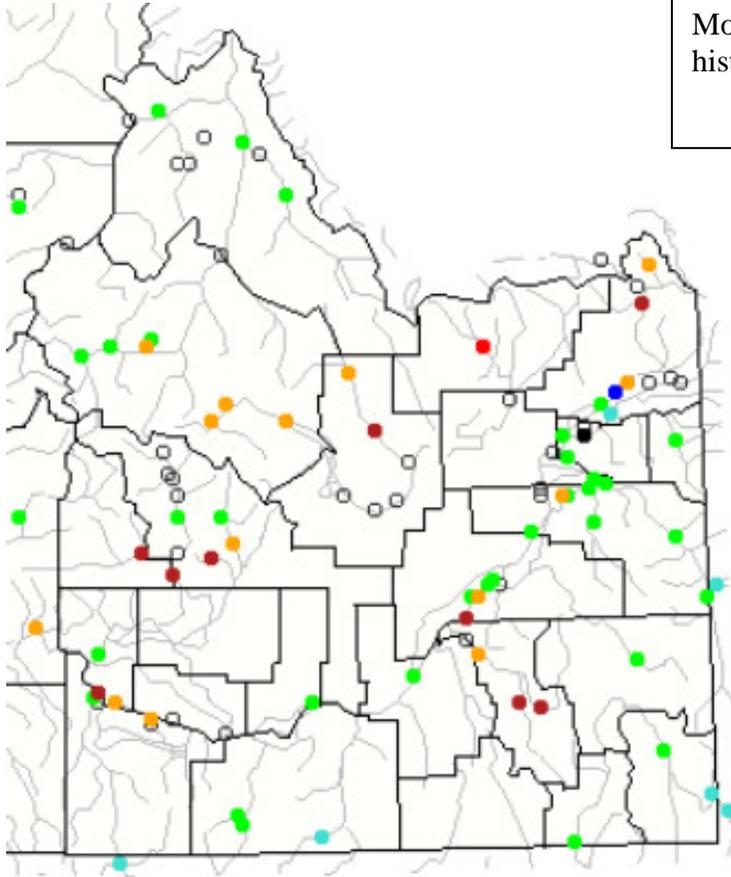
### Dam Level Condition

● No Data 
 ● Normal 
 ● Near Spill 
 ● Spill 
 ● Pass Flow 
 ● Critical 
 ● Forecast Spill

NWS ID	Location	Level Condition	Current Level	Observed Date	Forecast Peak (5 days)	Peak Date	Gate Level	Gate	Pass Flow Level	Crit Level
1 BLK11	Bear River - Bear Lake, Nr Lifton	<span style="color: blue;">●</span>	5912.4	10/9 06:00	5912.4	10/13 13:00				5925

[cbrfc.noaa.gov/gmap/list/list.php?search=&point=all&plot=&sort=damcritids&type=damcrit&basin=5&subbasin=0&espqpf=0&espdist=empirical](http://cbrfc.noaa.gov/gmap/list/list.php?search=&point=all&plot=&sort=damcritids&type=damcrit&basin=5&subbasin=0&espqpf=0&espdist=empirical)

## Streamflow:



Monthly average streamflow compared to historical average streamflow for September 2014.



[waterwatch.usgs.gov/?m=mv01d&r=id&w=map](http://waterwatch.usgs.gov/?m=mv01d&r=id&w=map)

Explanation - Percentile classes							
<span style="color: red;">●</span>	<span style="color: orange;">●</span>	<span style="color: green;">●</span>	<span style="color: cyan;">●</span>	<span style="color: blue;">●</span>	<span style="color: black;">●</span>	<span style="color: white;">●</span>	
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

