

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: November 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: December 12, 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:

Once again, this past month was fairly dry. There were about two major storm systems that dropped high elevation snow within the Hydrologic Service Area (HSA), with the greatest amount being the November 16th event dropping an estimated snow water equivalent of about 1.5” at the White Elephant SNOTEL (elevation 7,710 ft) in the Henrys Fork drainage. Most accumulation was over extreme eastern Idaho and in the Bear River basin. Of note, the Grand Targhee SNOTEL site (9,260 ft) ended the month with 16 inches of swe for the month.

November brought an average of around a half to three inches of precipitation within the HSA excluding the Snake River plain, the Lost River, Goose and Raft River drainages where in these locations it was the driest. The greatest amount of precipitation fell in the headwaters of the Henrys Fork according to the below AHPS departure from and percent of normal graphics. The temperature departure from normal for November shows that mostly across the HSA, temperatures were mostly three to six degrees F warmer from normal with the exception being Cassia County being more close to normal. The forecast for the El Niño neutral pattern has been extended to continue into next summer. As far as water supply goes, the basins fairing the best thus far are the Henrys Fork/Teton and the Snake above Palisades, which are currently above 120% of normal. The basins lagging behind are the Goose followed by the Raft River and Willow/Blackfoot/Portneuf basins, which range from 53 to 73% of normal. It is still early in the season, so things will 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 mostly 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 Oakley COOP on the 12th, which climbed to 72°F. The station with the lowest recorded temperature (non-SNOTEL) was the Island park RAWs station at -14°F on November 22nd. The highest recorded 24-hr precipitation (non-SNOTEL) occurred at the Driggs COOP station where 1.03 inch fell on the 17th. The Driggs site also recorded the highest snowfall at 7.3 inches on the same day.

Reservoirs last month increased capacity overall by around 7% in the upper Snake River basin system (an increase of about 283 KAF occurred over the month and is currently sitting at 27% of capacity overall).

Compared to last year at this time, it was about 41% of capacity. Water storage continues 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 10%, American Falls 13%, and Little Wood Reservoir 8% of capacity.

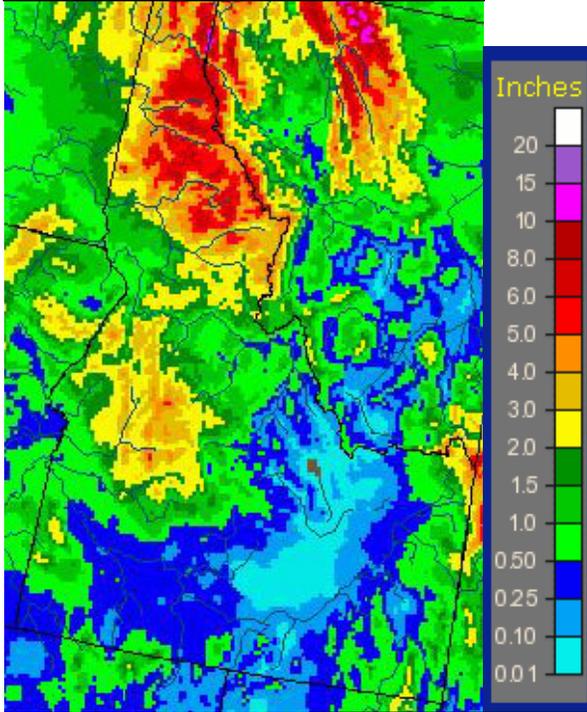
Current streamflow conditions in eastern Idaho are currently below normal to near normal for the majority of the unregulated streams (see map below).

Drought conditions across the state have 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. The U.S. Seasonal Drought Outlook forecast currently paints a brighter future drought wise. It shows a drought removal likely over most of eastern Idaho and an improvement over most of central Idaho. Drought persistence should remain near the ID-UT border in the Goose and Raft River basins.

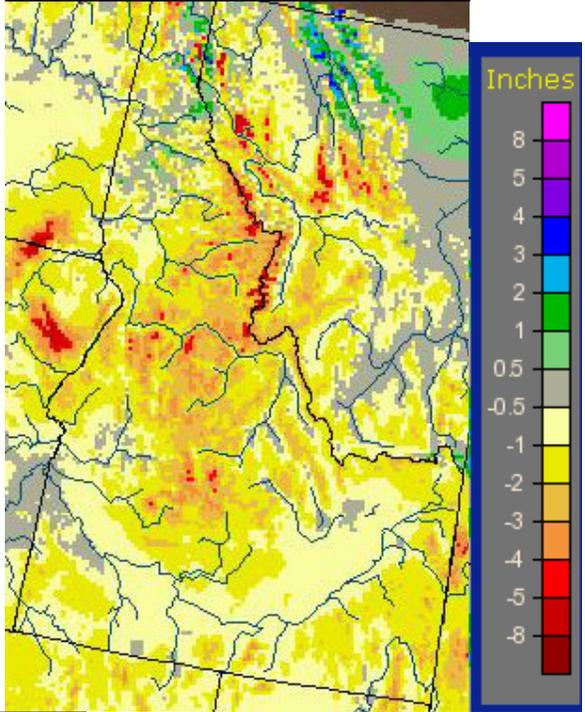
Looking at the long-term climate forecast in the next three months, it appears that we may have near normal temperatures and a 33% chance of above normal precipitation in the Henrys Fork basin.

Precipitation:

