

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: 2012
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 7, 2012	
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

Compared to October, last month more precipitation fell throughout the entire state, with 2-5 inches widespread over the mountainous areas of the Hydrologic Service Area and more rain than normal in the Snake River Valley, but we are still behind normal in the mountainous areas of the HSA. As a result of the offshore Atmospheric River system this week, and over the weekend, copious amounts of precipitation fell widespread over the area. The Pacific Northwest region received much needed moisture as indicated in the NRCS month-to-date graphic below. As depicted in the AHPS precipitation images below, the entire state received a great deal of moisture, especially along the Continental Divide. In our HSA, we averaged about an inch and a half to two inches across the area putting us near normal this last month in our accumulation (except for the Snake River Valley). This brought some much needed soil moisture and snowpack to the higher elevations, but still have a soil moisture deficit in some areas and primarily in the Caribou Highlands area. This may change soon as we have additional precipitation in the near term forecast.

Warmer than normal temperatures have dominated this past month raising the snow/rain elevation, but at the very high elevations the snow is very deep. The raising of the rain/snow elevation does not bid well for snowpack accumulation, but colder temperatures are forecast for this coming week, which may help in the widespread snowpack build. As far as the one-month outlook is concerned, we stand to have an equal chance of normal temperatures and a 33% chance of higher than normal precipitation within the HSA. The winter outlook still calls for ENSO neutral conditions to dominate. Although warm temperatures have dominated lately, central Idaho has received record snow levels at high elevations (since records started in 1981) at the SNOTEL sites.

The greatest amount of precipitation fell in the form of snow in the high elevations of the Sawtooths near Sun Valley and Stanley and the upper Snake Basin in Wyoming ranging in the 50-75 inches of depth according to the NOHRSC analysis. Of the data available for the month, the highest 24-hour precipitation total was 0.93 inch on the 26th day of the month at the Ashton site, which also received the greatest monthly total accumulation at 2.14 inches. The station having the highest temperature was the Minidoka Dam weather station at 79°F on the 1st with the lowest temperature being recorded at the Island Park station at a very cold -12°F on the 11th.

Looking at snow water equivalent percents of normal changes from October to November, the Salmon and upper Snake River Basins increased significantly with the added recent snowfall (especially in the Big/Little Lost & Big/Little Wood and Henry's Fork River Basins. The higher elevations at SNOTELS received amounts

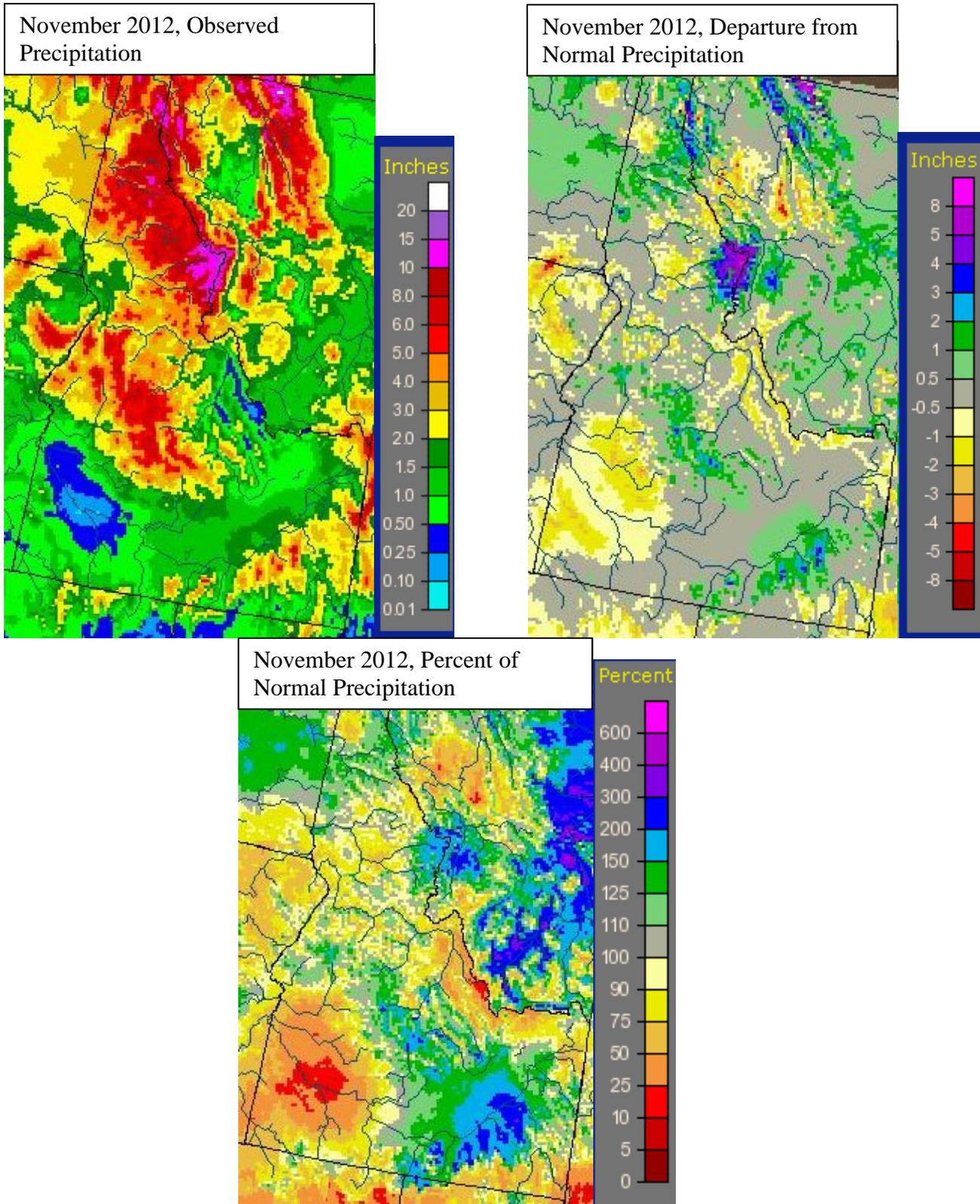
of 3-4 inches of SWE. Conversely, the mountainous basins in southeast Idaho did not fare so well (Bear, Willow, Blackfoot & Portneuf River Basins).

With this added precipitation, reservoirs increased capacity overall by around 11% in the upper Snake River Basin system (an increase of over 430 KAF since last month). Most notable were American Falls, Milner and Mackay reservoirs, with increases of 17%, 16% and 14% of capacity, respectively. Recent rains in the Big Lost River valley contributed to increasing the Mackay Reservoir to 133% of average. Conversely, Magic and Ririe reservoirs decreased in capacity by 15% and 9% respectively according to NRCS data. Worthy of noting, the Big Wood Canal Company started drawing down the Magic Reservoir late October to perform maintenance on a leaking hydraulic oil line. The repair work is finished, but they are continuing to make releases.