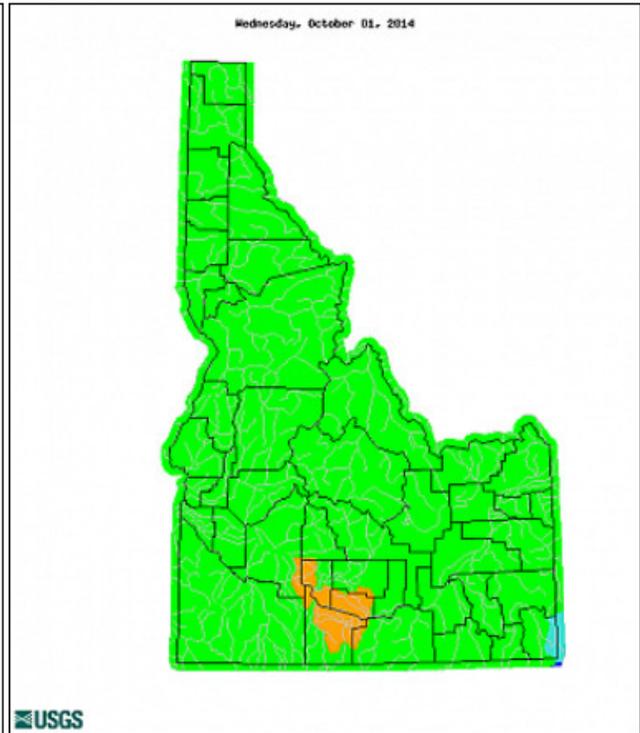
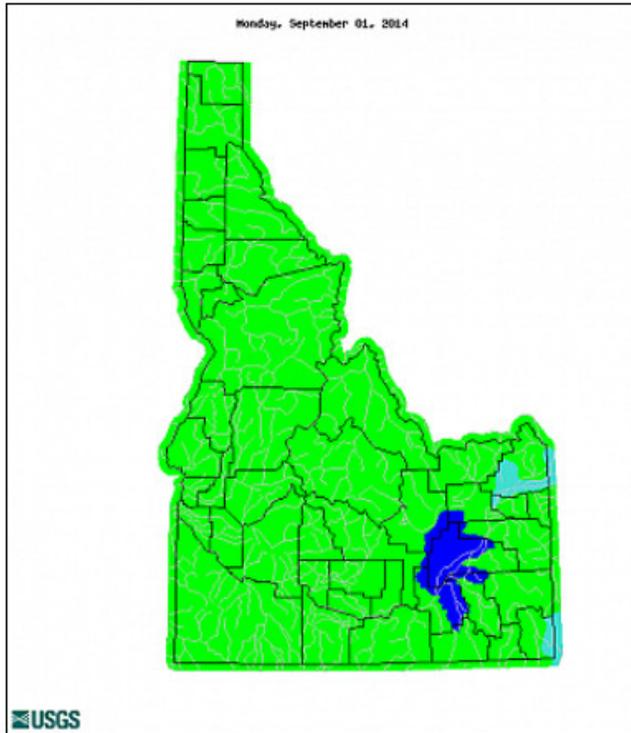
# Historic Streamflow Comparison, August 2014 and September 2014:

## Comparison of Streamflow Maps

**Geographic area:**  **Water resource region:**    
**Map type:**  **Sub type:**

Date (YYYYMM):

Date (YYYYMM):



Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

**Historic Streamflow Comparison, September 2013 and September 2014:**

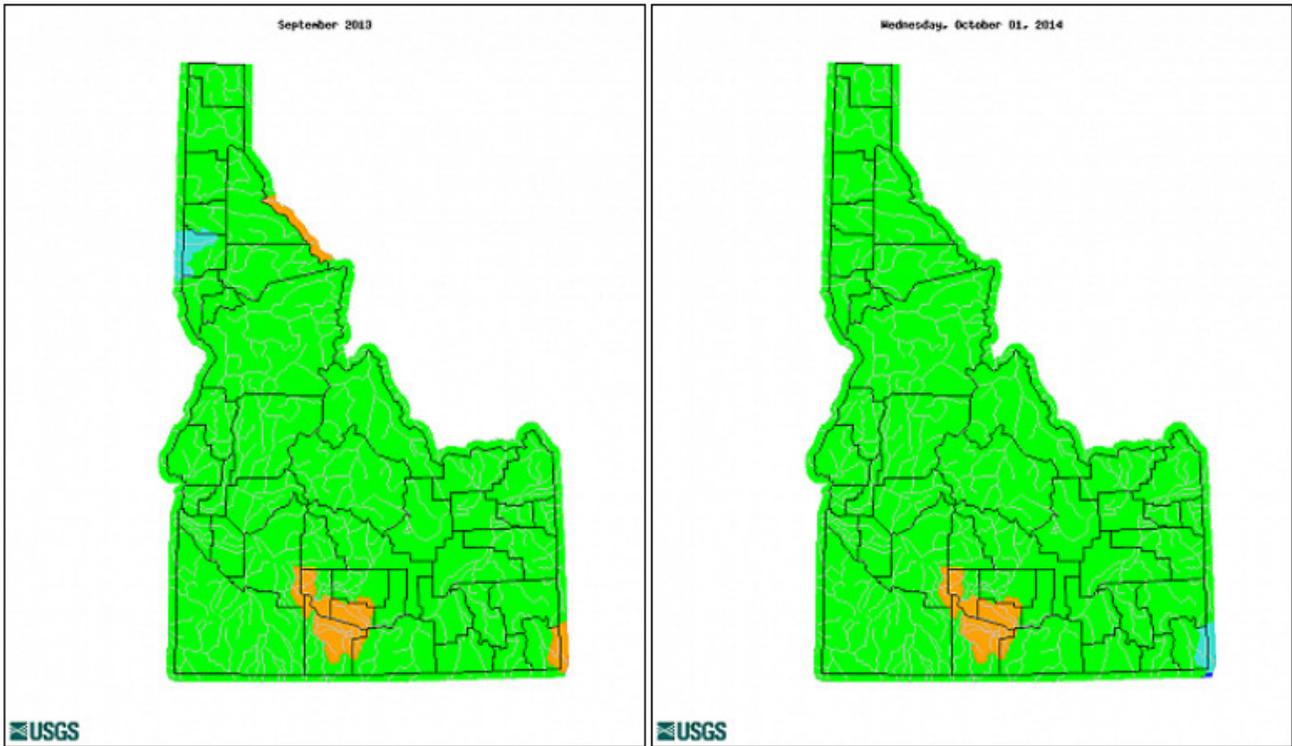
**Comparison of Streamflow Maps**

Geographic area:  Water resource region:

Map type:  Sub type:

Date (YYYYMM):

Date (YYYYMM):

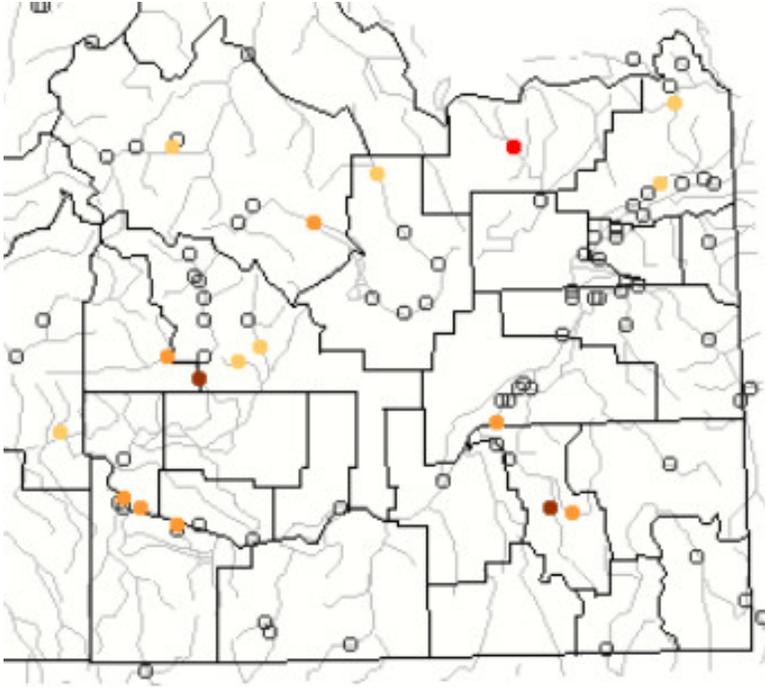


Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

[waterwatch.usgs.gov/index.php](http://waterwatch.usgs.gov/index.php)

**Below Normal 28-Day average streamflow as of October 8, 2014 (see graphic below):**

Medicine Lodge Creek nr Small, 26.75 cfs, 2<sup>nd</sup> percentile, (new low),  
 Big Wood River blo Magic Dam, 1.96 cfs, 2<sup>nd</sup> percentile,  
 Marsh Creek nr McCammon, 31.18 cfs, 2<sup>nd</sup> percentile