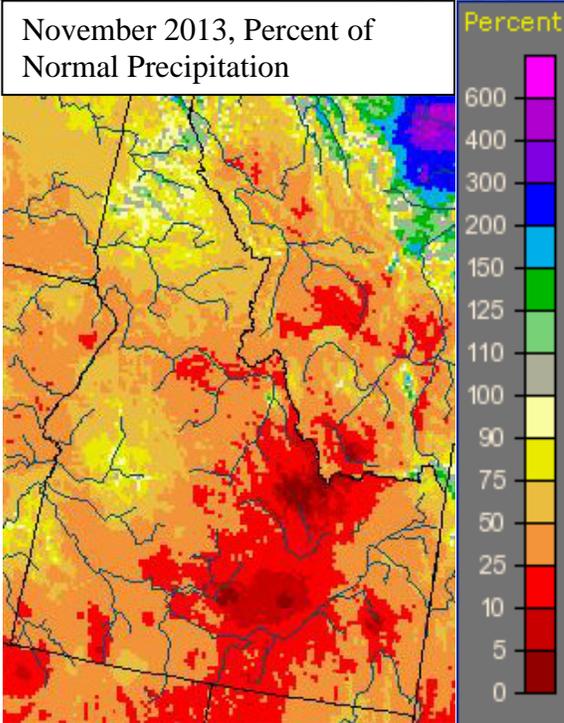
November 2013, Observed Precipitation



November 2013, Departure from Normal Precipitation

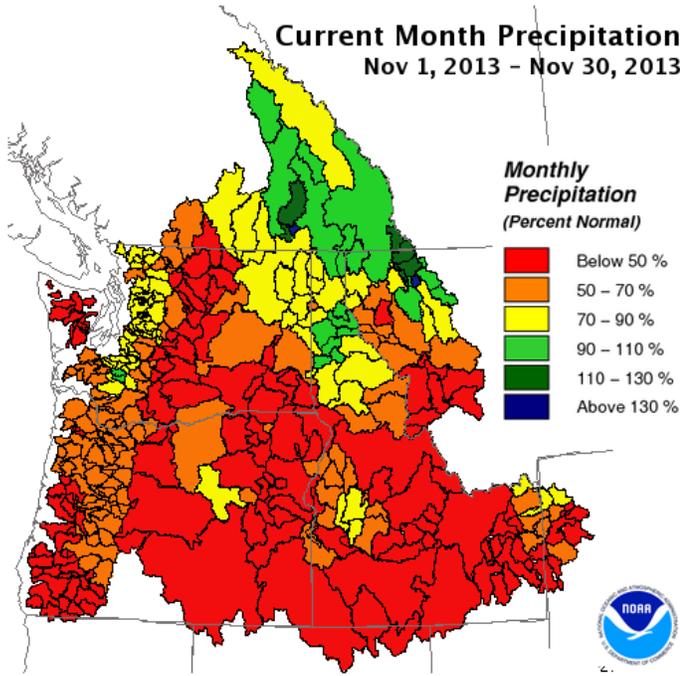


November 2013, Percent of Normal Precipitation



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

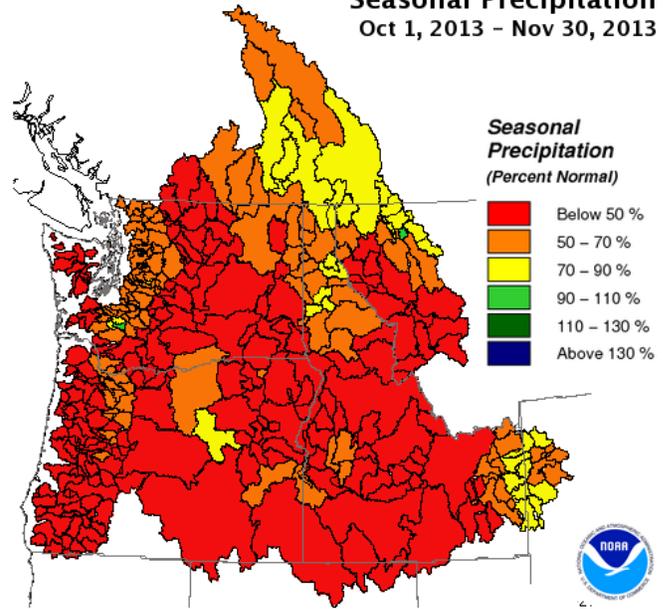
Current Month Precipitation
Nov 1, 2013 - Nov 30, 2013



Creation Time: Sunday, Dec 1, 2013

Northwest River Forecast Center

Seasonal Precipitation
Oct 1, 2013 - Nov 30, 2013



Creation Time: Sunday, Dec 1, 2013

Northwest River Forecast Center

www.nwrfc.noaa.gov/WAT_RES_wy_summary/20131201/CurMonMAP_2013Nov30_2013120117.png

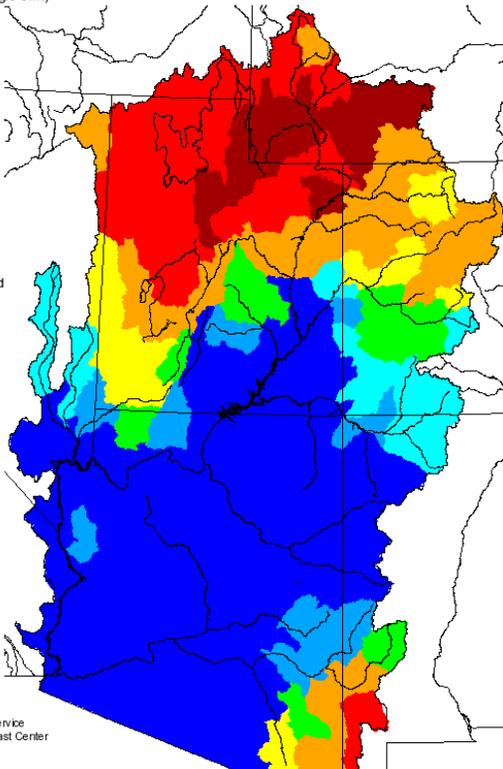
www.nwrfc.noaa.gov/WAT_RES_wy_summary/20131201/SeasonalMAP_2013Nov30_2013120117.png

Monthly Precipitation for November 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

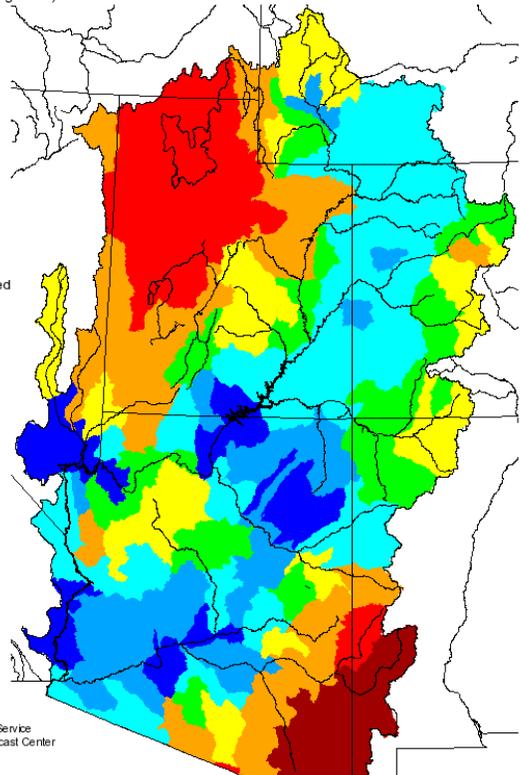
www.cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?M?2013?11