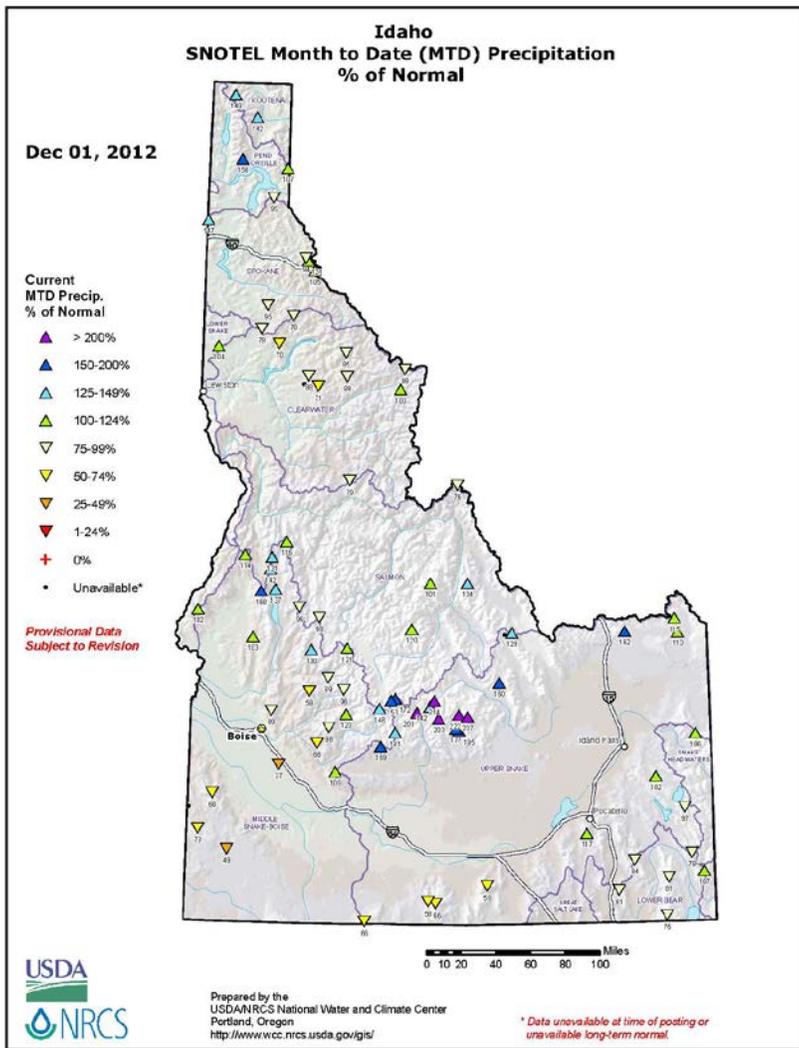
Monthly average streamflow improved across the areas that received the greatest amounts of precipitation (primarily in the Sawtooth Mountain ranges, the Salmon Basin and the upper Snake Basin. Decreased flows occurred in the Bear, Blackfoot, Portneuf Rivers and the Willow Creek drainages. With this recent precipitation, many USGS stream gages are flowing above 90% of normal including: Teton River nr St. Anthony, Teton River above south Leigh Creek, Falls River near Chester, Henrys Fork near Rexburg, Salmon River at Salmon, Little Lost River below Wet Creek, Little Wood River above High Five Creek and Goose Creek above Trapper Creek. On the other end of the spectrum, six USGS stream gage stations experienced zero flow with one station reaching a record low flow during the past week, we are although falling short as compared to last year for November (see below comparisons).

With the additional rainfall and subsequent soil moisture improvements, the state as a whole improved this past month in all the drought category areas from where no drought conditions exist up to the D2 category (Severe Drought). The category of no drought conditions improved by 17.5%, category D0 improved by 17.6%, category D1 improved by 16% and lastly, the D2 category improved by 0.39% since last month's assessment. Again, it appears that eastern Idaho has improved in both the one-month temperature and precipitation outlooks (see above). This is a contrast to the one-month outlook last month. Again, even with the recent moisture, the U.S. Seasonal Drought Outlook shows continued persistence of drought for the next three months for eastern Idaho. Overall, the soil moisture anomaly has slightly worsened across eastern Idaho extending the -20 mm across more of the southern portion of the state for the end of November, but conversely the drought severity index for SE Idaho has improved to near normal.

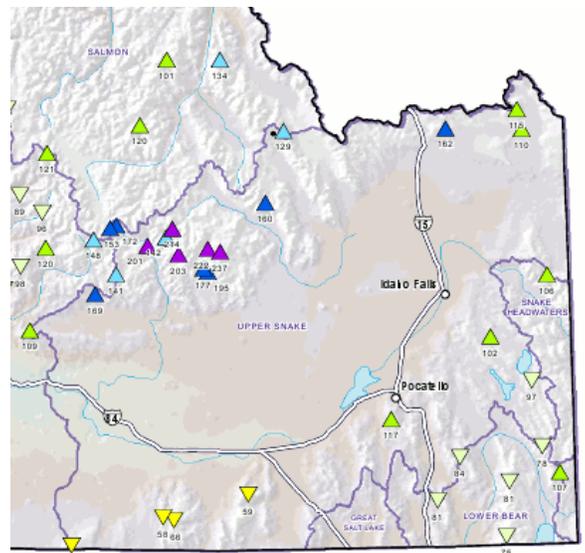
Precipitation: (*Note: Beginning October 2012, the NWS AHPS precipitation website began using the updated PRISM Normals based on 1981-2010 data and not the previous 1971-2000 data.)



<http://water.weather.gov/precip/index.php>



**SNOTEL MTD % of Normal
Precipitation for end of November
2012 (image below is cropped from left image)**

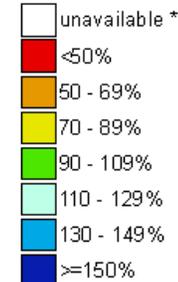


ftp://ftp.wcc.nrcs.usda.gov/data/water/wcs/gis/maps/1stmonth/id/prec/id_mtdprecptnormal_Dec.pdf

