

NWS Form E-5 U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE MONTHLY REPORT OF HYDROLOGIC CONDITIONS	HYDROLOGIC SERVICE AREA: Pocatello, Idaho
	REPORT FOR: MONTH: October YEAR: 2013
TO: Hydrologic Operations Division, W/OH2 National Weather Service National Oceanic and Atmospheric Administration Silver Spring, Maryland 20910	SIGNATURE Corey Loveland Service Hydrologist
DATE: November 15, 2013	
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:

Unfortunately, October did not follow last month's lead as far as precipitation goes. There were about three major storm systems that dropped high elevation snow within the Hydrologic Service Area (HSA), with the greatest amount being the Oct 28th and 29th event dropping an estimated snow water equivalent of slightly over 2" at the Smiley Mountain SNOTEL (elevation 9,520 ft) in the Big Lost River drainage. Very little precipitation fell within the valleys over the course of the storm systems. The Swan Valley COOP station received a total of 1.88 inches for the month.

October brought an average of around a quarter to one inch of precipitation within the HSA excluding the Snake River plain and near the Wyoming border (eastern Caribou, Bonneville and Teton counties) where the Blackfoot and the South Fork of the Snake Rivers received slightly above normal precipitation. As indicated in the below AHPS departure from and percent of normal graphics, the driest areas last month, in reference to normal, were western Cassia and Clark counties. The temperature departure from normal for October was most notable in the mid Snake River plain where it was 3 to 6 degrees F below normal. Again, the El Niño neutral pattern is forecast to continue through this winter and into the spring. To begin the water supply season, the basins fairing the best so far are the Medicine Lodge, Little Lost, Big Lost and Little Wood basins which currently are above 150% of normal. It is still real early in the season, so things may change.

As far as the one-month Climate Prediction Center Outlook is concerned, we stand to have about a 33 to 40% chance of having below normal temperatures and an equal chance of receiving a normal amount of precipitation in eastern Idaho.

Of the data available for the month, the station within the HSA reaching the highest 24-hour temperature was the Minidoka Dam COOP on the 6th which climbed to 76°F. The station with the lowest recorded temperature (non-SNOTEL) was the Stanley COOP station at 10°F on October 5th. The highest recorded 24-hr precipitation (non-SNOTEL) occurred at the Driggs COOP station where 0.78 inch fell on the 30th.

Reservoirs last month increased capacity overall by around 9% in the upper Snake River basin system (an increase of about 353 KAF occurred over the month and is currently sitting at 20% of capacity overall). Compared to last year at this time, it was about 30% of capacity. Water storage has begun this past month and we anxiously await a decent snowpack to recharge the reservoir system. NRCS reservoir data is not available,

but according to US Bureau of Reclamation data, the most notable increases were Island Park storing 16%, American Falls 15%, and Little Wood Reservoir 12% of capacity. Milner Reservoir dropped 3% capacity over the month.

Current streamflow conditions in eastern Idaho are currently below normal to near normal for the majority of the unregulated streams (see map below).

With the rather mild month of October, drought conditions continue within the HSA. The state has essentially stayed the same across all drought intensities and for eastern Idaho the D0 to D2 categories have remained unchanged since last month's analysis. Around 5% of the state (western Idaho) remains in the extreme drought (D3) category. The U.S. Seasonal Drought Outlook forecast shows an improvement or a proposed removal of drought over most of eastern Idaho. This excludes the Idaho central mountains and southern Idaho near Utah and Nevada where the Outlook shows the drought to persist. The Climate Prediction Center indicates near normal soil moisture conditions across most of eastern Idaho.

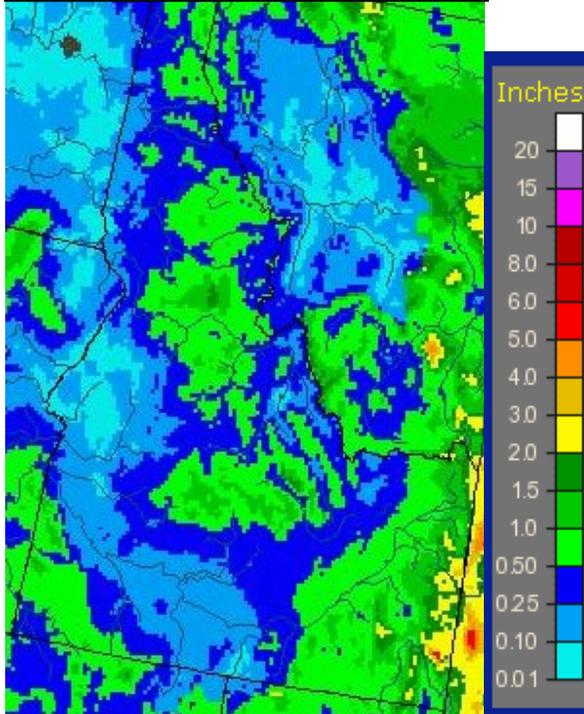
Looking at the long-term climate forecast in the next three months, it appears that we may have near normal temperatures and a higher chance of above normal precipitation across all of eastern Idaho. Currently, a total of 16 counties have drought declarations within the HSA where State drought emergencies have been declared.

The Idaho Water Year 2013 CoCoRaHS precipitation data totals came in this month and out of the 15 reporting stations in the eastern Idaho area, the top five that received the most precipitation were:

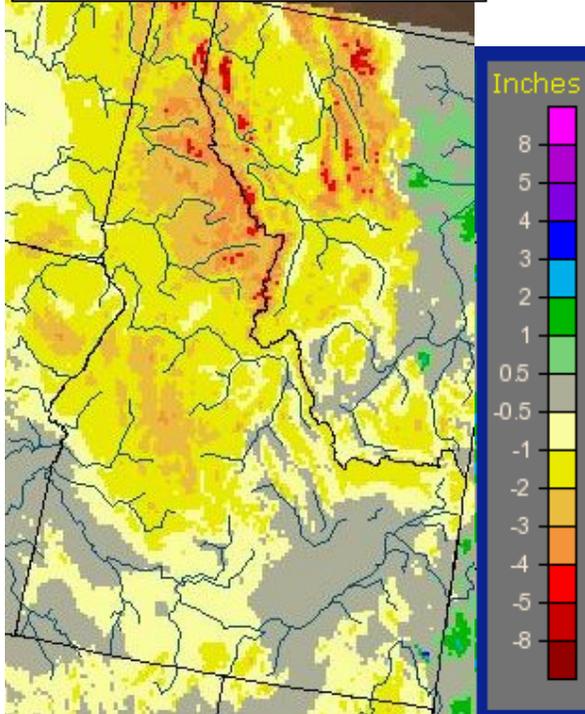
Station Name	Total Prcp Sum	Days With Prcp	Days With Trace	Total Snowfall	Days With Snowfall	Days With Snow On Ground	Elevation
Soda Springs 0.3 W	17.66	118	42	79.7	47	91	5806
Chubbuck 0.5 WSW	13.97	97	42	38.8	43	62	4482
Preston 0.8 SE	12.34	83	24	42.7	32	9	4711
Montpelier 0.6 NNE	12.02	54	0	27.2	14	2	5961
Idaho Falls 11.7 NE	11.59	115	52	42.7	50	95	4880

Precipitation:

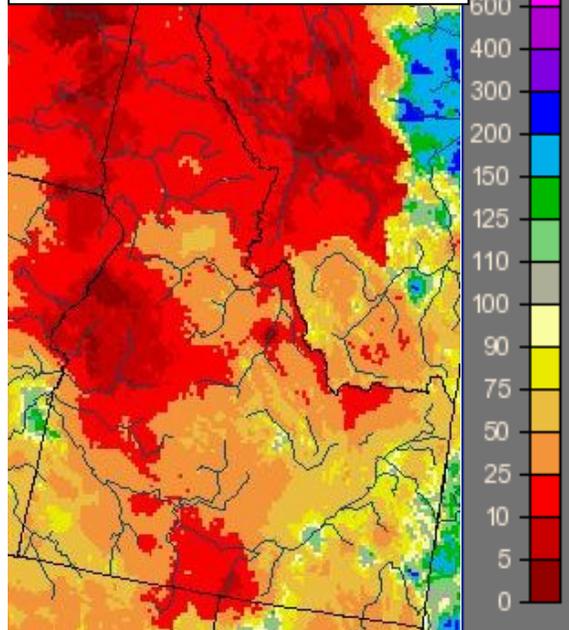
October 2013, Observed Precipitation



October 2013, Departure from Normal Precipitation

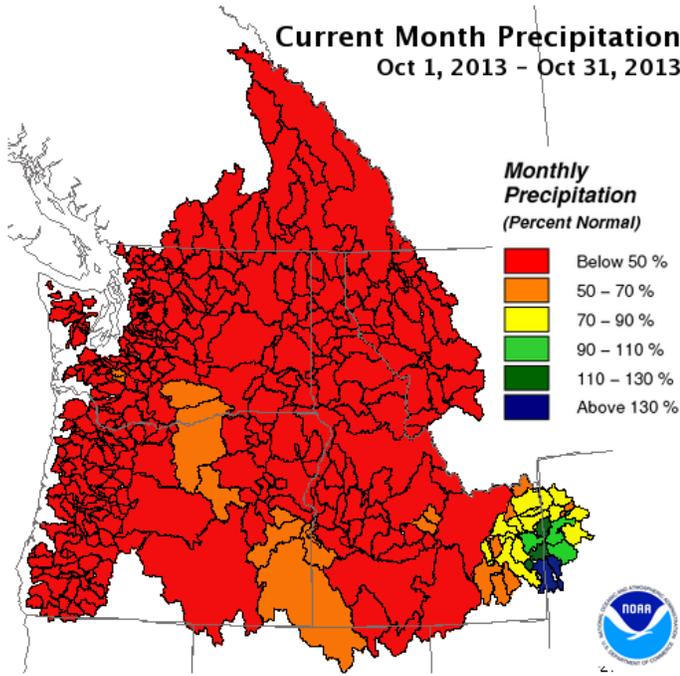


October 2013, Percent of Normal Precipitation



www.water.weather.gov/precip/index.php

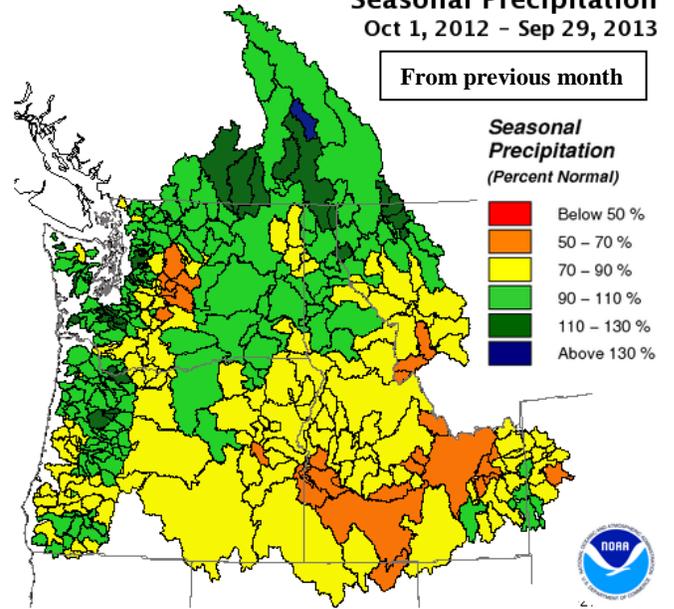
Current Month Precipitation
Oct 1, 2013 - Oct 31, 2013



Creation Time: Friday, Nov 1, 2013 Northwest River Forecast Center

www.nwrfc.noaa.gov/WAT_RES_wy_summary/20131101/CurMonMAP_2013Oct31_2013110117.png

Seasonal Precipitation
Oct 1, 2012 - Sep 29, 2013



Creation Time: Monday, Sep 30, 2013 Northwest River Forecast Center

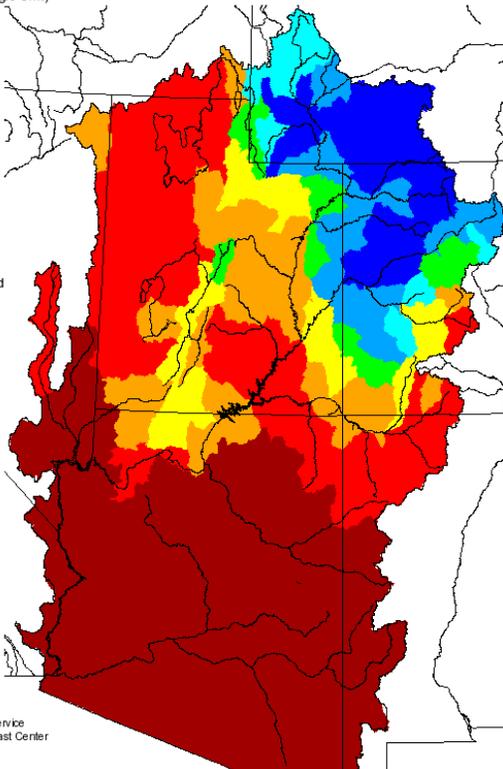
www.nwrfc.noaa.gov/WAT_RES_wy_summary/20130930/SeasonalMAP_2013Sep29_2013093017.png

Monthly Precipitation for October 2013

(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

www.cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?M?2013?10

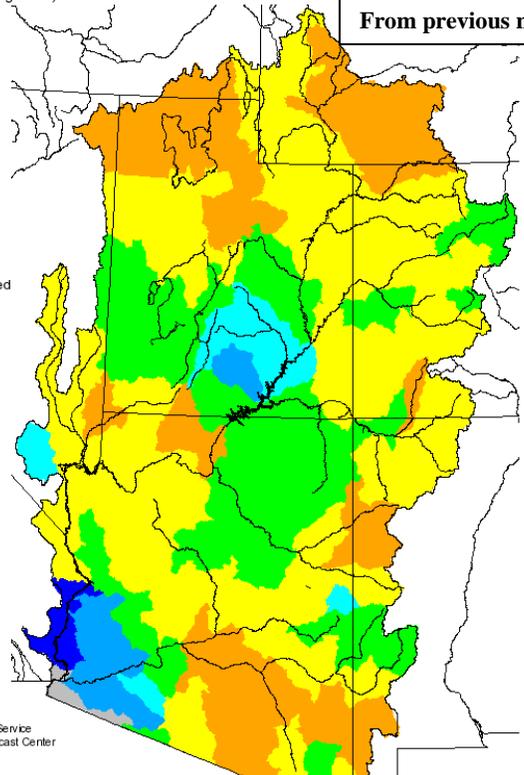
Seasonal Precipitation, October 2012 - September 2013

(Averaged by Hydrologic Unit)

From previous month

% Average

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



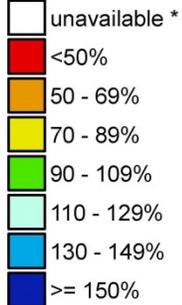
Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

www.cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?S?2013?09

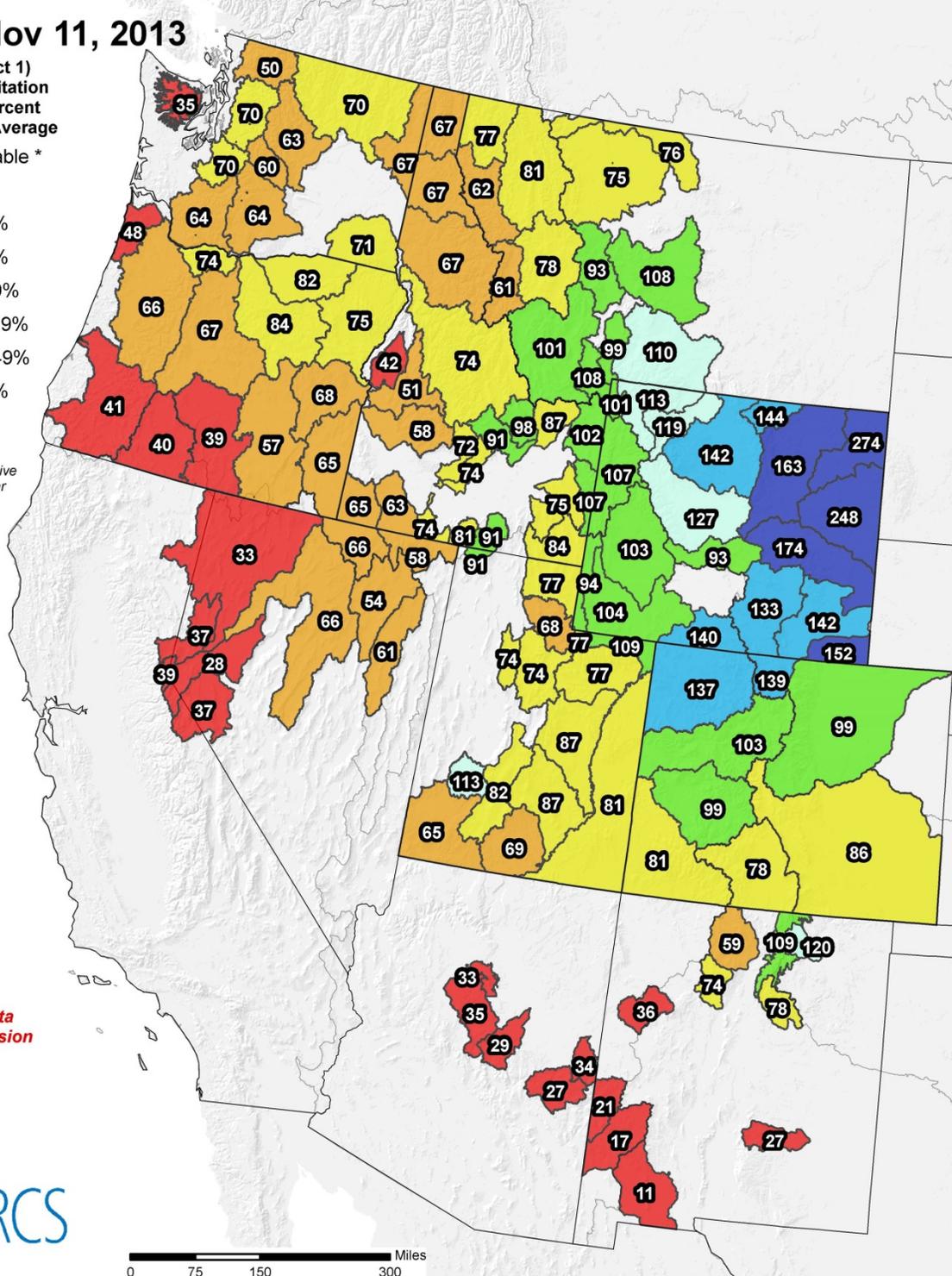
Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Nov 11, 2013