Seasonal Precipitation, October 2013 - November 2013

(Averaged by Hydrologic Unit)

% Average

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



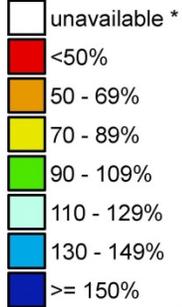
Prepared by
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

www.cbrfc.noaa.gov/product/mapsum/mapsum.cgi??cbrfc?S?2013?11

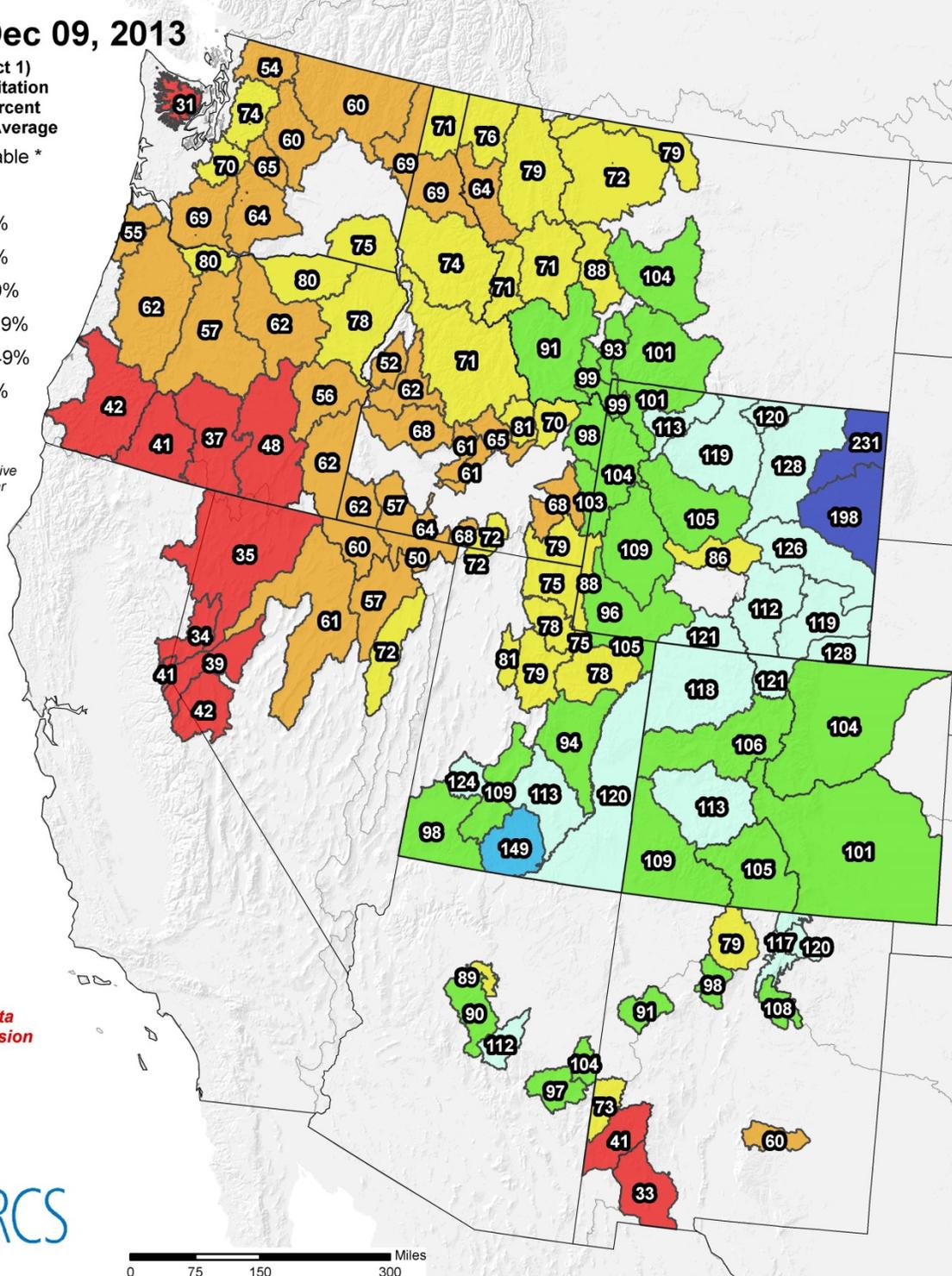
Westwide SNOTEL Water Year (Oct 1) to Date Precipitation % of Normal

Dec 09, 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).

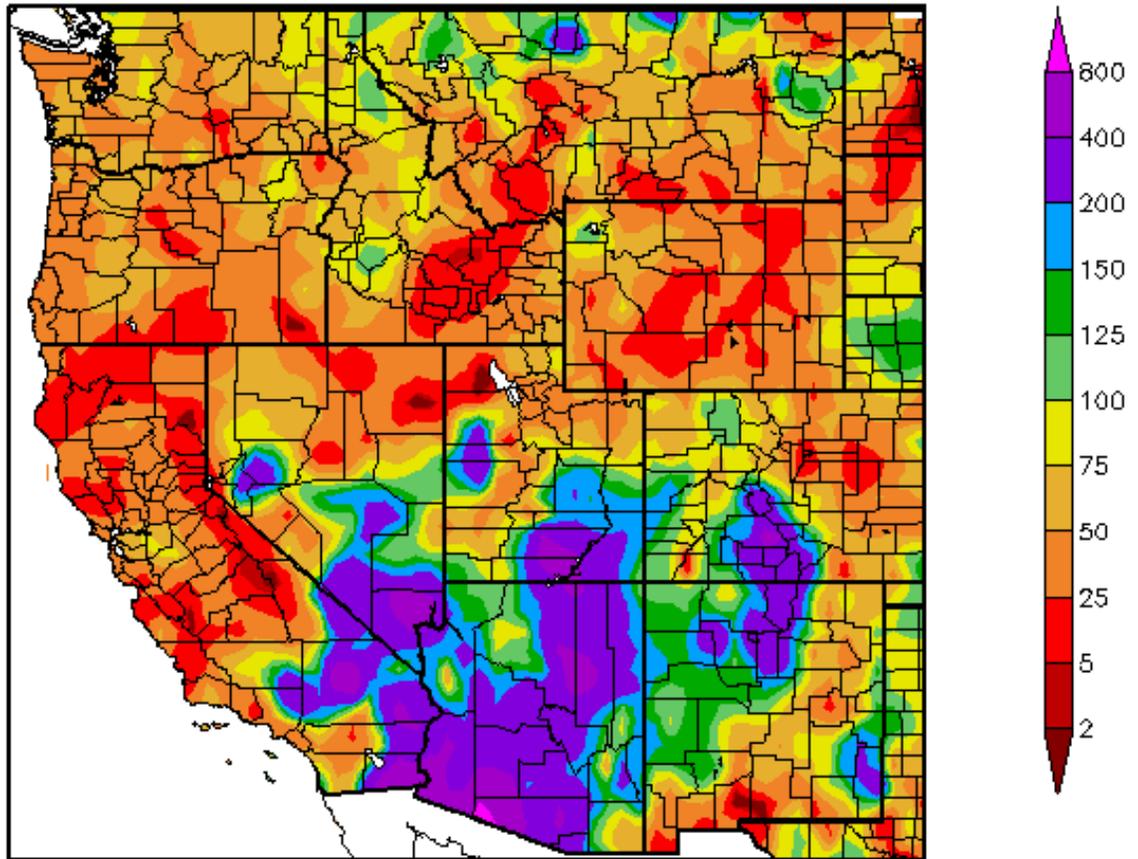
Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>
 Based on data from <http://www.wcc.nrcs.usda.gov/reports/>
 Science contact: Jim.Marron@por.usda.gov 503 414 3047