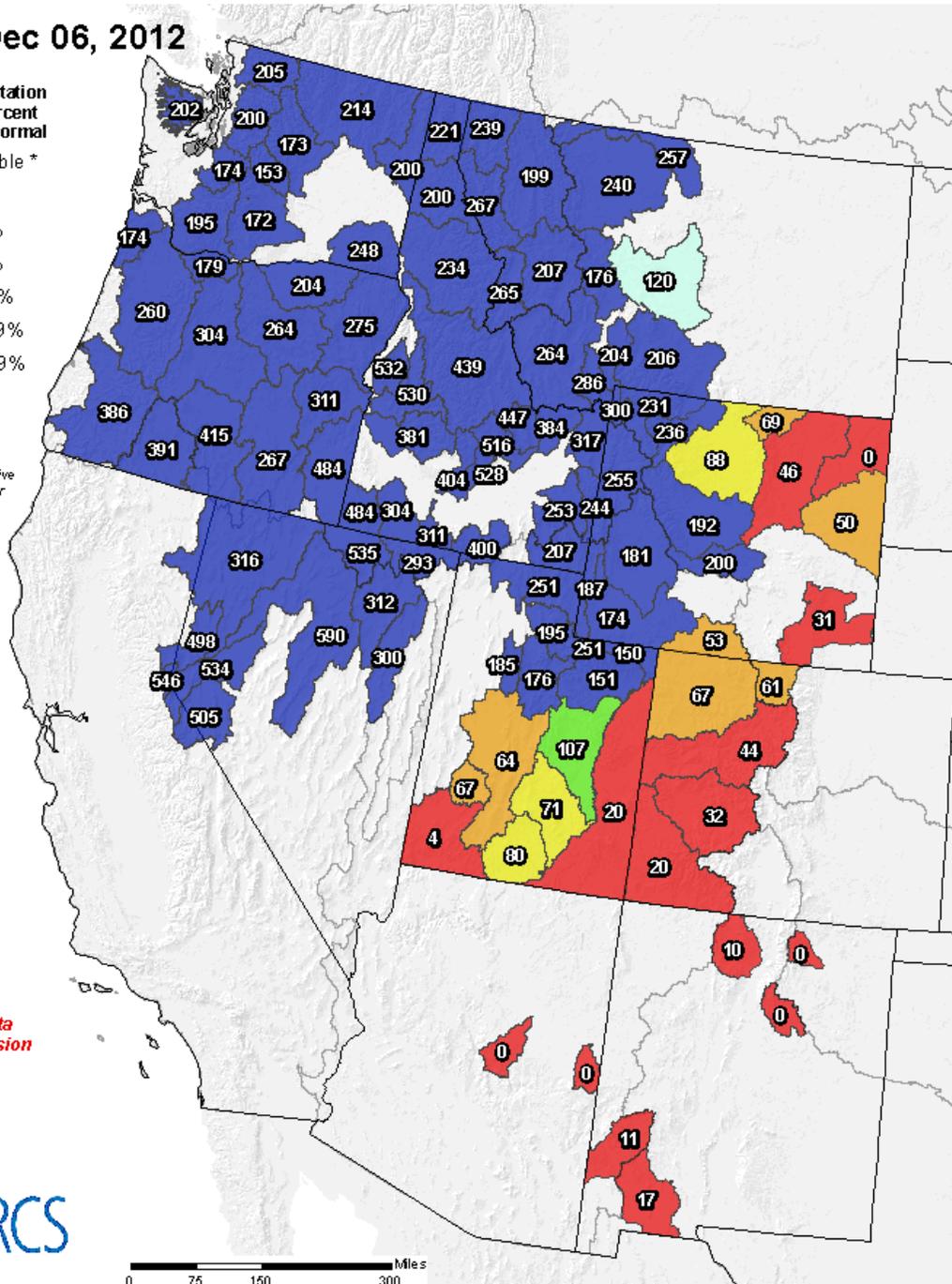
Westwide SNOTEL Current Month to Date Precipitation % of Normal

Dec 06, 2012

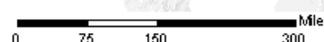
Current Month to Date Precipitation Basin-wide Percent of 1981-2010 Normal



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



Provisional data subject to revision



The current month 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).

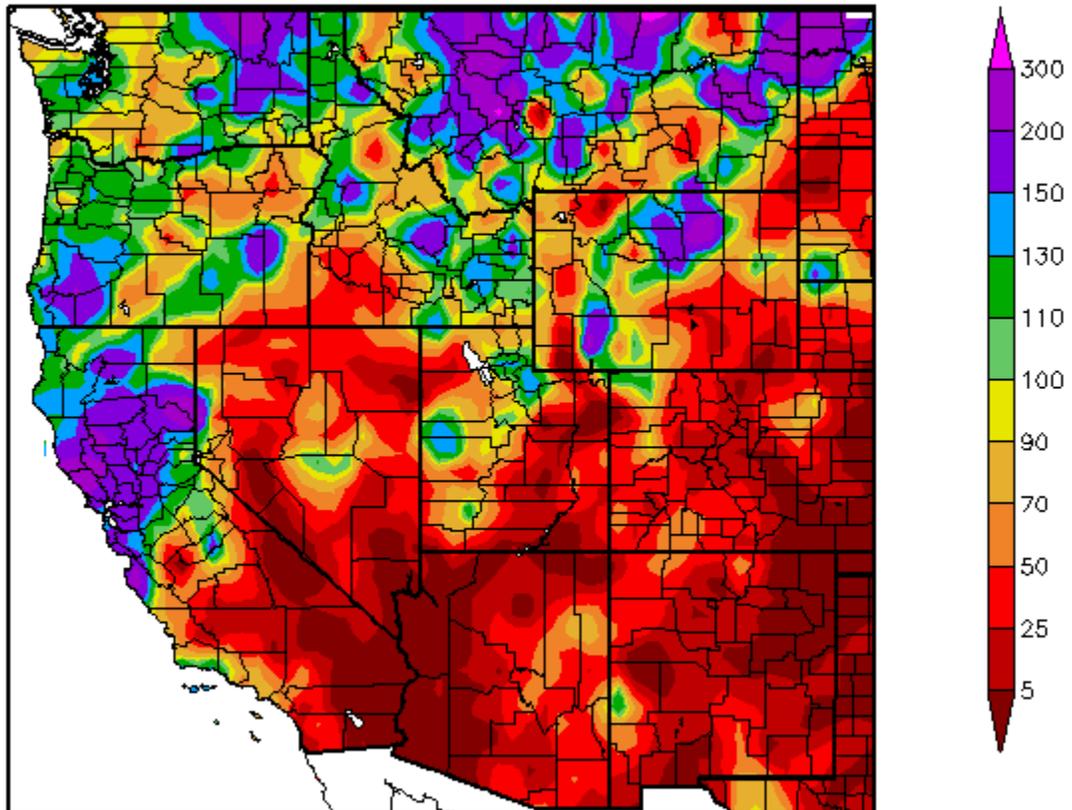
Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>
 Based on data from <http://www.wcc.nrcs.usda.gov/reports/>
 Science contact: Jim.Marron@por.usda.gov 503 414 3047

http://www.wcc.nrcs.usda.gov/gis/images/west_mtdprecptnormal_update.png

Note: Again (just like Oct), this last month's precipitation pattern in the image below reflects a similar pattern to a La Niña for Idaho.

Looking at the weather pattern in the next few weeks, according to the AO index forecast, it appears to be continuing a La Niña pattern and then transitioning into an ENSO Neutral pattern by mid-month.

Percent of Normal Precipitation (%)
11/1/2012 - 11/30/2012



Generated 12/5/2012 at HPRCC using provisional data.