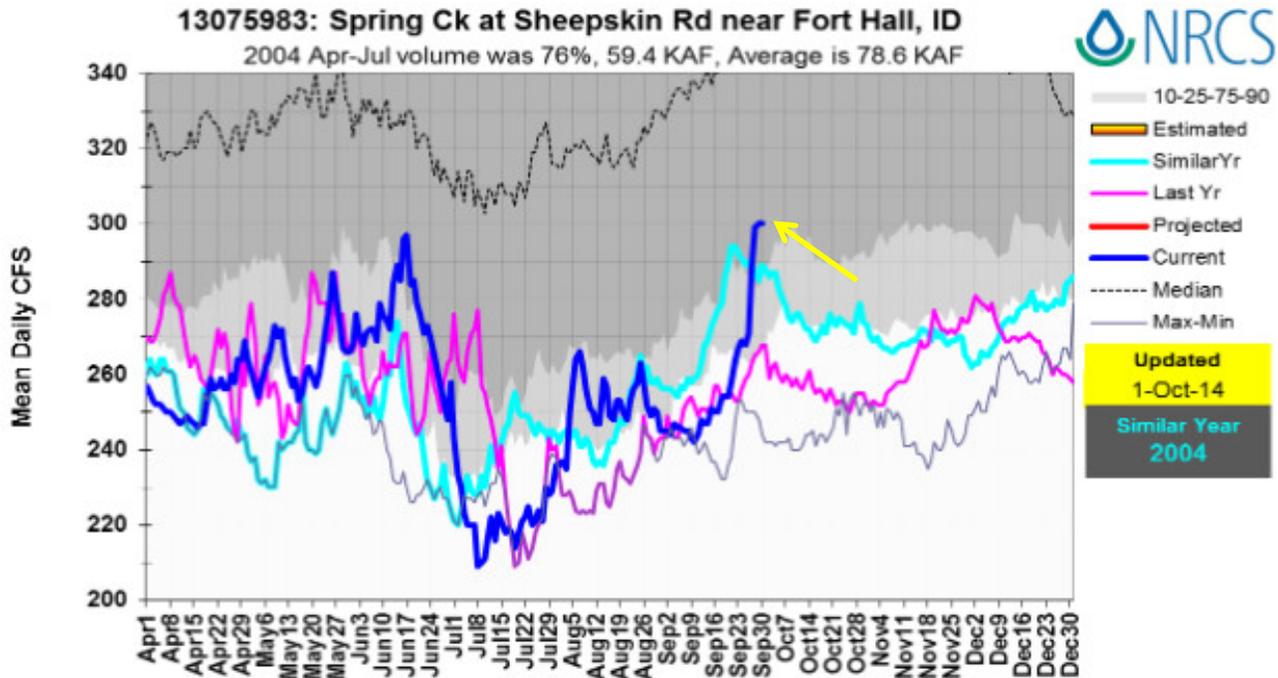


Choose a data retrieval option and select a location on the map  
 List of all stations  Single station  Nearest stations

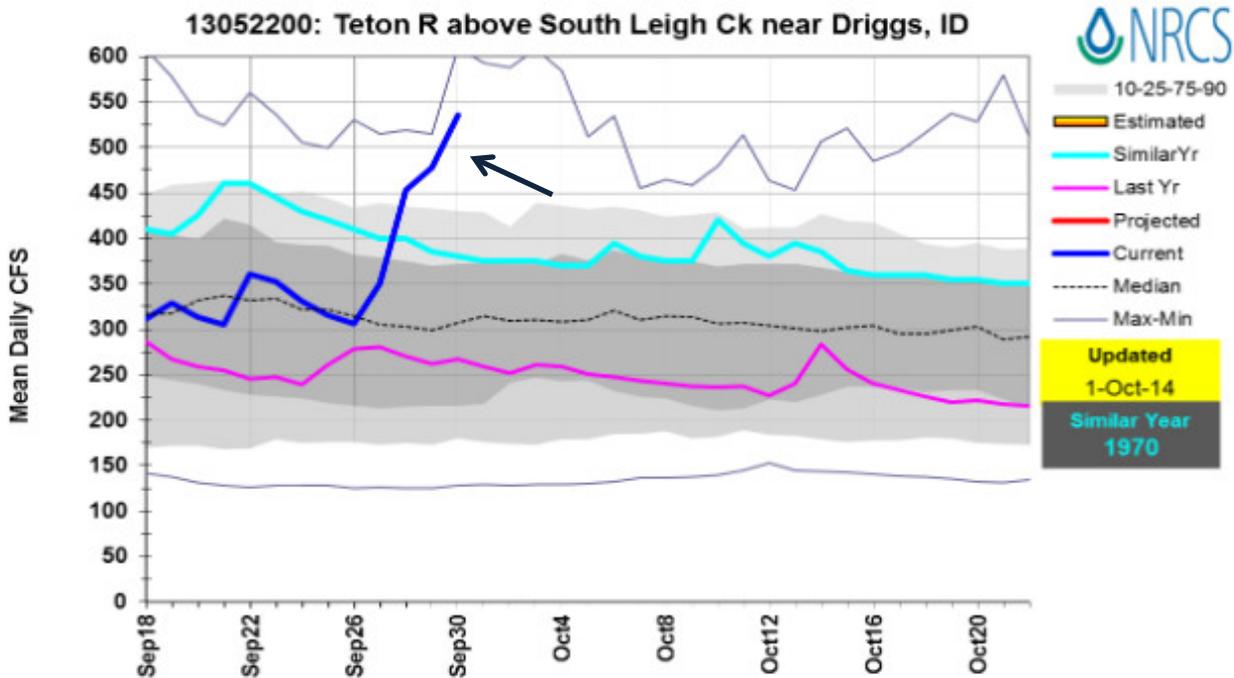
Explanation - Percentile classes				
New low	<=5	6-9	10-24	Not ranked
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