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

****Idaho SNOTEL Month-to-Date Precipitation Percent of Normal graphic currently not available**

November was rather dry across southern Idaho, primarily in the Snake River Plain. The entire Pacific Northwest was in the same situation. Last month was kind to the southwest U.S., especially Arizona, as depicted in the below graphic.

Percent of Normal Precipitation (%) 11/1/2013 – 11/30/2013

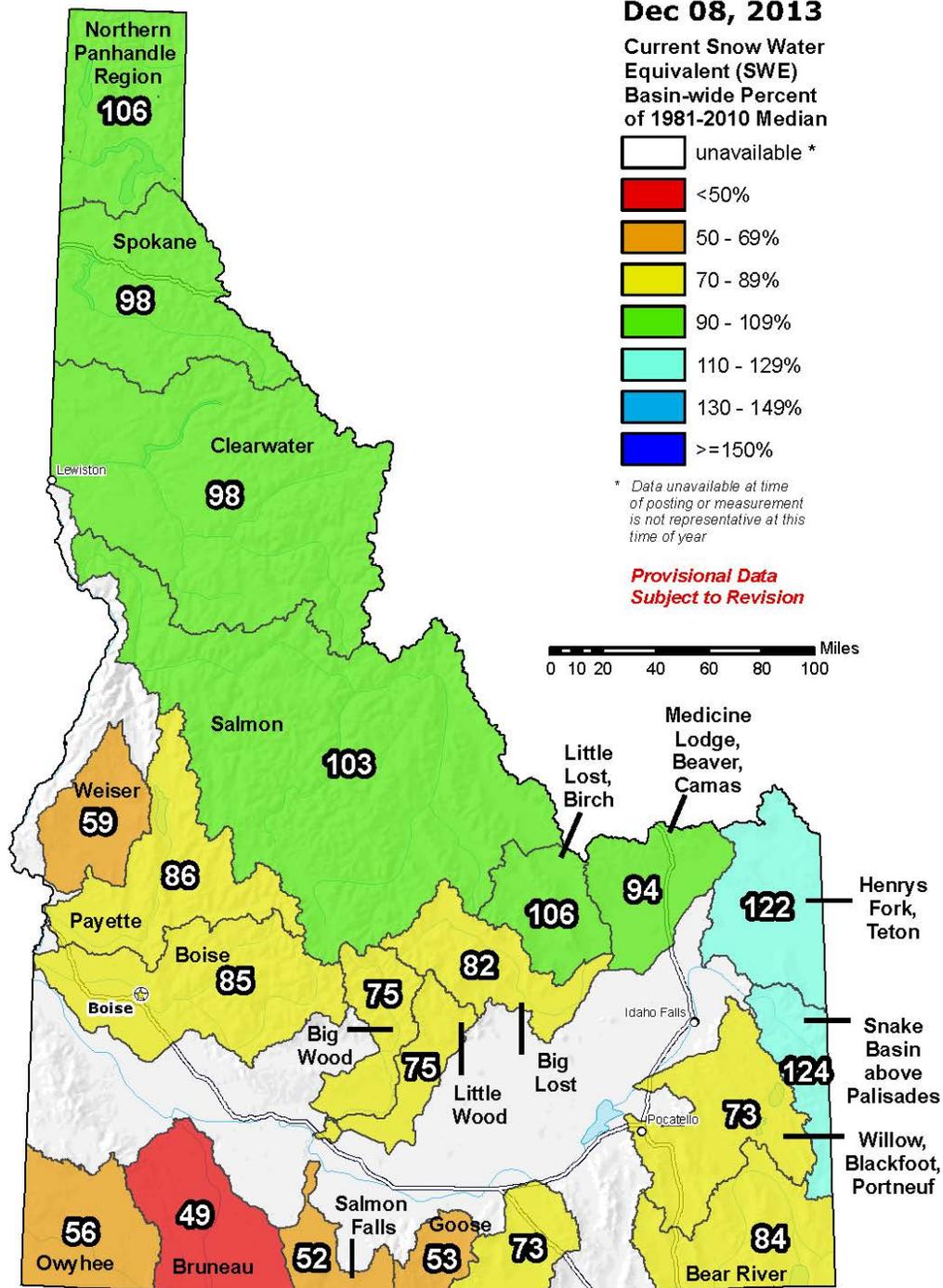


Generated 12/5/2013 at HPRCC using provisional data.