Regional Climate Centers

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

Idaho

SNOTEL Snow Water Equivalent (SWE) % of Normal

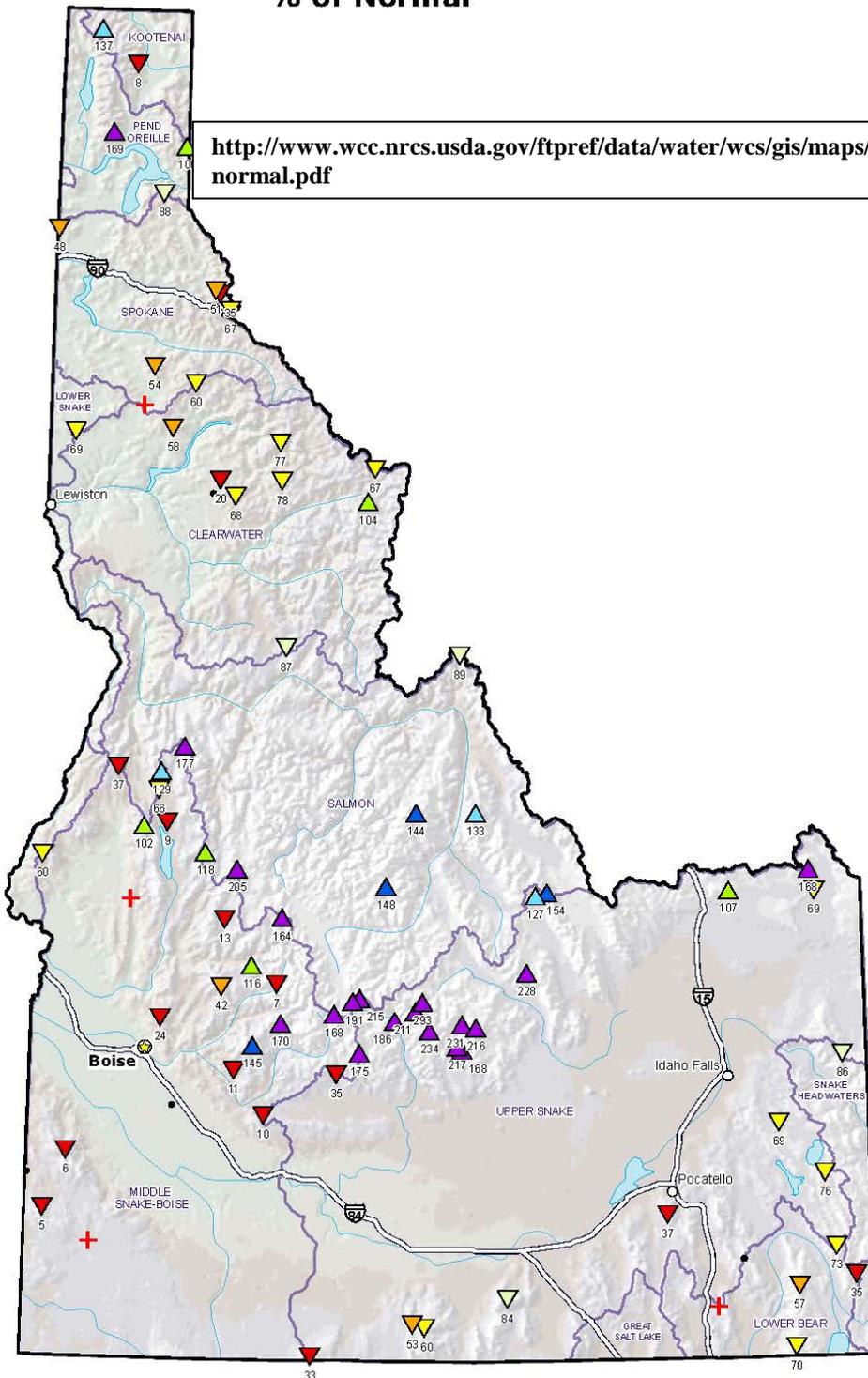
Dec 06, 2012

http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_swepct_normal.pdf

**Current SWE
% of 1981-2010
Median**

- ▲ > 160%
- ▲ 140-160%
- ▲ 120-139%
- ▲ 100-119%
- ▼ 80-99%
- ▼ 60-79%
- ▼ 40-59%
- ▼ 1-39%
- + 0%
- Unavailable*