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



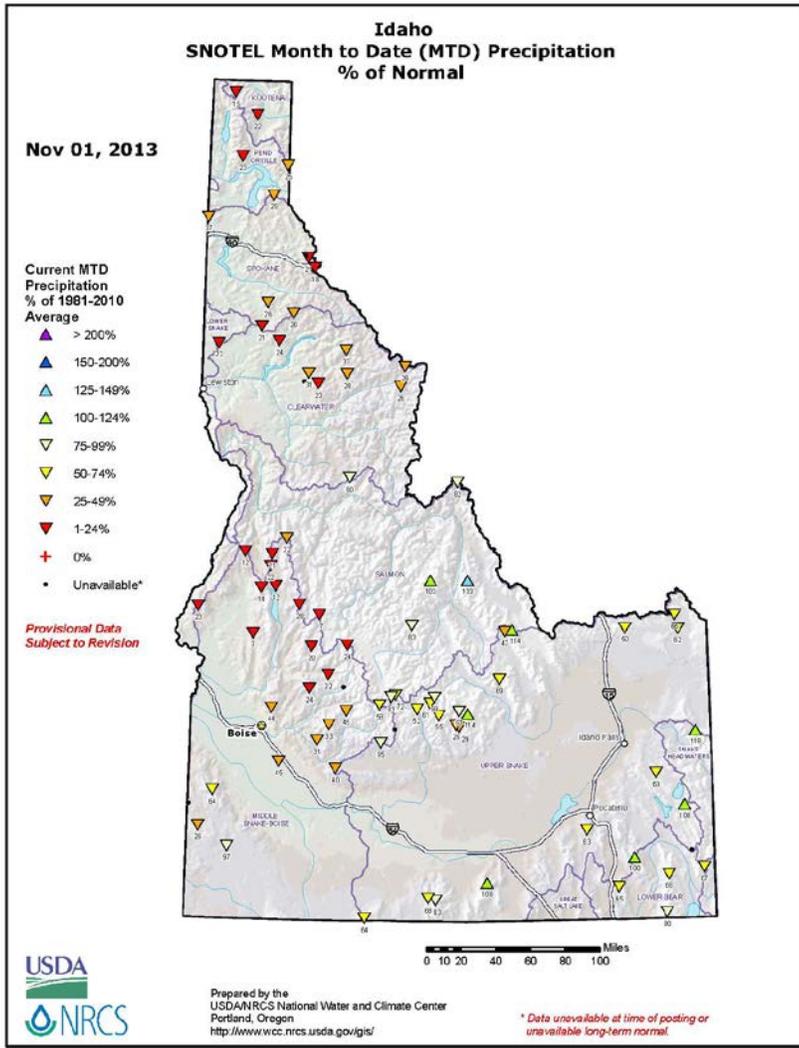
Provisional data subject to revision



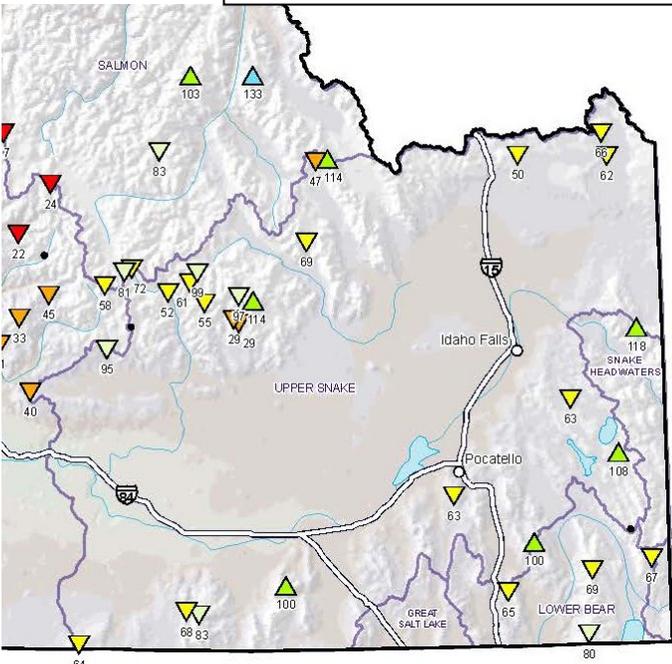
The water year to date precipitation percent of normal represents the accumulated precipitation found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>
 Based on data from <http://www.wcc.nrcs.usda.gov/reports/>
 Science contact: Jim.Marron@por.usda.gov 503 414 3047

www.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_mtdprecpcnormal_Nov.pdf

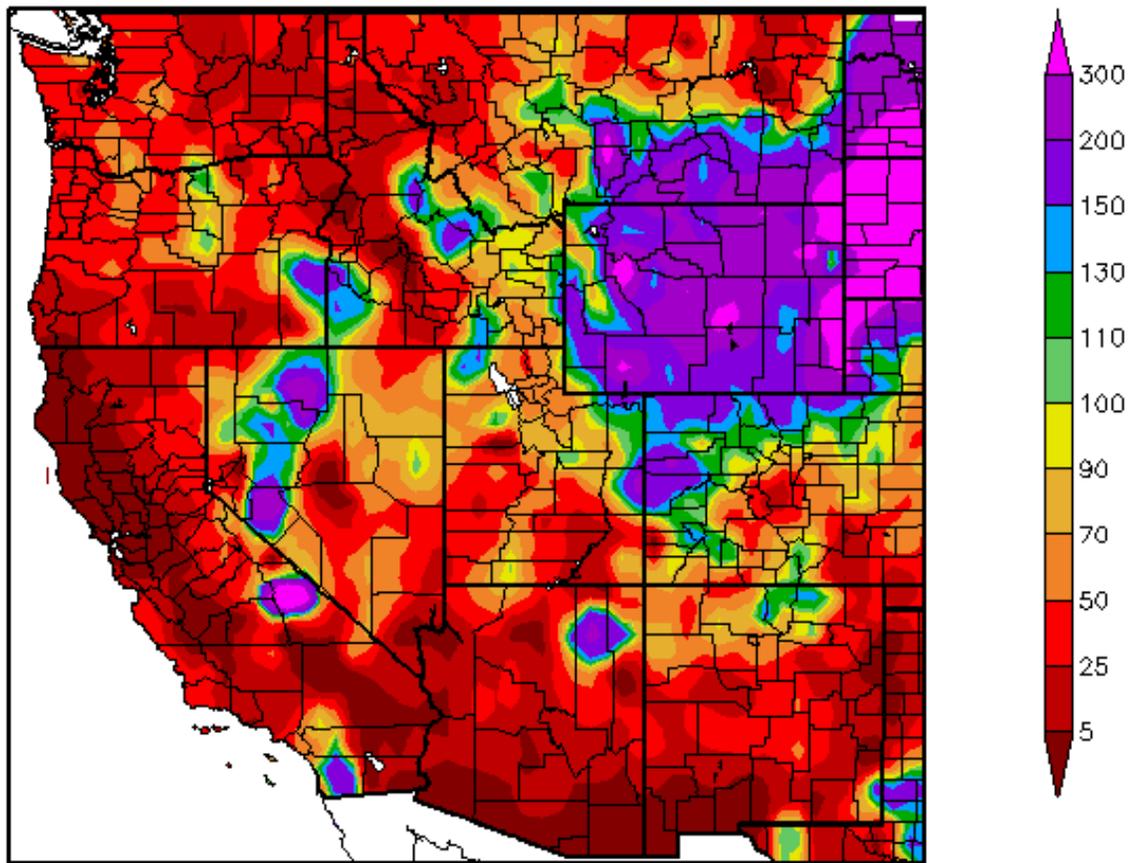


**SNOTEL MTD % of Normal
Precipitation for end of October 2013
(image is cropped from above image)**

Note: The ENSO Neutral climate pattern is forecast to continue through this winter and into spring of 2014 (see below graphic on page 10). The MJO remained active but weak in magnitude over the past few weeks. The Arctic Oscillation (AO) has been strongly positive over the past few weeks, in fact the strongest positive signal in the last 6 months.

October did not quite bring the desired amount of precipitation over eastern Idaho. There seemed to be a few isolated areas around the periphery of the HSA that was above normal although compared to the western region as a whole, we did not do too bad. Most notable “wet” areas were the Teton mountain range, Raft River, Little Lost and Lemhi River basins. Note the above normal conditions for most of Wyoming last month.