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

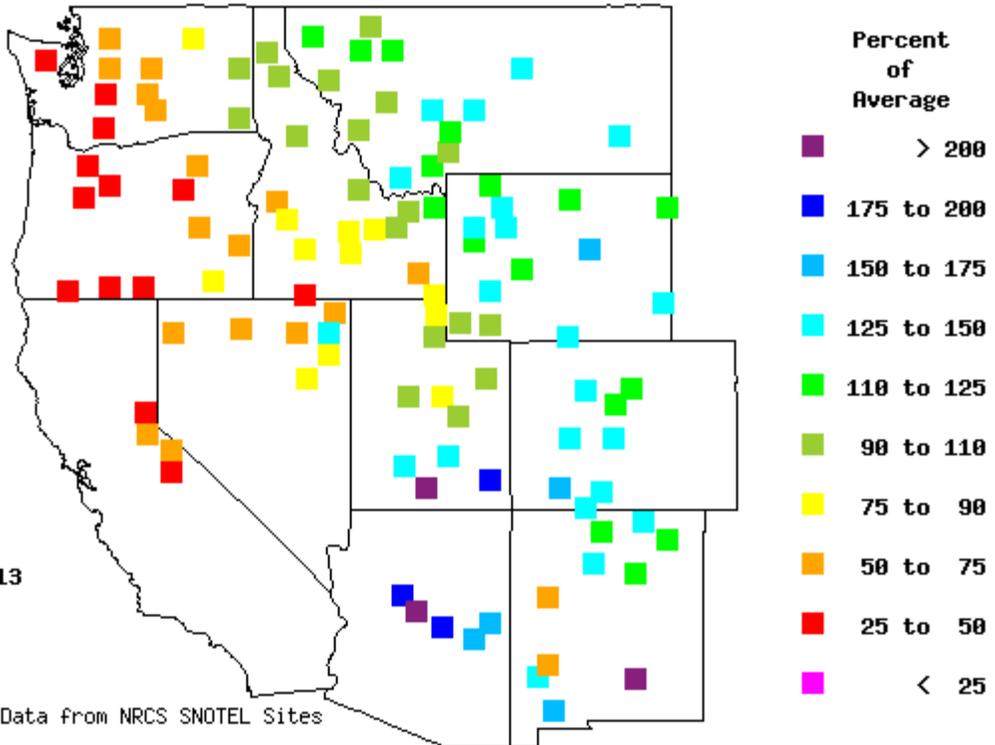


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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:
DECEMBER 8 , 2013

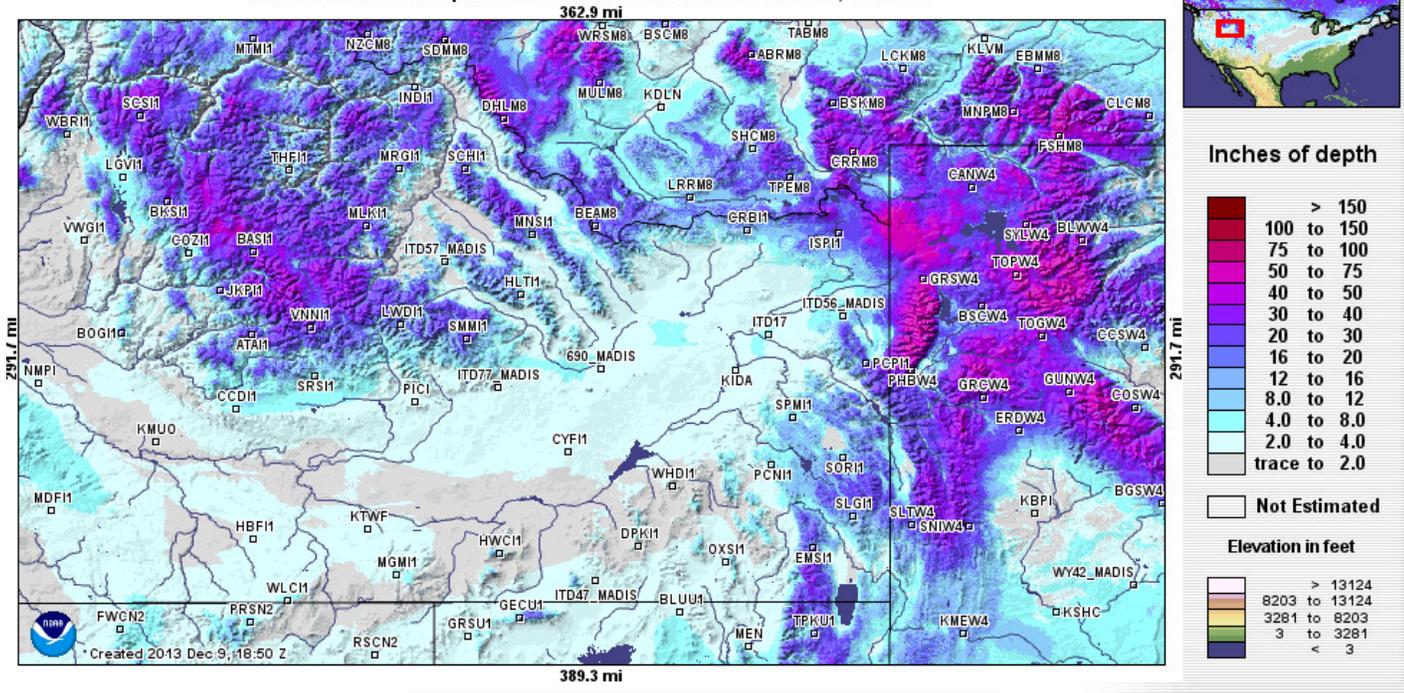
Provisional Data
Based on Mountain Data from NRCS SNOTEL Sites

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 December 9, 19:00 Z



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

ENSO Update:

Latest Observed SST Departure: Niño 3.4 ~ 0.2 Deg C

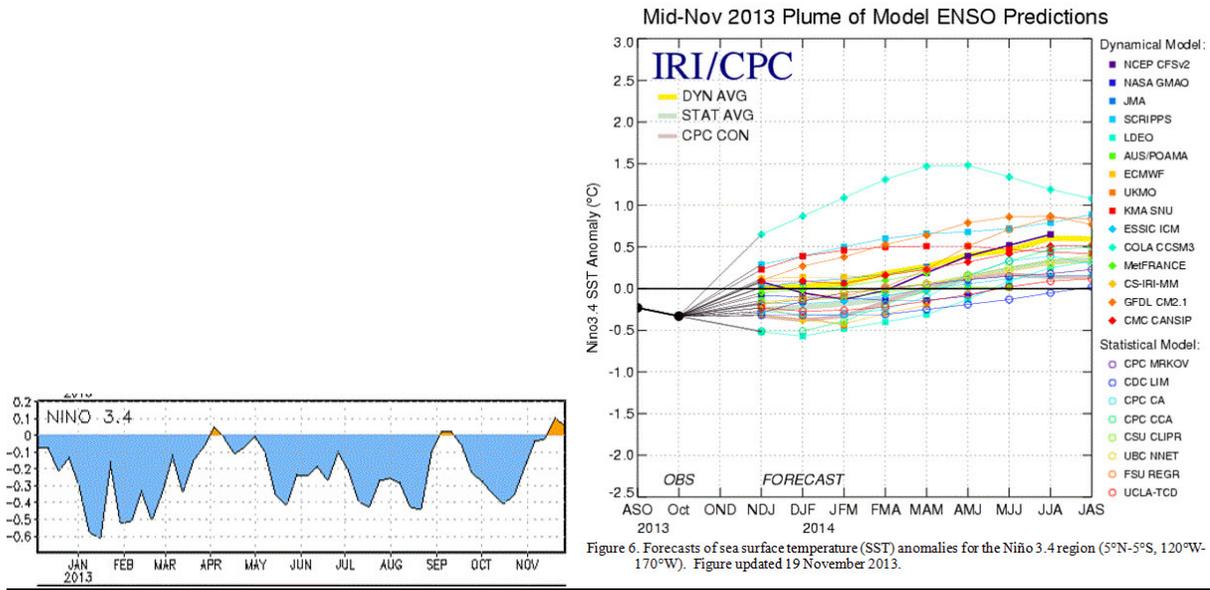


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure updated 19 November 2013.

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 Summer 2014

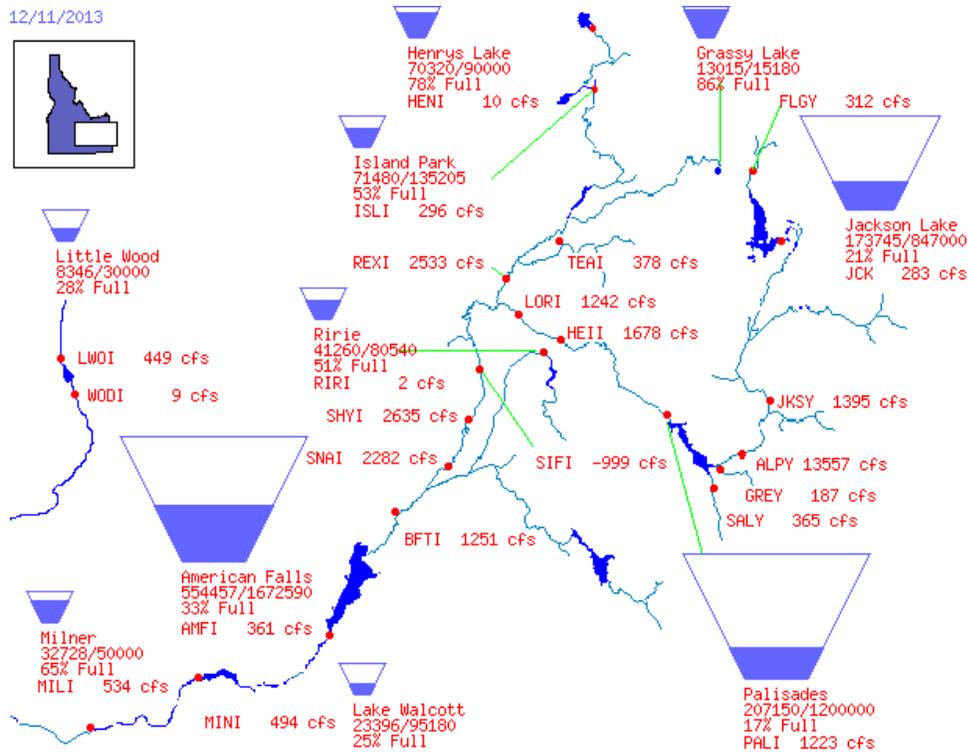
Note: The ENSO Neutral climate pattern is forecast to continue through the winter and into summer 2014. Equatorial sea surface temperatures are near average across much of the Pacific. The MJO has been incoherent lately and is not expected to be a significant factor for the next little while. The Arctic Oscillation (AO) has remained positive over the past few weeks.

Reservoirs:

Reservoir	% Capacity Oct. 31 ¹	% Capacity Nov. 30 ²	Percent Change	% of Average ²	% of Last Year ²
Henrys Lake	76	n/a	n/a	n/a	n/a
Island Park	36	n/a	n/a	n/a	n/a
Jackson Lake	18	n/a	n/a	n/a	n/a
Palisades	24	n/a	n/a	n/a	n/a
Ririe	50	n/a	n/a	n/a	n/a
Blackfoot	41	n/a	n/a	n/a	n/a
American Falls	14	n/a	n/a	n/a	n/a
Bear Lake	46	n/a	n/a	n/a	n/a
Magic	14	n/a	n/a	n/a	n/a
Little Wood	16	n/a	n/a	n/a	n/a
Mackay	16	n/a	n/a	n/a	n/a
Oakley	13	n/a	n/a	n/a	n/a
Lake Walcott	24 ³	25 ⁴	1	n/a	n/a
Milner	65 ³	65 ⁴	0	n/a	n/a

Source: (1) NRCS October 31, 2013; (2) NRCS November 30, 2013 (data not available).
 (3) US Bureau of Reclamation (BOR) November 13, 2013 (4) BOR December 11, 2013

12/11/2013

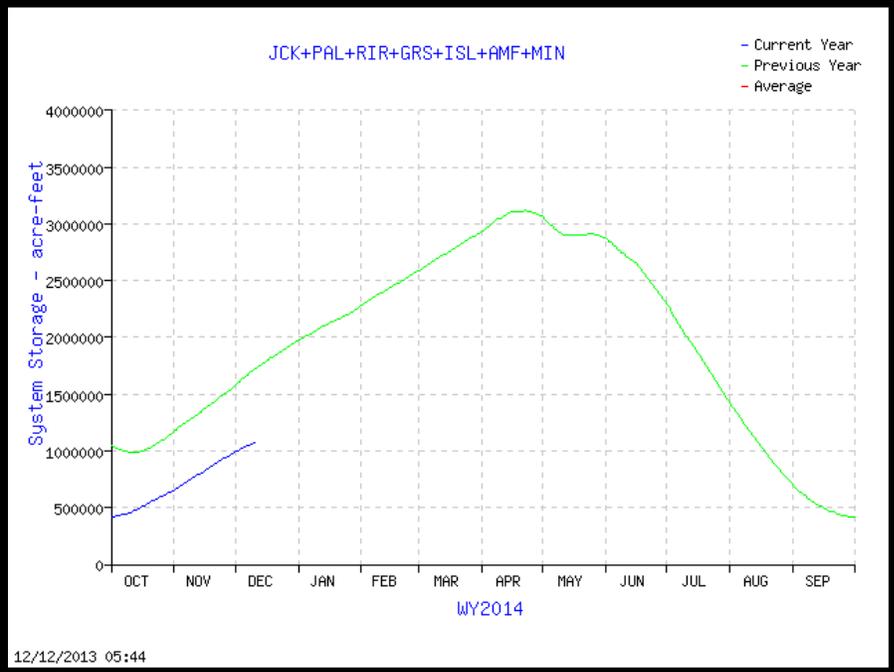


27% of Capacity in Upper Snake River System
 (Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls & Lake Walcott)