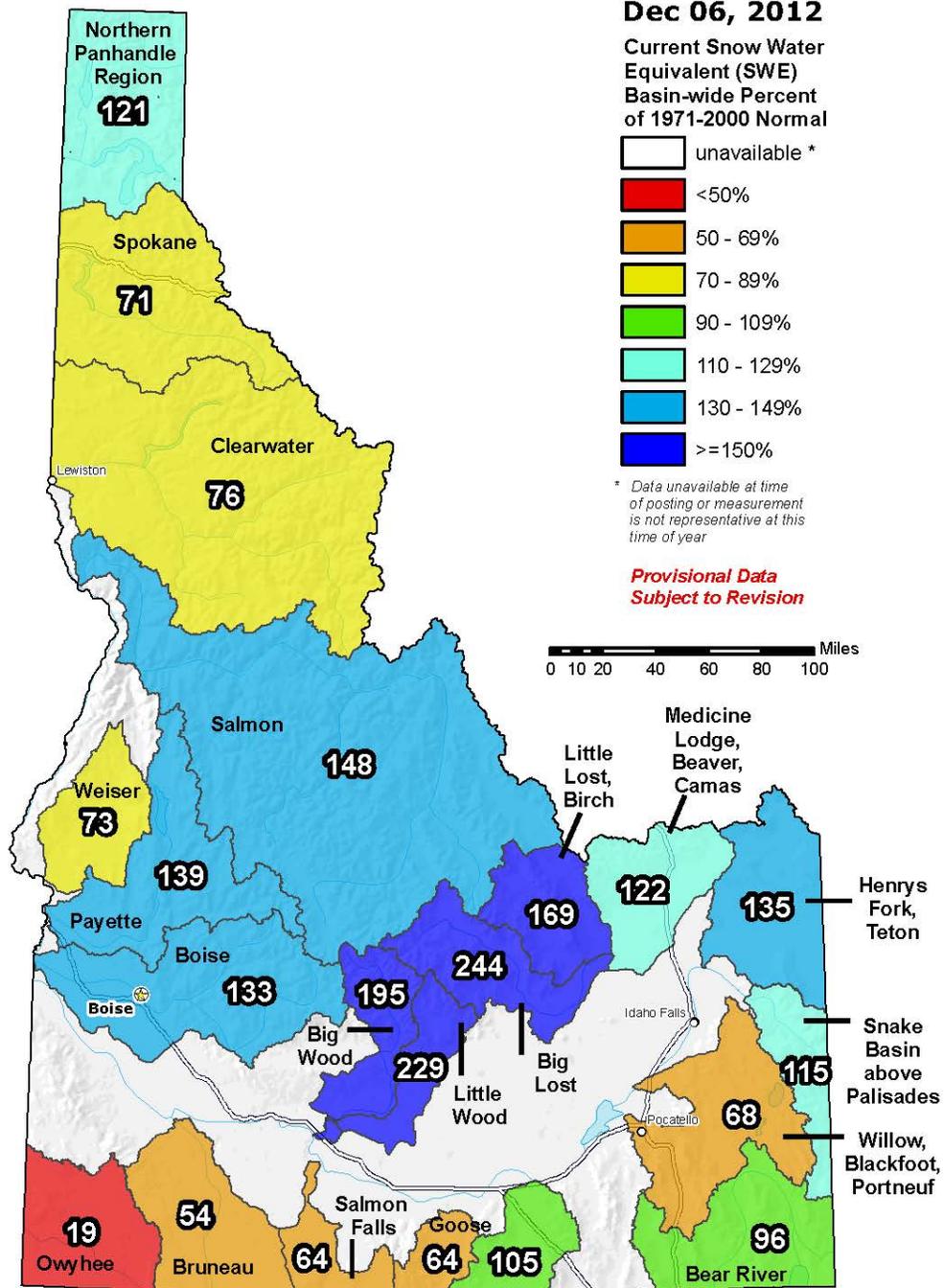
*Provisional Data
Subject to Revision*



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

** Data unavailable at time of posting or
unavailable long-term normal.*

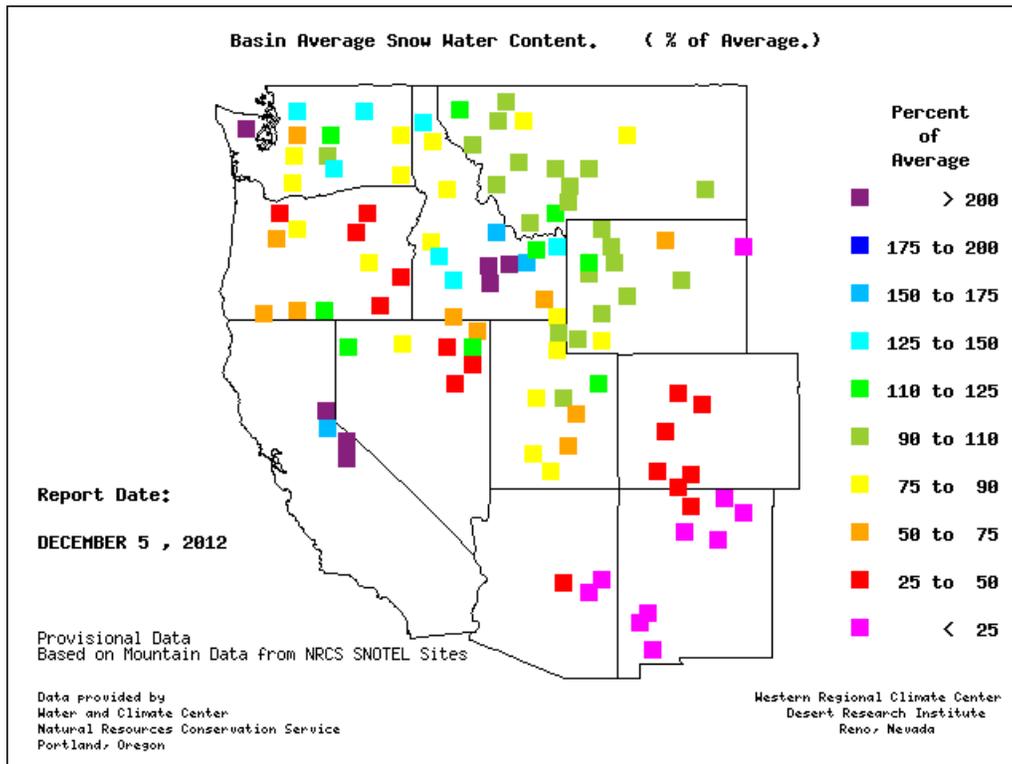
Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal



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).

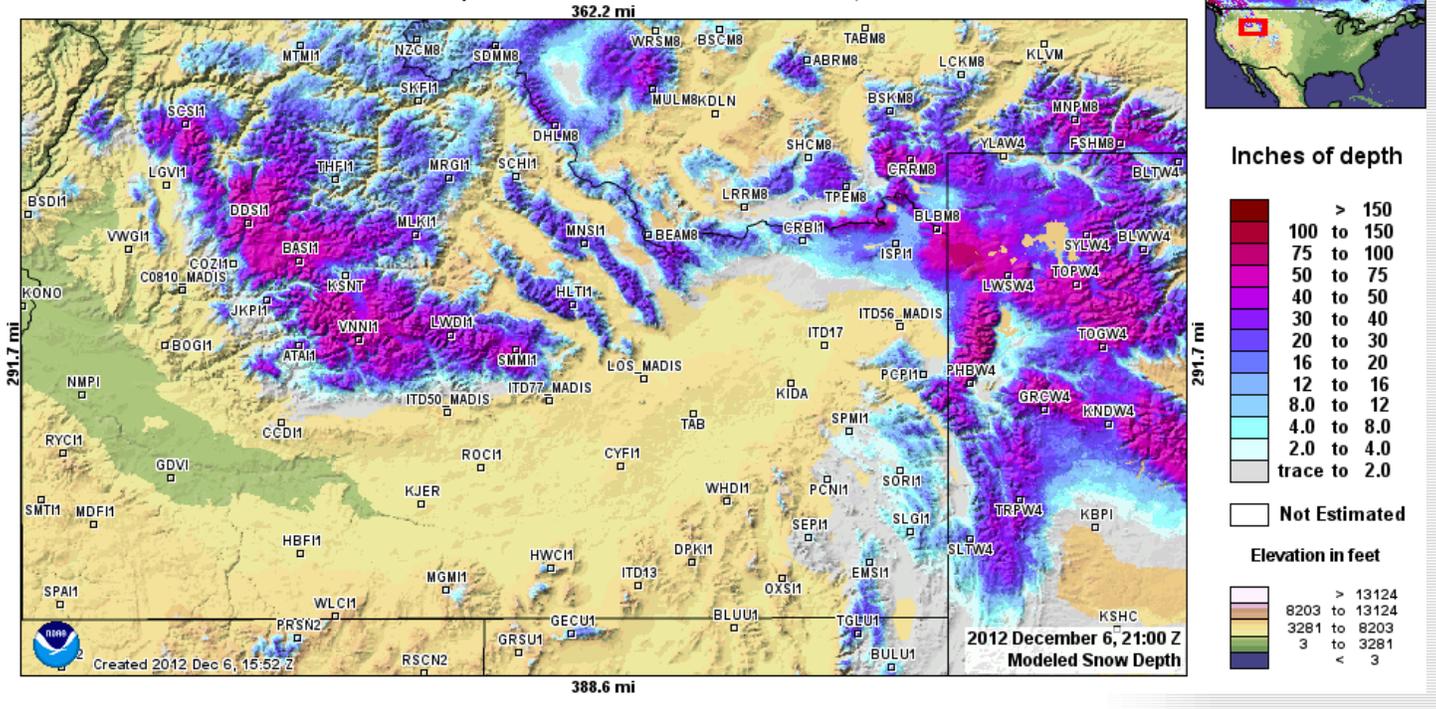
Prepared by the USDA/NRCS National Water and Climate Center Portland, Oregon <http://www.wcc.nrcs.usda.gov/gis/>
 Based on data from <http://www.wcc.nrcs.usda.gov/reports/>
 Science contact: Jim.Marron@por.usda.gov 503 414 3047