Percent of Normal Precipitation (%) 10/1/2013 – 10/31/2013

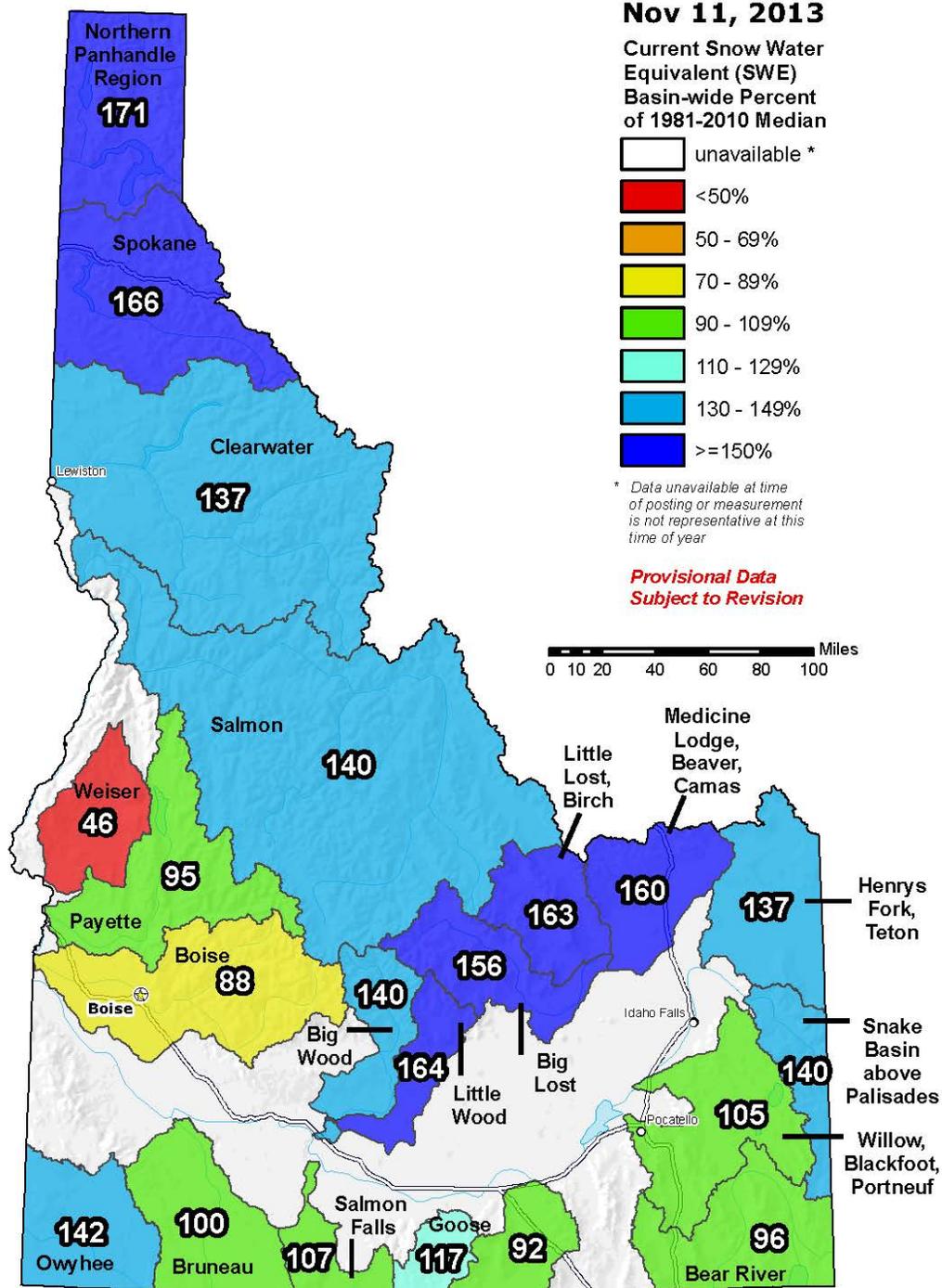


Generated 11/11/2013 at HPRCC using provisional data.

Regional Climate Centers

www.hprcc.unl.edu/maps/current/index.php?action=update_type&map_type=

Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal

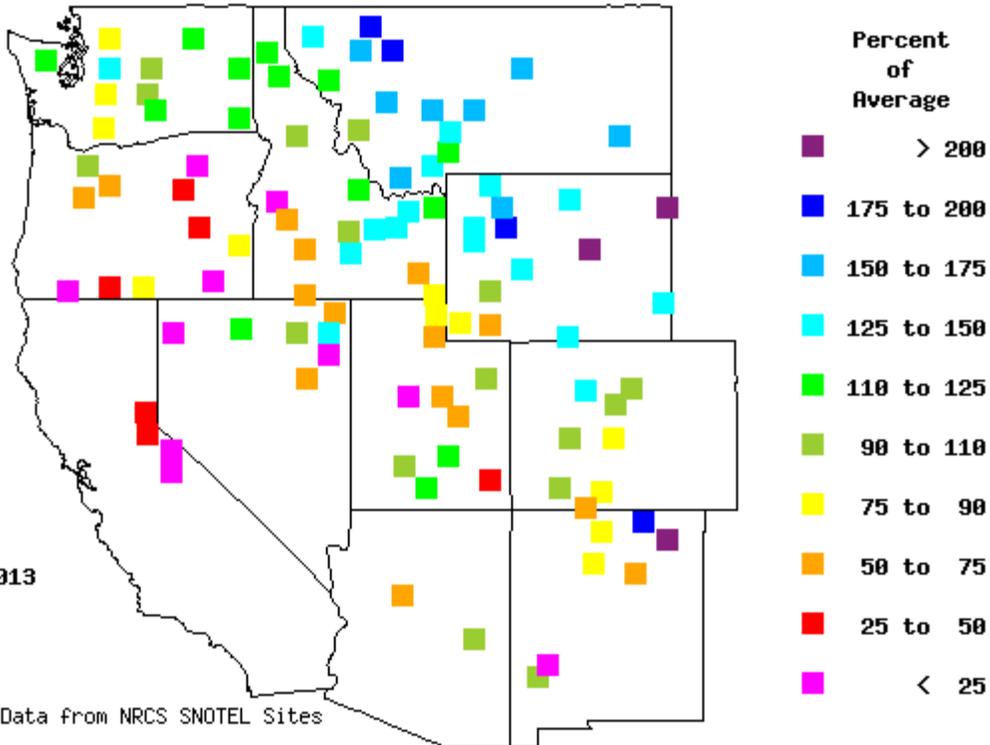


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

Prepared by the USDA/NRCS National Water and Climate Center
 Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>
 Based on data from <http://www.wcc.nrcs.usda.gov/reports/>
 Science contact: Jim.Marron@por.usda.gov 503 414 3047

www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_swepctnormal_update.pdf

Basin Average Snow Water Content. (% of Average.)



Report Date:
NOVEMBER 14 , 2013

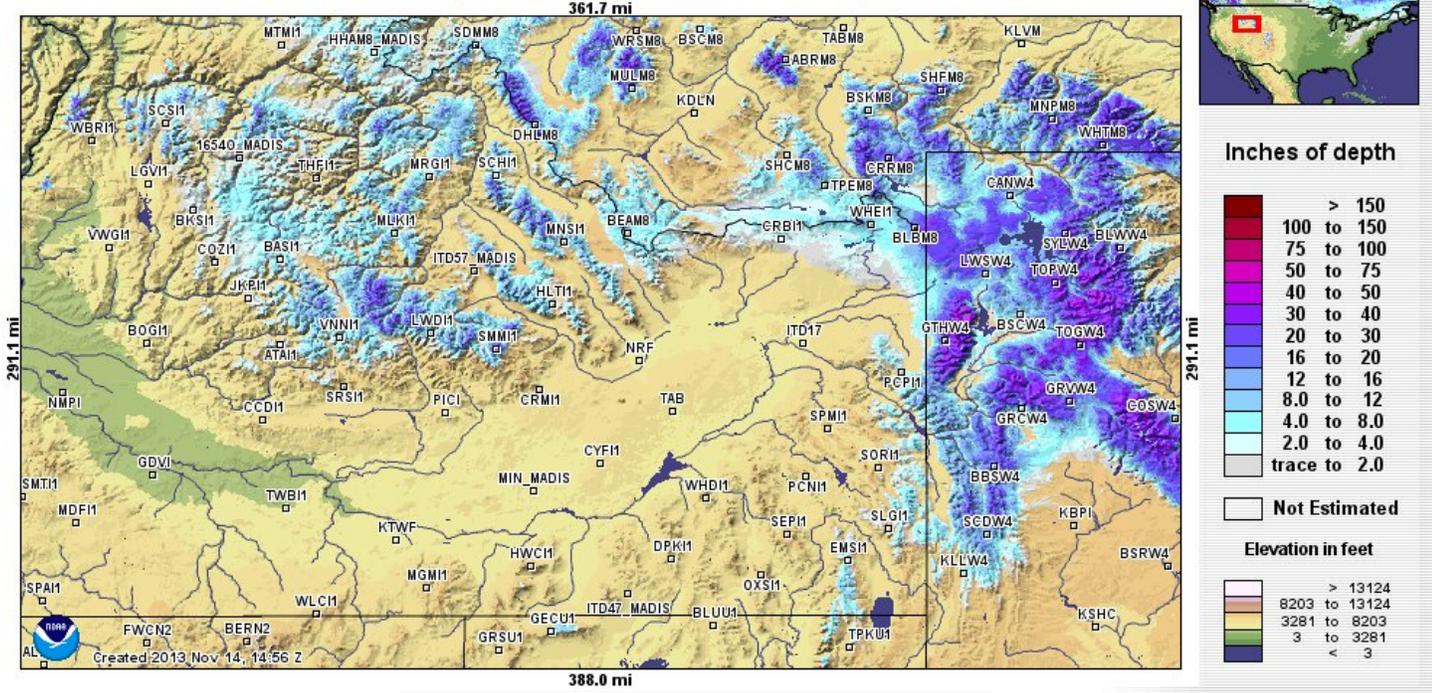
Provisional Data
Based on Mountain Data from NRCS SNOTEL Sites