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

Upper Snake River:
 Total Space Available: 2,961,188 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:

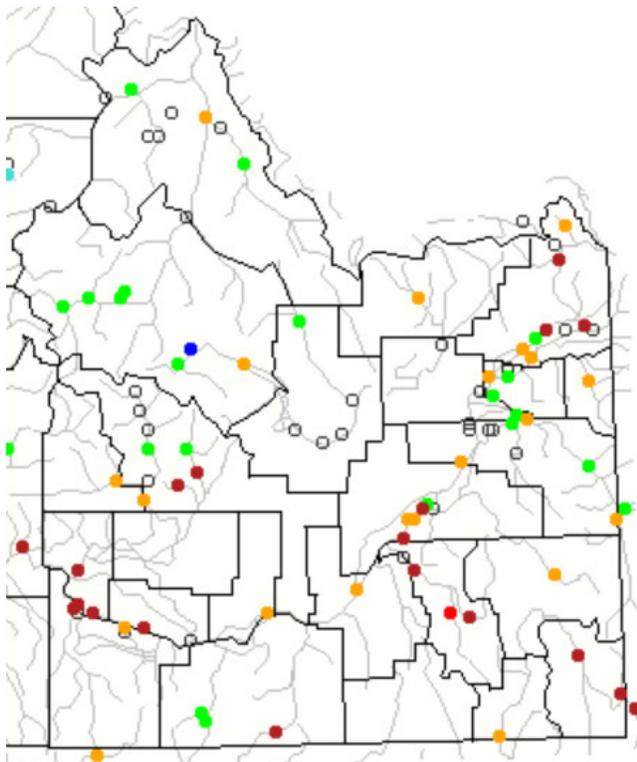
Dam Level Condition

● 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	●	5912.4	12/11 05:00	5912.5	12/13 11:00				

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 November 2013.

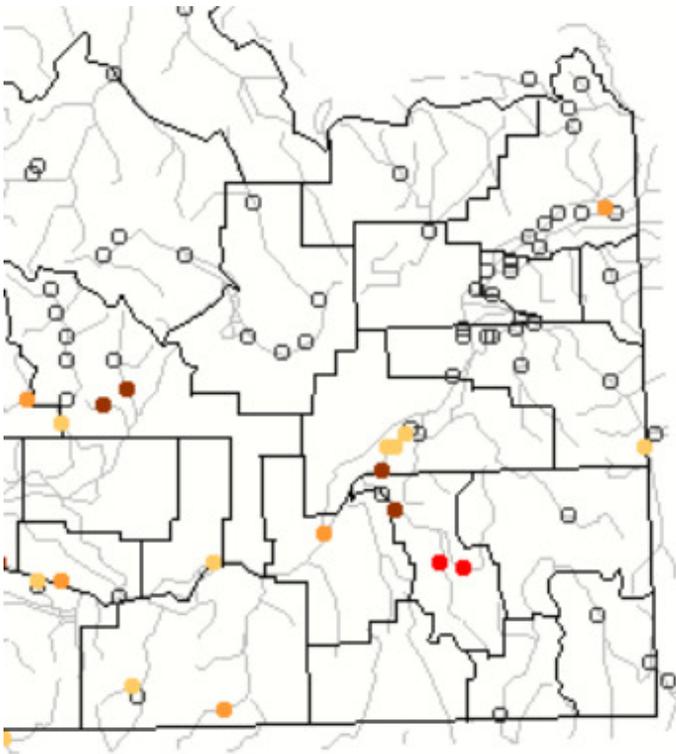


waterwatch.usgs.gov/?m=mv01d&r=id&w=map

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

Below Normal 28-Day average streamflow as of December 11, 2013 (see graphic below):

Portneuf River at Topaz, 86 cfs, 1st percentile, (new low),
 Marsh Crk nr McCammon, 36 cfs, 1st percentile, (new low),
 Portneuf River at Pocatello, 153 cfs, 3rd percentile,
 Spring Crk at Sheepskin Rd nr Fort Hall, 256 cfs, 4th percentile,
 Silver Creek nr Picabo, 91 cfs, 3rd percentile,
 Little Wood River nr Carey, 1.2 cfs, 3rd percentile



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

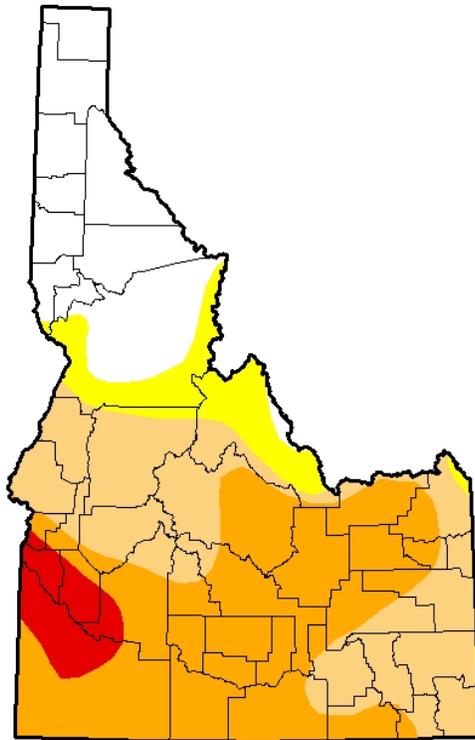
Explanation - Percentile classes				
●	●	●	●	○
New low	≤5	6-9	10-24	Not ranked
Extreme hydrologic drought	Severe hydrologic drought	Moderate hydrologic drought	Below normal	

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

Drought Information:

**U.S. Drought Monitor
Idaho**

December 10, 2013
(Released Thursday, Dec. 12, 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	41.66	5.09	0.00
Last Week <i>12/3/2013</i>	21.66	78.34	70.07	41.87	5.09	0.00
3 Months Ago <i>9/10/2013</i>	2.36	97.64	94.76	62.32	10.52	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>12/11/2012</i>	45.29	54.71	47.63	0.52	0.00	0.00

Intensity:

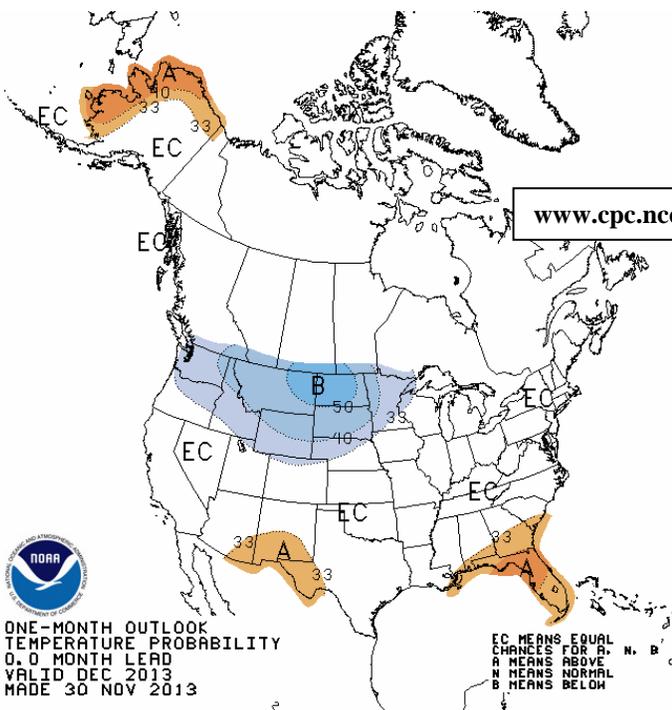
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

Author:
Michael Brewer
NCDC/NOAA



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

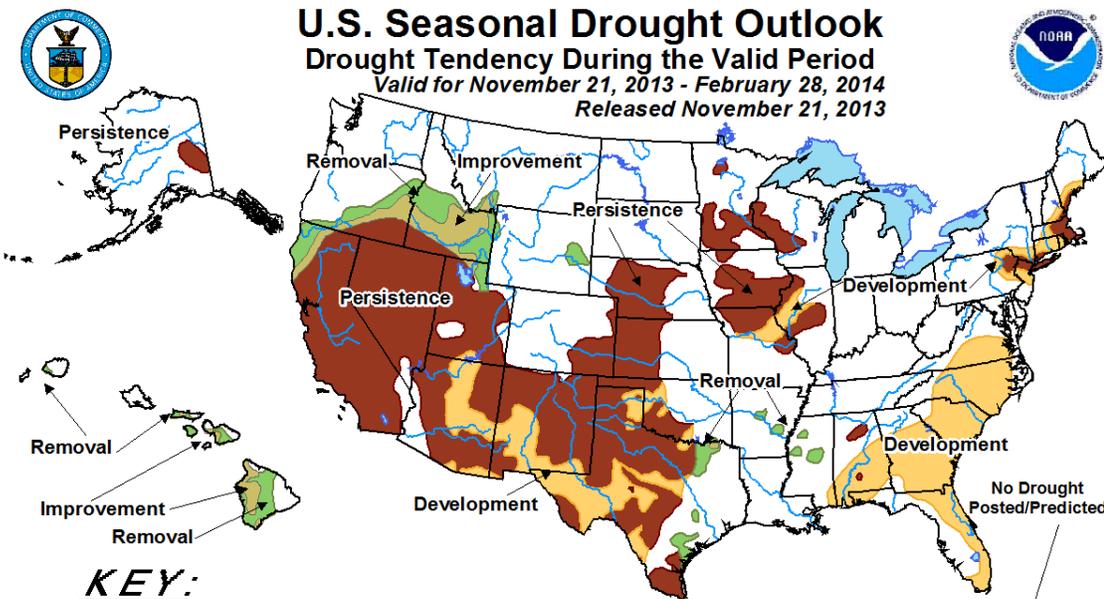
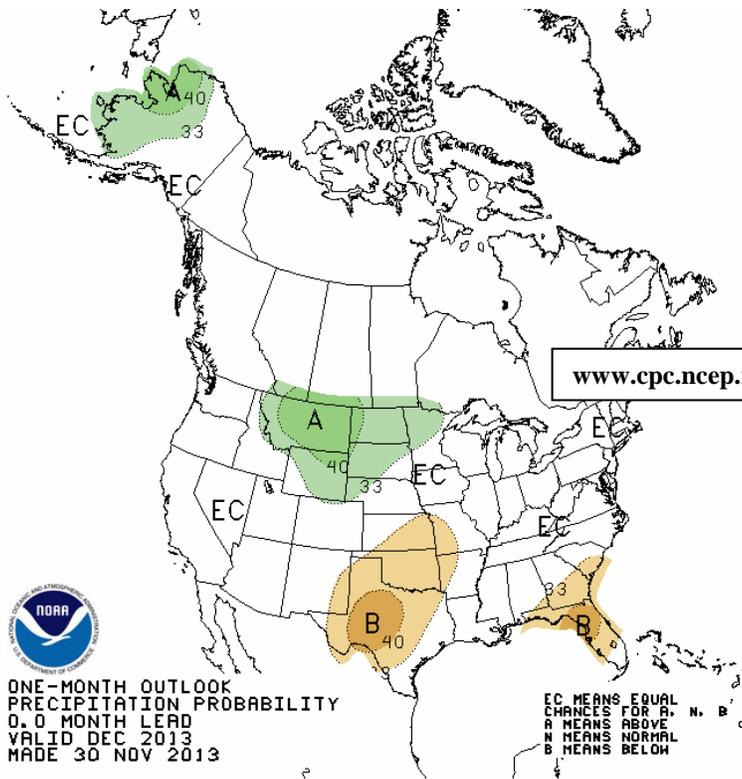


www.cpc.ncep.noaa.gov/products/predictions/30day/off15_temp.gif



ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID DEC 2013
MADE 30 NOV 2013

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



- KEY:**
- Drought persists or intensifies
 - Drought remains but improves
 - Drought removal likely
 - Drought development likely

Author: David Miskus, 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

cc:
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Joe Intermill, Service Coordination Hydrologist, Northwest River Forecast Center
Steve King, Development and Operations Hydrologist, Northwest River Forecast Center
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