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



<http://www.wrcc.dri.edu/snotelanom/basinswe.html>

Modeled Snow Depth forecasted for 2012 December 6, 21:00 Z



<http://www.nohrsc.noaa.gov/interactive/html/map.html>

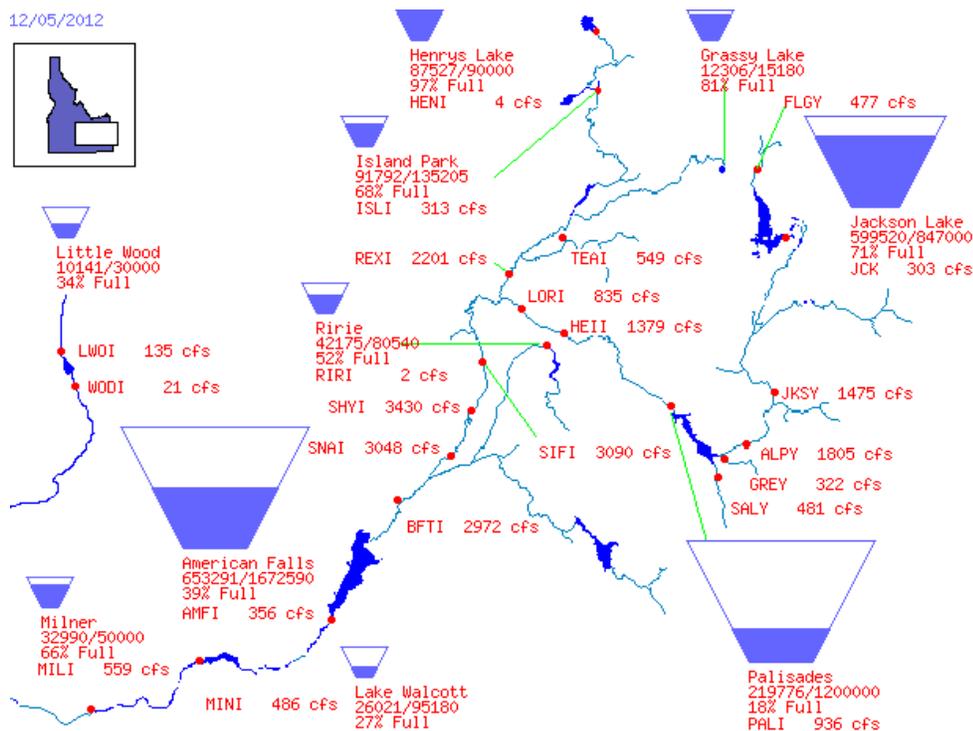
Reservoirs:

Reservoir	% Capacity Oct 31 ¹	% Capacity Nov 30 ²	Percent Change	% of Average ²	% of Last Year ²
Henry's Lake	92	95	3	107	99
Island Park	52	65	13	101	77
Jackson Lake	69	70	1	125	94
Palisades	3	3	0	4	3
Ririe	60	51	-9	127	112
Blackfoot	58	60	2	101	79
American Falls	19	36	17	74	70
Bear Lake	60	61	1	94	78
Magic	28	13	-15	33	22
Little Wood	19	30	11	80	44
Mackay	41	55	14	133	84
Oakley	19	22	3	68	54
Lake Walcott	23 ³	27 ⁴	4	n/a	n/a
Milner	50 ³	66 ³	16	n/a	n/a

Source: (1) NRCS October 31, 2012; (2) NRCS November 30, 2012.
 (3) US Bureau of Reclamation (BOR) November 4, 2012 (4) BOR December 5, 2012

http://www.wcc.nrcs.usda.gov/ftpref/data/water/basin_reports/idaho/wy2013/bareid11.txt

12/05/2012

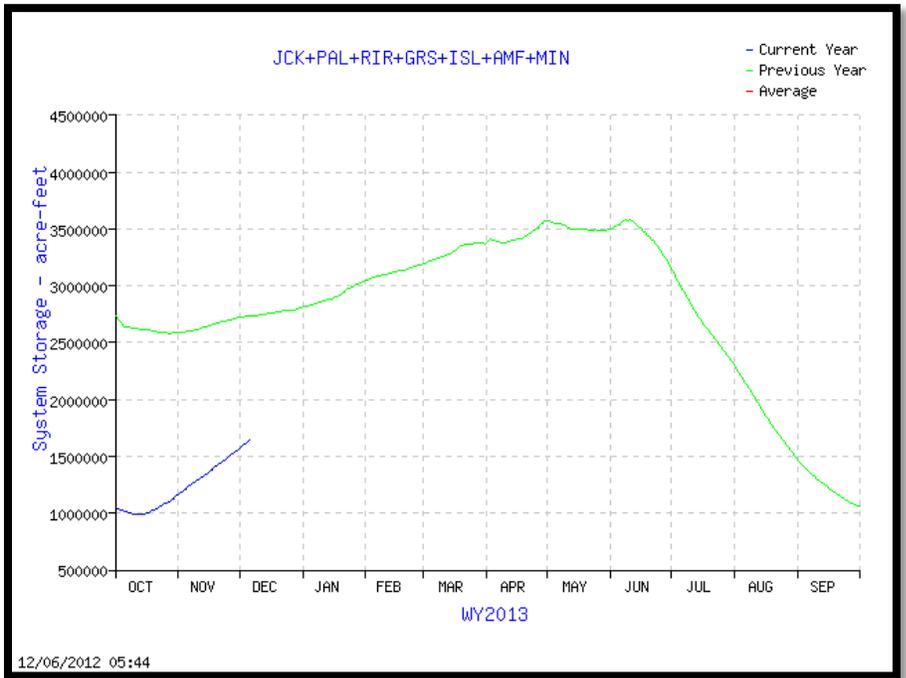


**41% of Capacity
in Upper Snake
River System**
 (Jackson Lake, Palisades,
 Grassy Lake, Island Park,
 Ririe, American Falls &
 Lake Walcott)

Upper Snake River:
Total Space Available: 2,400,810 AF
Total Storage Capacity: 4,045,695 AF

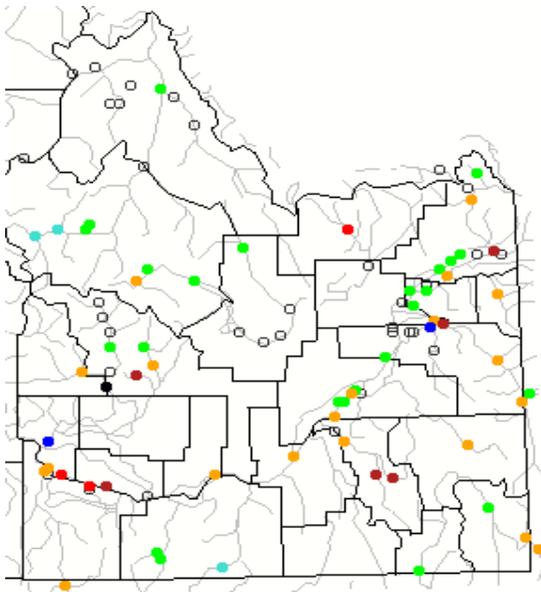
<http://www.usbr.gov/pn/hydromet/burtea.cfm>

**Graph of Upper Snake River
Current Total System Reservoir
Storage**



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

Streamflow:



Monthly average streamflow compared to historical average streamflow for November 2012.