Data provided by
Water and Climate Center
Natural Resources Conservation Service
Portland, Oregon

Western Regional Climate Center
Desert Research Institute
Reno, Nevada

www.wrcc.dri.edu/snotelanom/basinswe.html

Modeled Snow Depth forecasted for 2013 November 14, 17:00 Z



www.nohrsc.noaa.gov/interactive/html/map.html

ENSO Update:

Latest Observed SST Departure: Niño 3.4 ~ 0.0 Deg C

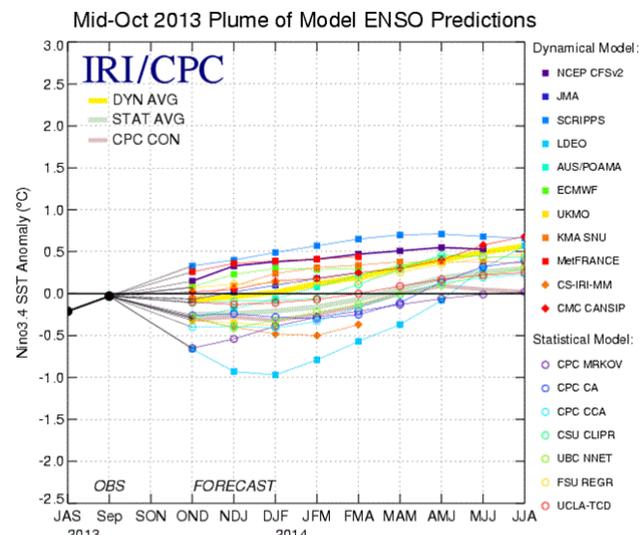
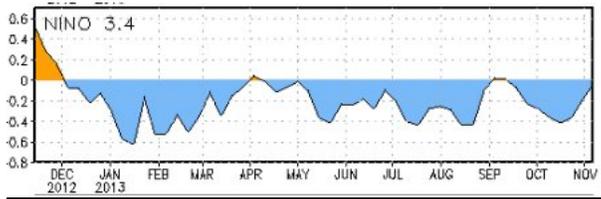


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 15 October 2013.

cpc.ncep.noaa.gov, iri.columbia.edu/climate/ENSO and www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/ensodisc.pdf

CPC Synopsis: ENSO-Neutral conditions favored for Spring 2014

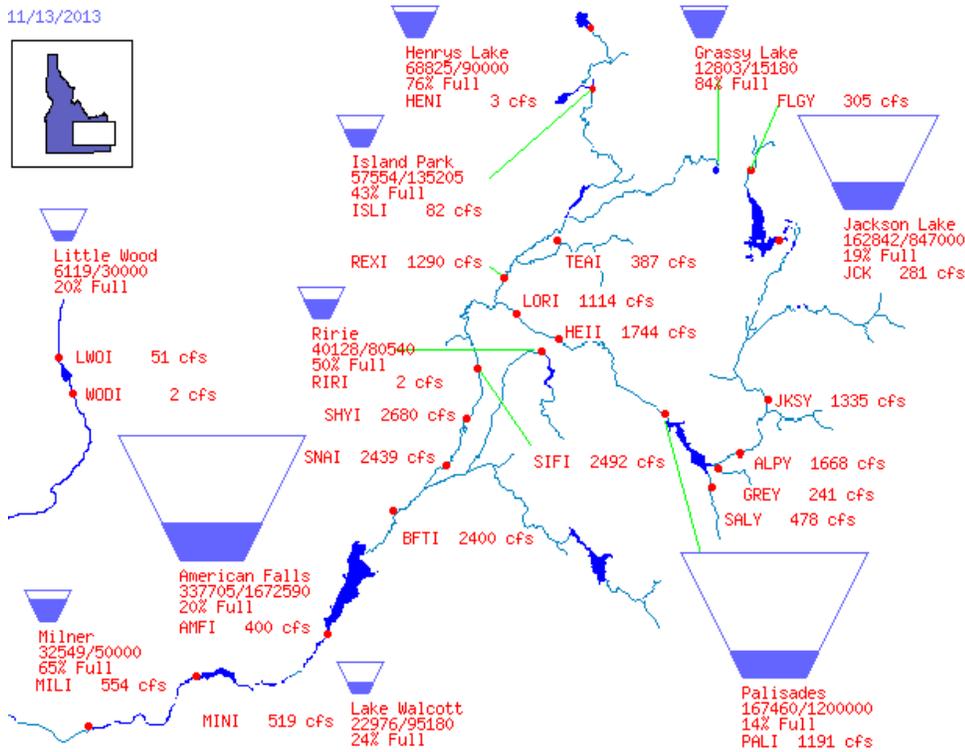
Reservoirs:

Reservoir	% Capacity Sept. 30 ¹	% Capacity Oct. 31 ²	Percent Change	% of Average ²	% of Last Year ²
Henrys Lake	74	n/a	n/a	n/a	n/a
Island Park	26	n/a	n/a	n/a	n/a
Jackson Lake	18	n/a	n/a	n/a	n/a
Palisades	20	n/a	n/a	n/a	n/a
Ririe	50	n/a	n/a	n/a	n/a
Blackfoot	40	n/a	n/a	n/a	n/a
American Falls	3	n/a	n/a	n/a	n/a
Bear Lake	47	n/a	n/a	n/a	n/a
Magic	5	n/a	n/a	n/a	n/a
Little Wood	5	n/a	n/a	n/a	n/a
Mackay	n/a	n/a	n/a	n/a	n/a
Oakley	n/a	n/a	n/a	n/a	n/a
Lake Walcott	26 ³	24 ⁴	-2	n/a	n/a
Milner	69 ³	65 ⁴	-4	n/a	n/a

Source: (1) NRCS September 30, 2013; (2) NRCS October 31, 2013 (data not available).
 (3) US Bureau of Reclamation (BOR) October 9, 2013 (4) BOR November 13, 2013

www.wcc.nrcs.usda.gov/ftpref/data/water/basin_reports/idaho/wy2014/bareid10.txt

11/13/2013

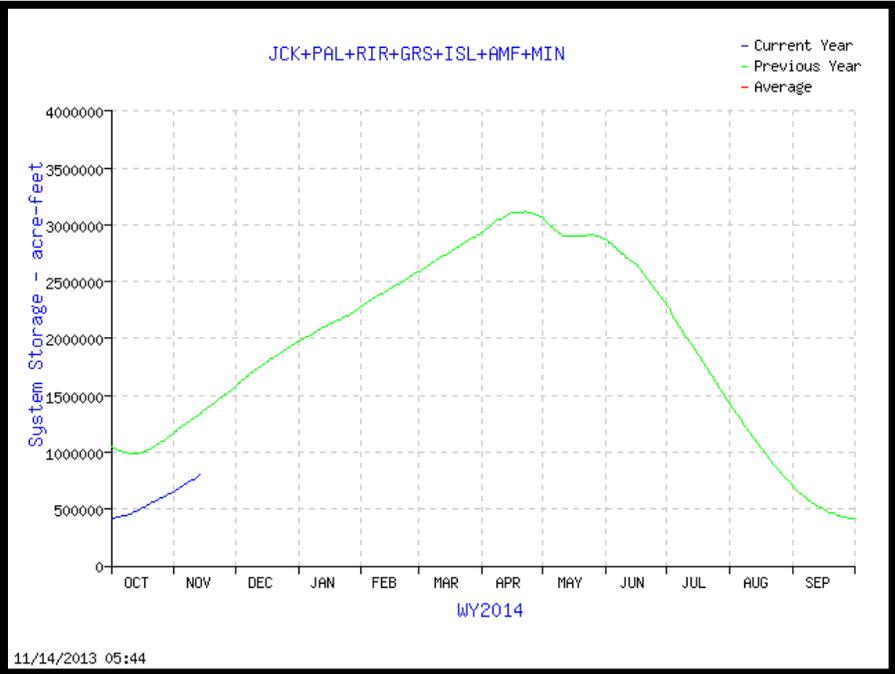


20% of Capacity in Upper Snake River System
 (Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls & Lake Walcott)

www.usbr.gov/pn/hydromet/burtea.html

Upper Snake River:
Total Space Available: 3,244,224 AF
Total Storage Capacity: 4,045,695 AF