[waterwatch.usgs.gov/index.php?m=pa28d\\_dry&r=id&w=map](http://waterwatch.usgs.gov/index.php?m=pa28d_dry&r=id&w=map)

Early-to-Mid September rains contribute to significant rise on Spring Creek (nr Fort Hall):



And on the Teton River nr Driggs in late September:

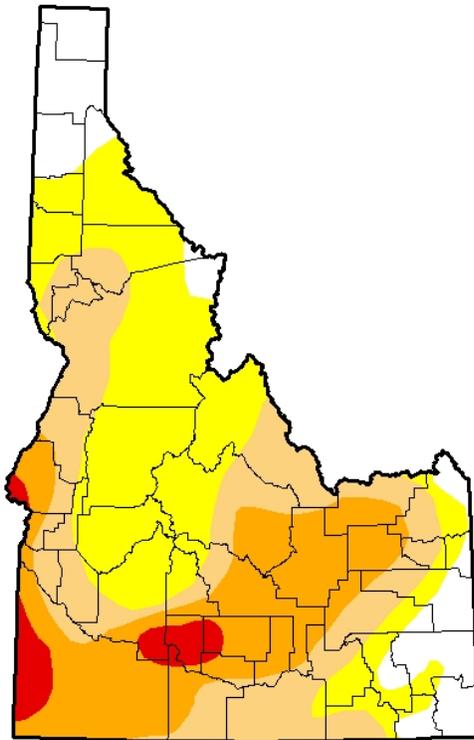


<ftp://ftp-fc.sc.egov.usda.gov/ID/snow/webftp/recession/teton.pdf>

**Drought Information:**

**U.S. Drought Monitor  
Idaho**

**October 7, 2014**  
(Released Thursday, Oct. 9, 2014)  
Valid 8 a.m. EDT



*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	13.19	86.81	52.50	26.35	3.53	0.00
<b>Last Week</b> 9/30/2014	13.19	86.81	52.39	26.35	3.53	0.00
<b>3 Months Ago</b> 7/8/2014	38.01	61.99	41.29	28.41	1.82	0.00
<b>Start of Calendar Year</b> 12/31/2013	21.66	78.34	70.07	45.43	7.70	0.00
<b>Start of Water Year</b>	-	-	-	-	-	-
<b>One Year Ago</b> 10/8/2013	21.60	78.40	70.17	41.87	5.09	0.00