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

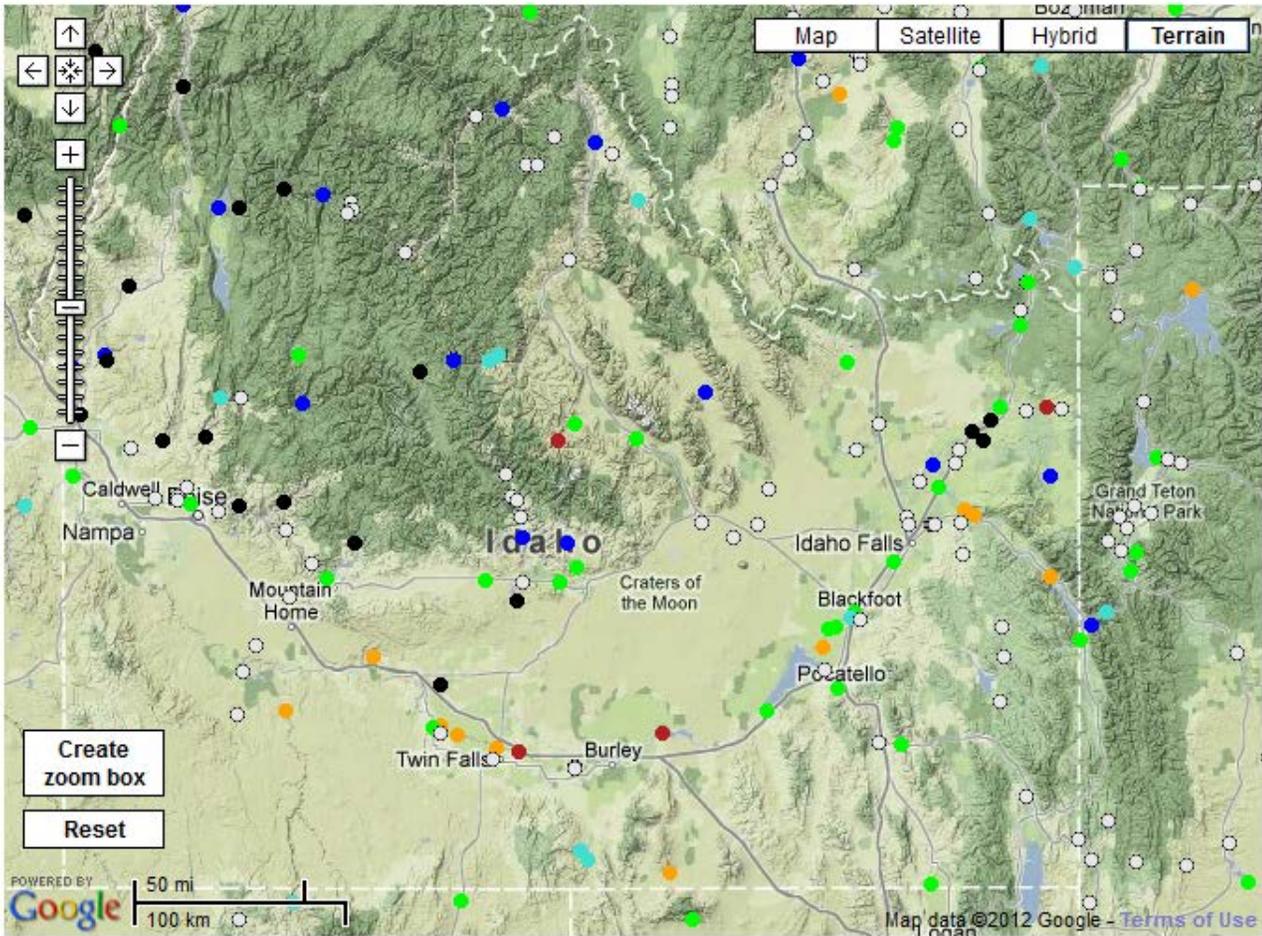
<http://waterwatch.usgs.gov/?m=mv01d&r=id&w=map>

Monthly Below Normal Streamflow for Dec 6, 2012:

[Map](#) | [HUC Map](#) | [Google Map](#)

Map of real-time streamflow compared to historical streamflow for the day of the year (Idaho)

Idaho or Water-Resources Regions



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

References to non-U.S. Department of the Interior (DOI) products do not constitute an endorsement by the DOI. By viewing the Google Maps API on this web site the user agrees to these [TERMS](#) of Service set forth by Google.

http://waterwatch.usgs.gov/index.php?id=mv01d_dry&sid=w_gmap|m_mv01d_dry&r=id

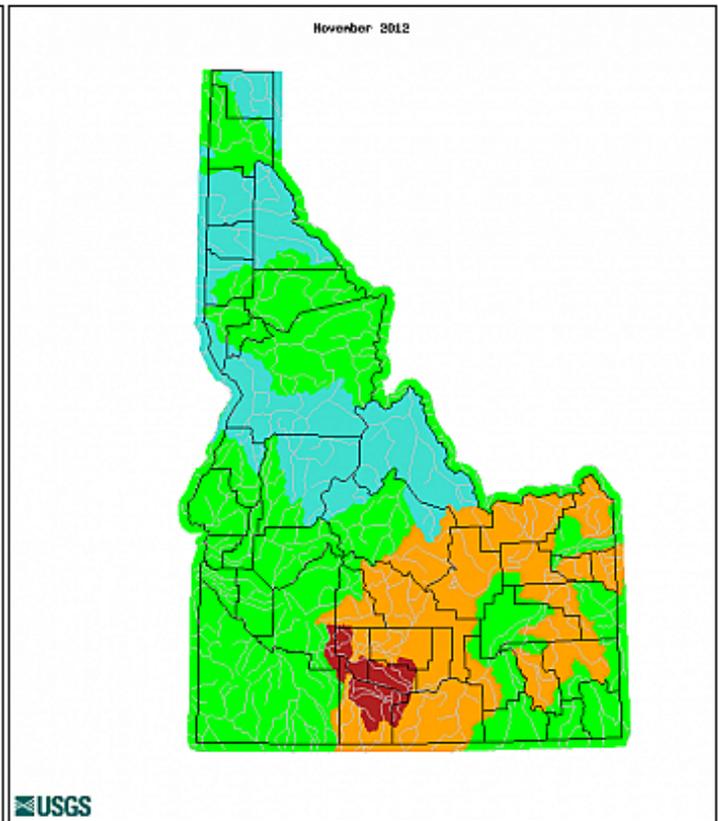
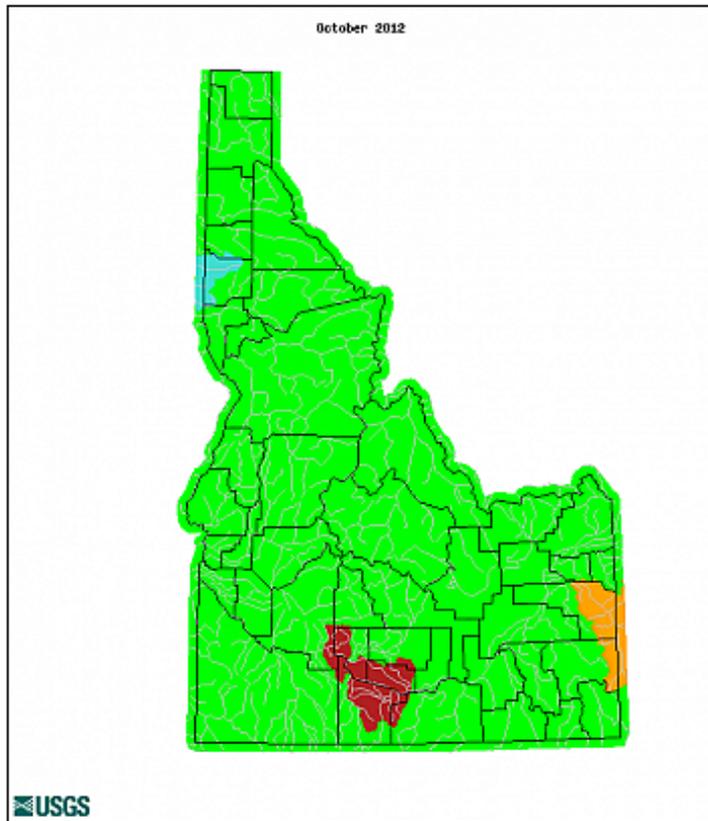
Historic Streamflow Comparisons (Oct '12 to Nov '12 and Nov '11 to Nov '12):