Graph of Upper Snake River Current Total System Reservoir Storage



www.usbr.gov/pn-bin/graphwy2.pl?snasys_af

Bear River Basin Current Reservoir Conditions:

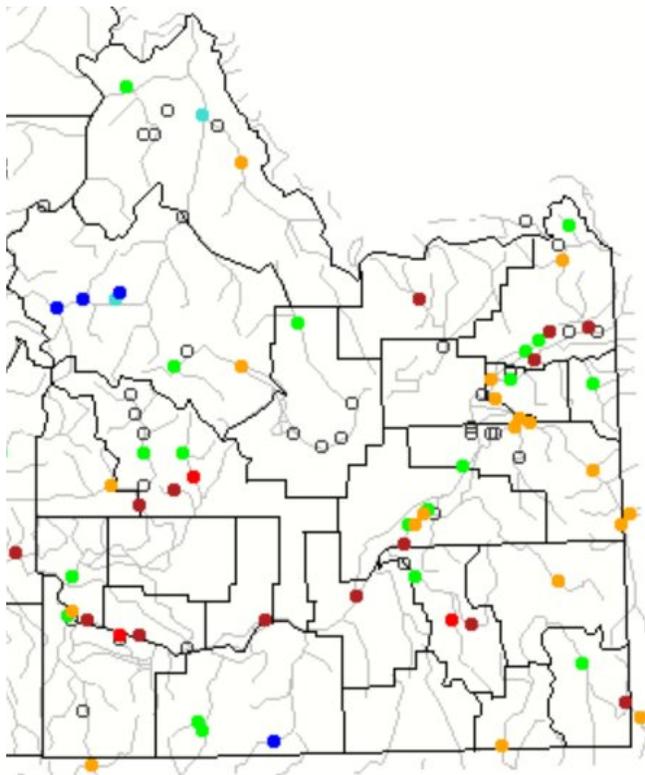
Dam Level Condition

● 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	●	5912.4e	11/14 05:00	5912.4	11/15 09:00				

www.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 October 2013.



waterwatch.usgs.gov/?m=mv01d&r=id&w=map

Explanation - Percentile classes							
●	●	●	●	●	●	●	○
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

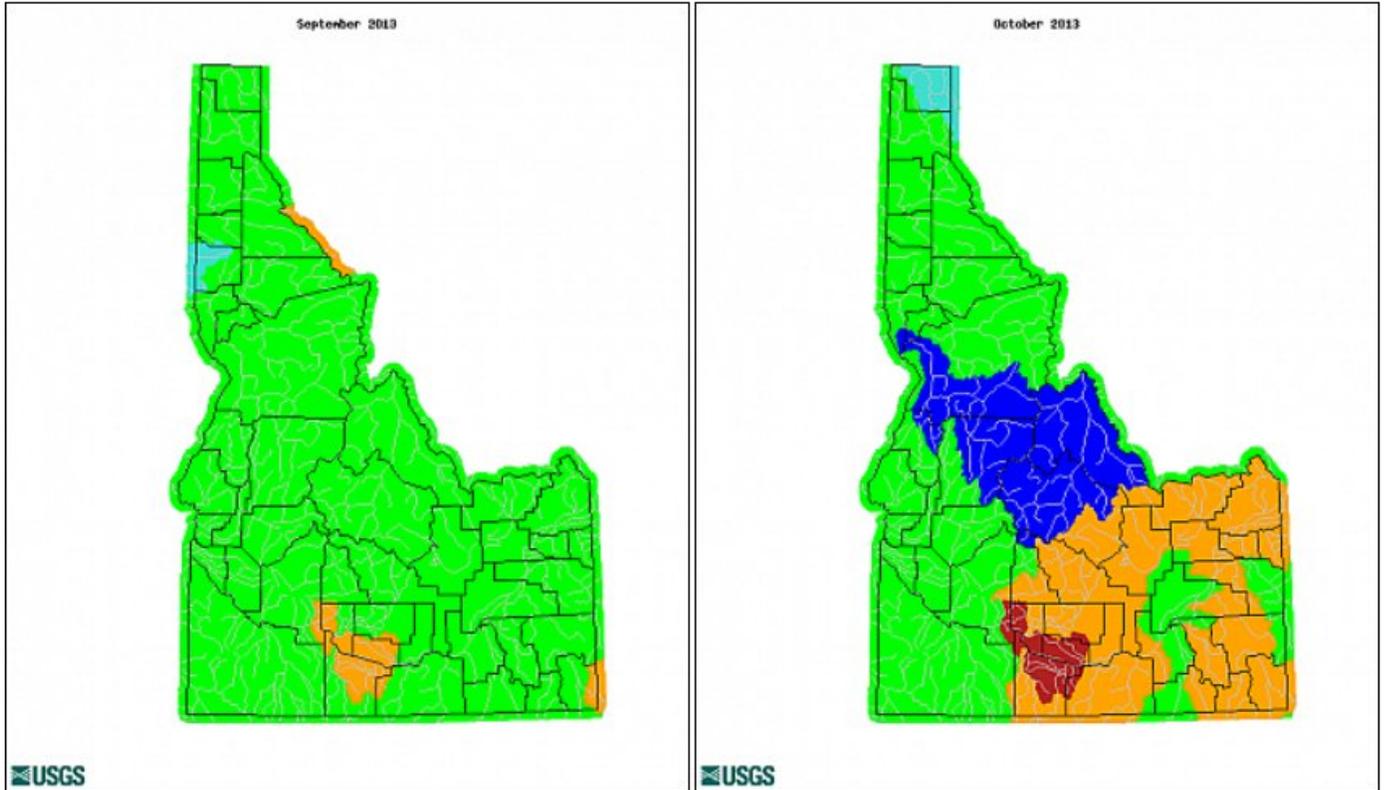
Historic Streamflow Comparison, September 2013 and October 2013:

Comparison of Monthly Streamflow Maps

Geographic Area: **Water Resource Region:** **Map Type:**

Date (YYYYMM):

Date (YYYYMM):



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

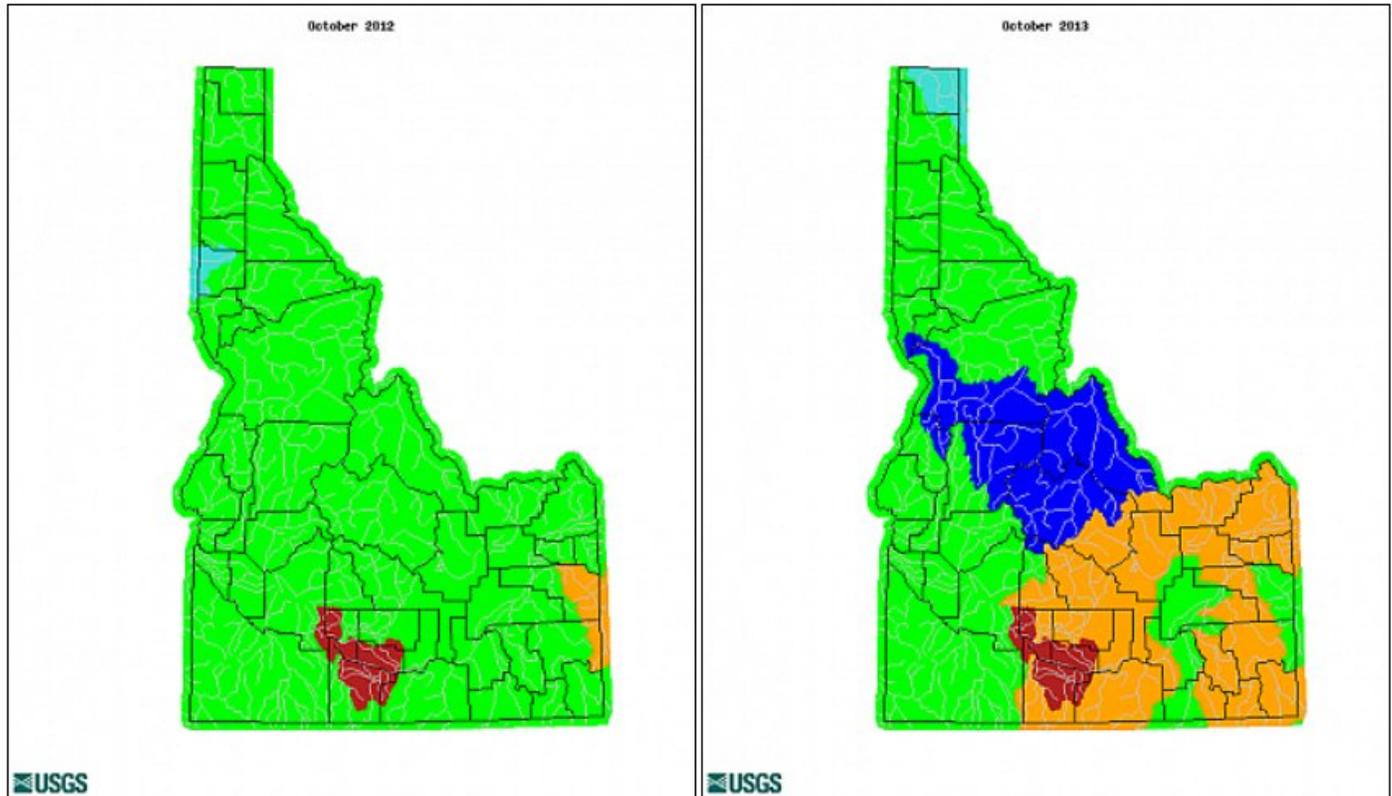
Historic Streamflow Comparison, October 2012 and October 2013:

Comparison of Monthly Streamflow Maps

Geographic Area:
Water Resource Region:
Map Type:

Date (YYYYMM):

Date (YYYYMM):

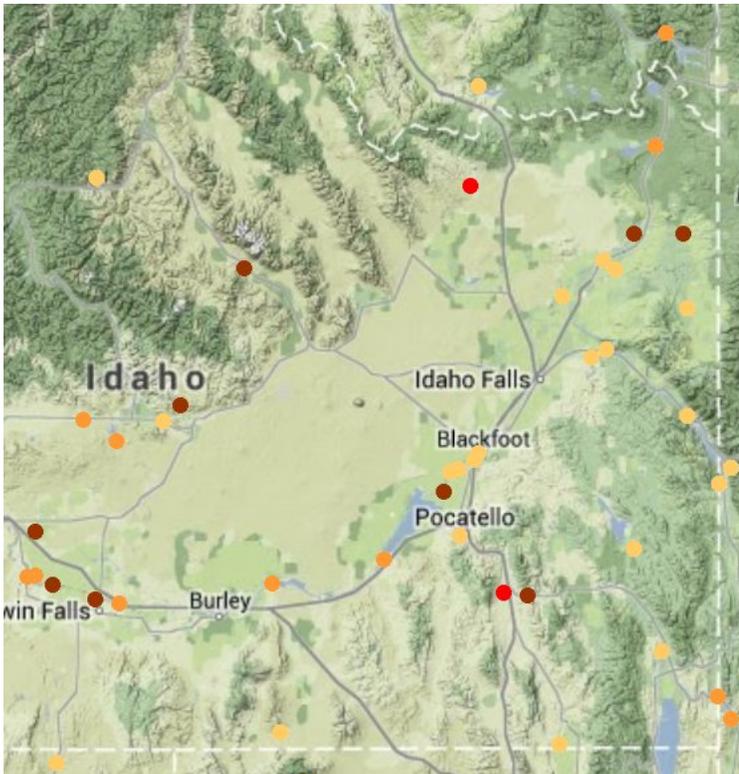


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

waterwatch.usgs.gov/index.php

Below Normal 28-Day average streamflow as of November 13, 2013 (see graphic below):

Medicine Lodge Crk nr Small, 24 cfs, 2nd percentile, (new low),
 Marsh Crk nr McCammon, 35 cfs, 1st percentile, (new low),
 Falls River nr Squirrel, 228 cfs, 4th percentile,
 Henrys Fork nr Ashton, 712 cfs, 2nd percentile,
 Portneuf River at Topaz, 78 cfs, 3rd percentile,
 Spring Crk at Sheepskin Rd nr Fort Hall, 253 cfs, 3rd percentile,
 Big Lost River blo Mackay Reservoir, 52 cfs, 3rd percentile,
 Little Wood River nr Carey, 1.5 cfs, 3rd percentile



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

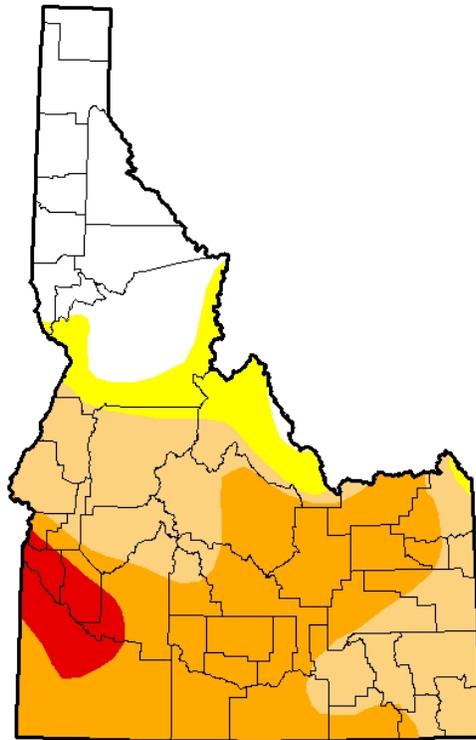
Explanation - Percentile classes				
New low	<=5	6-9	10-24	Not ranked
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

waterwatch.usgs.gov/index.php?m=pa28d_dry&r=id&w=map

Drought Information:

**U.S. Drought Monitor
Idaho**

November 12, 2013
(Released Thursday, Nov. 14, 2013)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	21.66	78.34	70.07	41.87	5.09	0.00
Last Week <i>11/3/2013</i>	21.67	78.33	70.05	41.87	5.09	0.00
3 Months Ago <i>8/13/2013</i>	2.36	97.64	94.01	51.52	10.51	0.00
Start of Calendar Year <i>1/1/2013</i>	45.29	54.71	47.63	0.52	0.00	0.00
Start of Water Year <i>10/1/2013</i>	12.06	87.94	76.96	43.33	5.09	0.00
One Year Ago <i>11/13/2012</i>	26.83	73.17	58.56	0.54	0.00	0.00

Intensity:

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

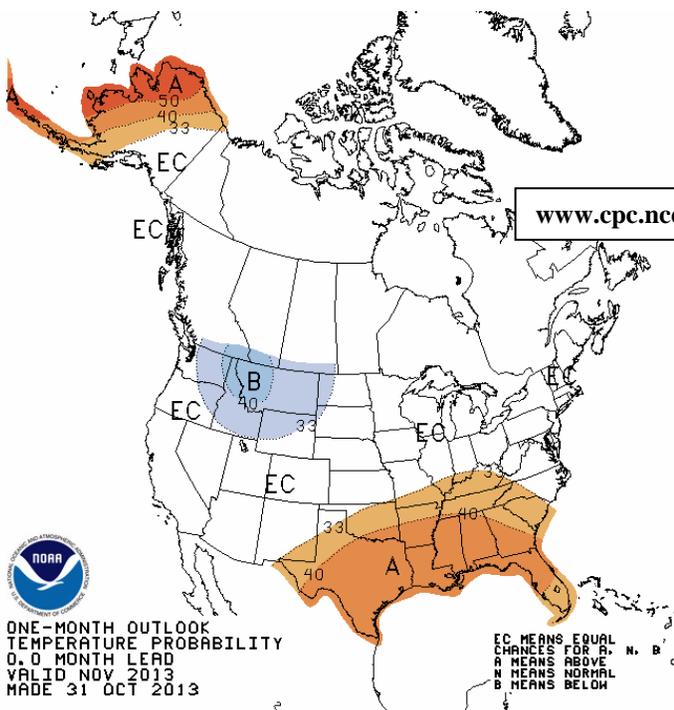
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:

*David Simeral
Western Regional Climate Center*



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

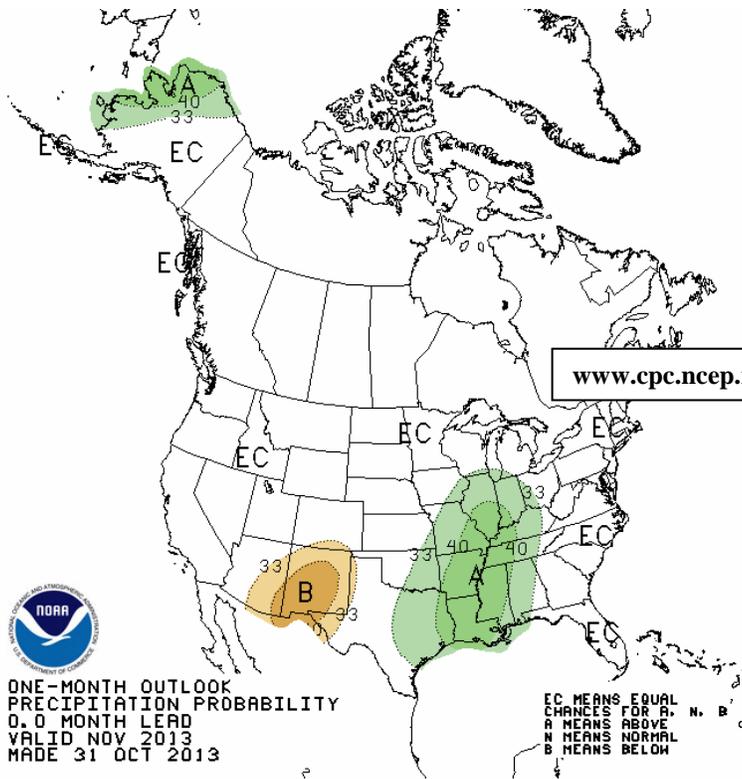


www.cpc.ncep.noaa.gov/products/predictions/30day/off15_temp.gif



**ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID NOV 2013
MADE 31 OCT 2013**

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

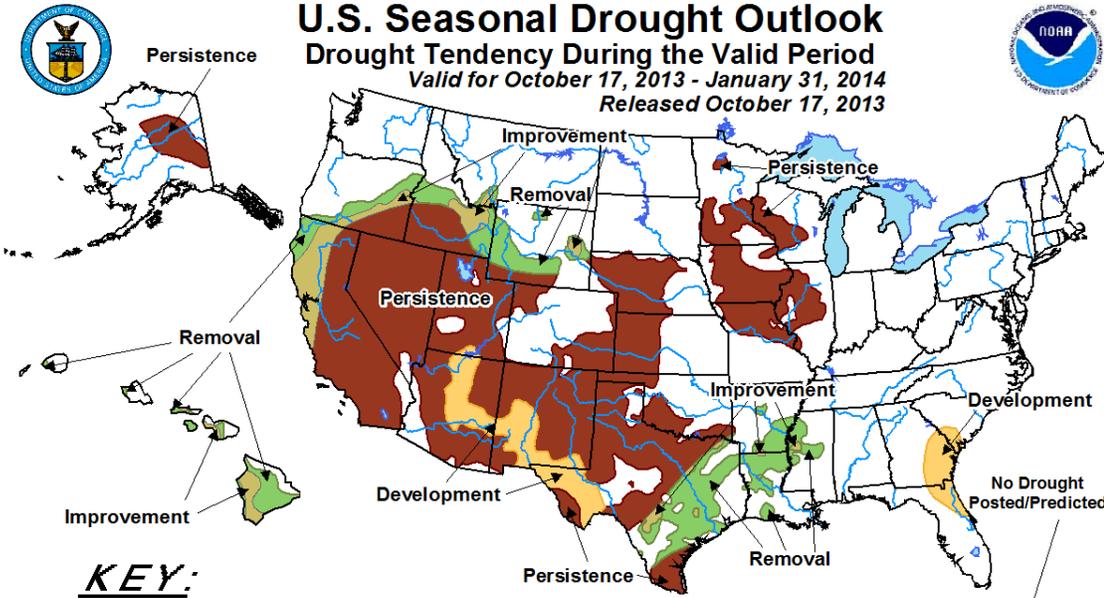


www.cpc.ncep.noaa.gov/products/predictions/30day/off15_prpc.gif

U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid for October 17, 2013 - January 31, 2014
Released October 17, 2013



KEY:

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

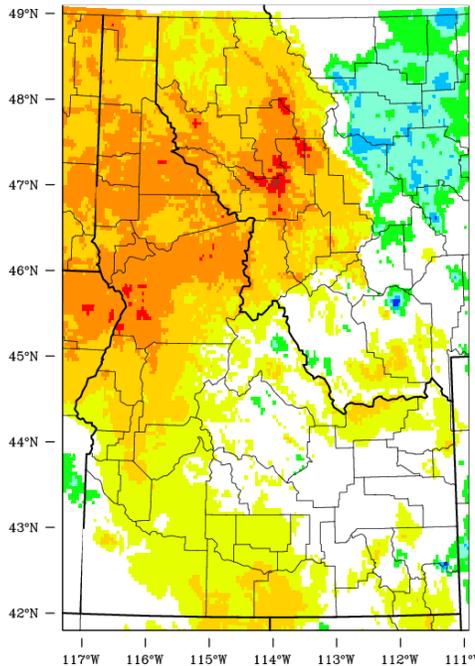
Author: Adam Allgood, Climate Prediction Center, NOAA
http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html

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.

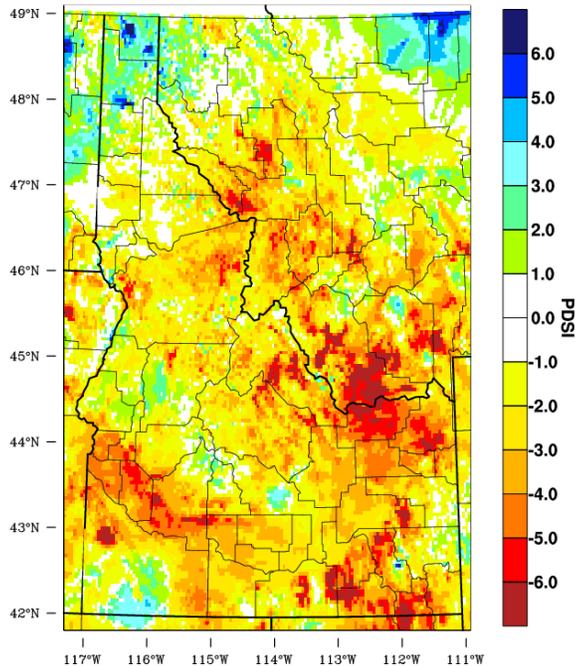
NOTE: The tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The Green areas imply drought removal by the end of the period (D0 or none)

www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

Idaho - 1 month SPI
October 2013



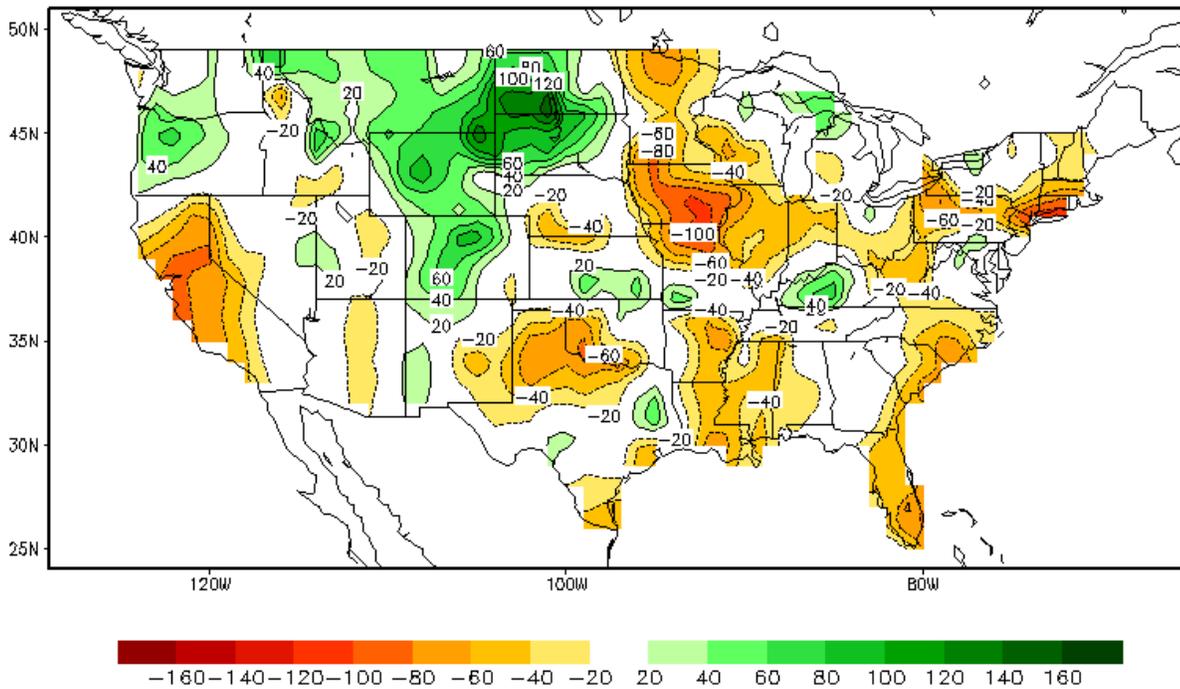
Idaho - PDSI
October 2013



WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 6 NOV 2013 WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 6 NOV 2013

www.wrcc.dri.edu/monitor/WWDT/index.php?region=id

Soil Moisture Anomaly (mm) Last day of OCT, 2013



www.cpc.ncep.noaa.gov/products/Soilmst_Monitoring/US/Soilmst/Soilmst.shtml#

cc:
Mike Schaffner, Western Region HCSD
Harold Opitz, Hydrologist-in-Charge, Northwest River Forecast Center
Joe Intermill, Service Coordination Hydrologist, Northwest River Forecast Center
Steve King, Development and Operations Hydrologist, Northwest River Forecast Center
Michelle Stokes, Hydrologist-in-Charge, Colorado Basin River Forecast Center
Kevin Werner, Service Coordination Hydrologist, Colorado Basin River Forecast Center
John Lhotak, Development and Operations Hydrologist, Colorado Basin River Forecast Center
Hydrometeorological Information Center
Rick Dittmann, Meteorologist-in-Charge, Pocatello, Idaho
Troy Lindquist, Senior Service Hydrologist, Boise, Idaho
Chuck Orwig, Senior Hydrologist, Northwest River Forecast Center
Joanne Salerno, Senior Hydrologist, Northwest River Forecast Center
Brent Bernard, Hydrologist, Colorado Basin River Forecast Center