Intensity

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

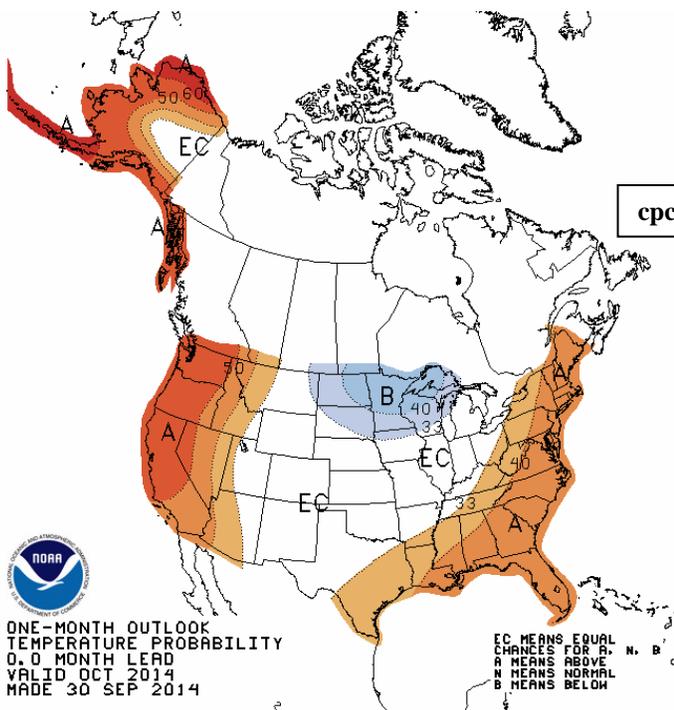
*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

**Author:**

Mark Svoboda  
National Drought Mitigation Center



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

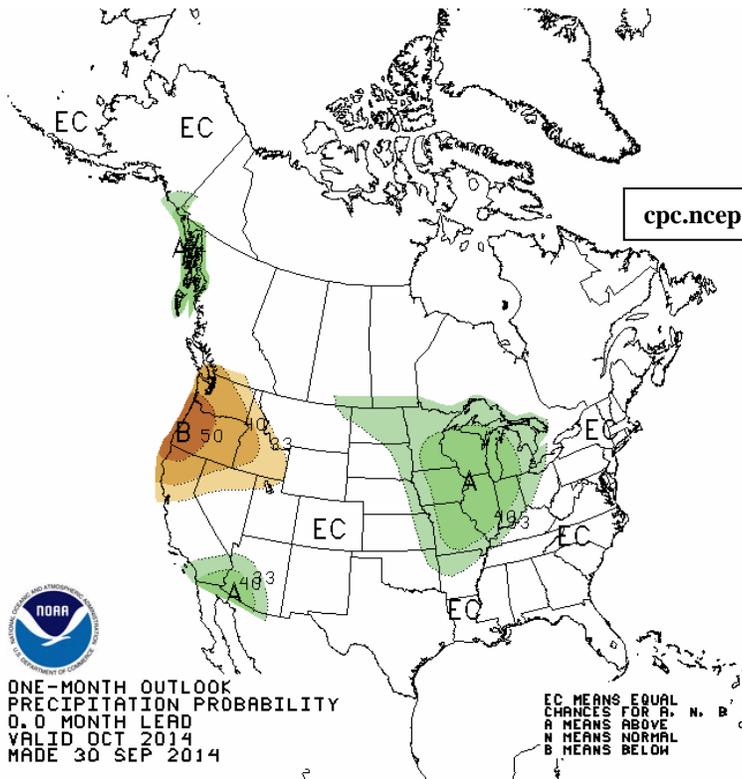


[cpc.ncep.noaa.gov/products/predictions/30day/off15\\_temp.gif](http://cpc.ncep.noaa.gov/products/predictions/30day/off15_temp.gif)



ONE-MONTH OUTLOOK  
TEMPERATURE PROBABILITY  
0.0 MONTH LEAD  
VALID OCT 2014  
MADE 30 SEP 2014

EC MEANS EQUAL  
CHANCES FOR A, N, B  
A MEANS ABOVE  
N MEANS NORMAL  
B MEANS BELOW

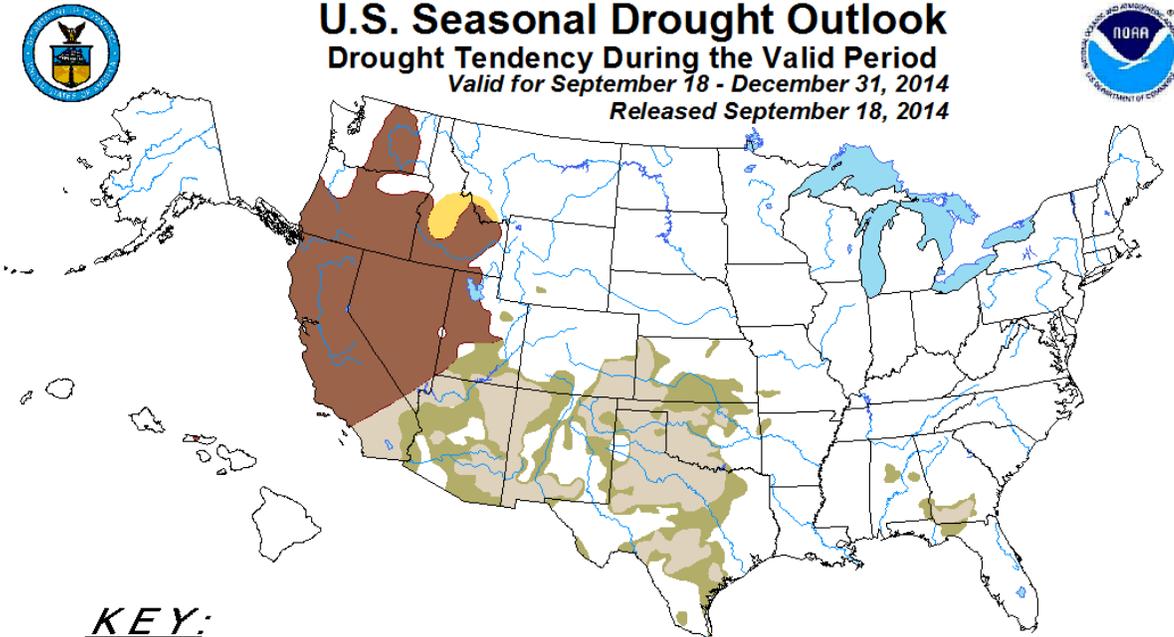


[cpc.ncep.noaa.gov/products/predictions/30day/off15\\_prpc.gif](http://cpc.ncep.noaa.gov/products/predictions/30day/off15_prpc.gif)

## U.S. Seasonal Drought Outlook

### Drought Tendency During the Valid Period

Valid for September 18 - December 31, 2014  
Released September 18, 2014



**KEY:**

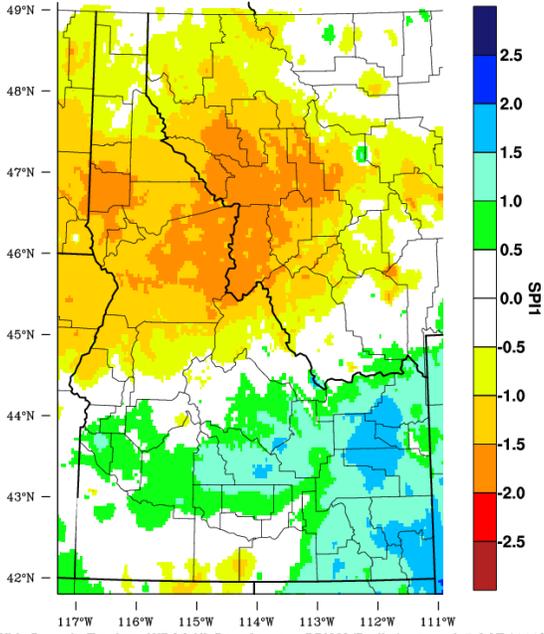
- Drought persists or intensifies
- Drought remains but improves
- Drought removal likely
- Drought development likely

Author: Anthony Artusa, Climate Prediction Center, NOAA  
[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/sdo\\_summary.html](http://www.cpc.ncep.noaa.gov/products/expert_assessment/sdo_summary.html)

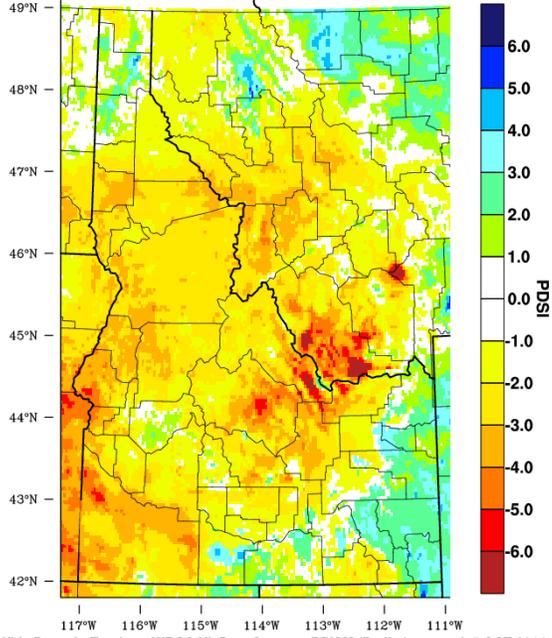
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity).  
For weekly drought updates, see the latest U.S. Drought Monitor.  
NOTE: The tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain.  
The Green areas imply drought removal by the end of the period (D0 or none)

[cpc.ncep.noaa.gov/products/expert\\_assessment/season\\_drought.png](http://cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png)

**Idaho - 1 month SPI**  
September 2014



**Idaho - PDSI**  
September 2014

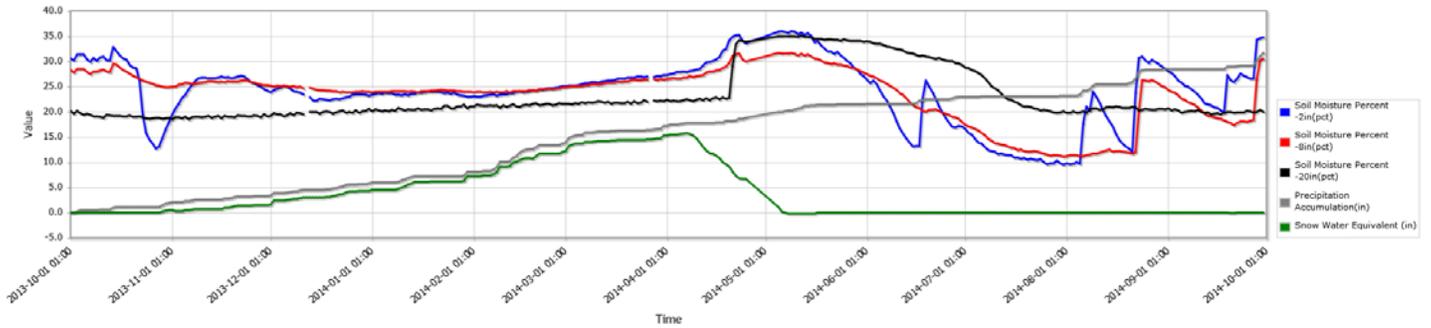


WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 5 OCT 2014 WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 5 OCT 2014

[wrcc.dri.edu/monitor/WWDT/index.php?region=id](http://wrcc.dri.edu/monitor/WWDT/index.php?region=id)

**Soil Moisture graph of Somsen Ranch SNOTEL for WY 14 (showing summer soil moisture):**

Somsen Ranch (770) Idaho SNOTEL Site - 6800 ft

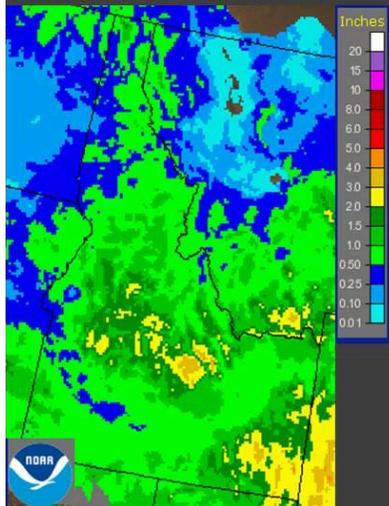


[nrcc.usda.gov/wps/portal/nrcc/detail/id/snow/?cid=stelprdb1243297](http://nrcc.usda.gov/wps/portal/nrcc/detail/id/snow/?cid=stelprdb1243297)

# How much rain did we get this past week?

6am September 23 – 6am September 30

Areas in Yellow = Over 2 inches



## Records Set

September 27

Idaho Falls: 0.98 inches

Old record: 0.62 inches in 1983

September 28

Idaho Falls: 0.88 inches

Old record: 0.79 inches in 1965

Stanley: 0.70 inches

Old record: 0.06 inches in 2013

cc:

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Steve King, Development and Operations Hydrologist, Northwest River Forecast Center

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Vern Preston, Warning Coordination Meteorologist, Pocatello, Idaho

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Chuck Orwig, Senior Hydrologist, Northwest River Forecast Center

Joanne Salerno, Senior Hydrologist, Northwest River Forecast Center

Brent Bernard, Hydrologist, Colorado Basin River Forecast Center

PIH Mets/HMT's

End

cbl