Comparison of Monthly Streamflow Maps

Geographic Area: Water Resource Region: Map Type:

Date (YYYYMM):

Date (YYYYMM):



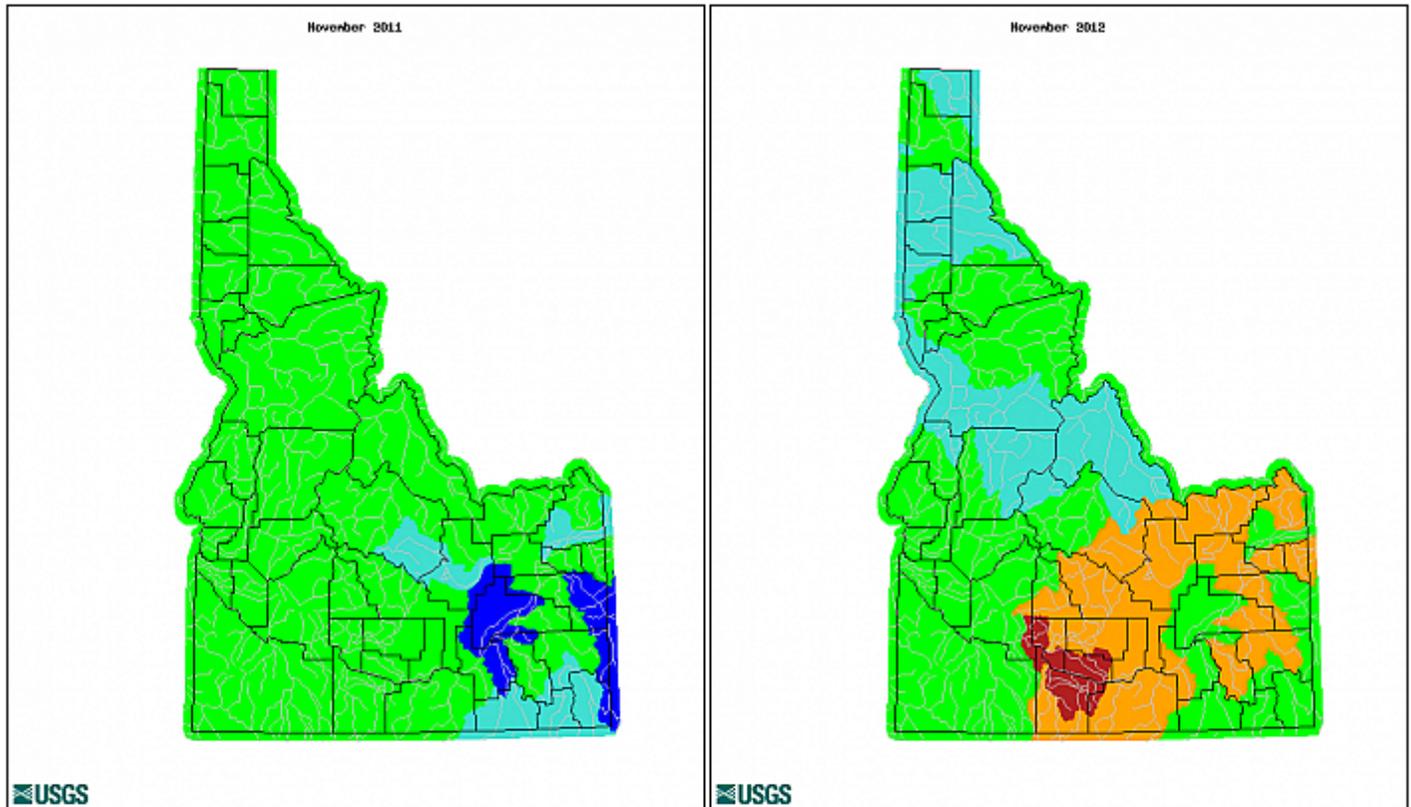
Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

Comparison of Monthly Streamflow Maps

Geographic Area:
Water Resource Region:
Map Type:

Date (YYYYMM):

Date (YYYYMM):

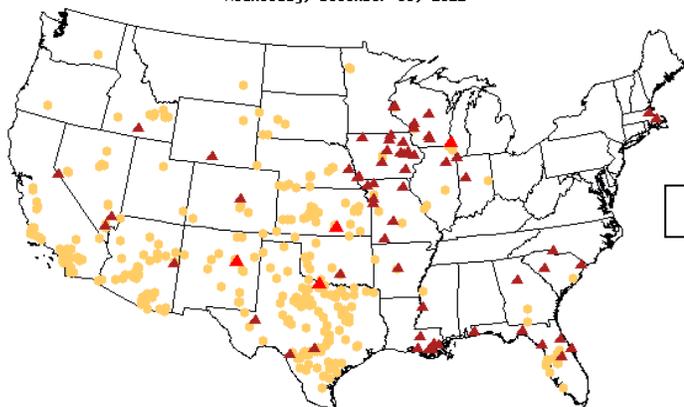


Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

<http://waterwatch.usgs.gov/index.php>

Map of Record Low 7-day Streamflow

Wednesday, December 05, 2012



http://waterwatch.usgs.gov/index.php?id=wwdrought_us

Explanation

- ▲ Record low flow with more than 30 years data
- ▲ Record low flow with less than 30 years data
- Zero flow sites

Drought Information:

U.S. Drought Monitor

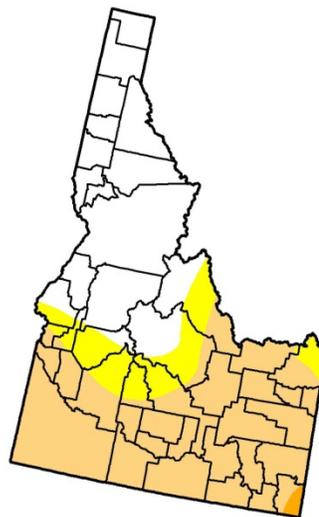
Idaho

December 4, 2012
Valid 7 a.m. EST

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	38.58	61.42	49.62	0.52	0.00	0.00
Last Week (11/27/2012 map)	26.83	73.17	58.56	0.54	0.00	0.00
3 Months Ago (09/04/2012 map)	15.72	84.28	66.17	1.33	0.00	0.00
Start of Calendar Year (12/27/2011 map)	48.90	51.10	0.00	0.00	0.00	0.00
Start of Water Year (09/25/2012 map)	15.61	84.39	66.47	1.27	0.00	0.00
One Year Ago (11/29/2011 map)	99.55	0.45	0.00	0.00	0.00	0.00

Intensity:

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

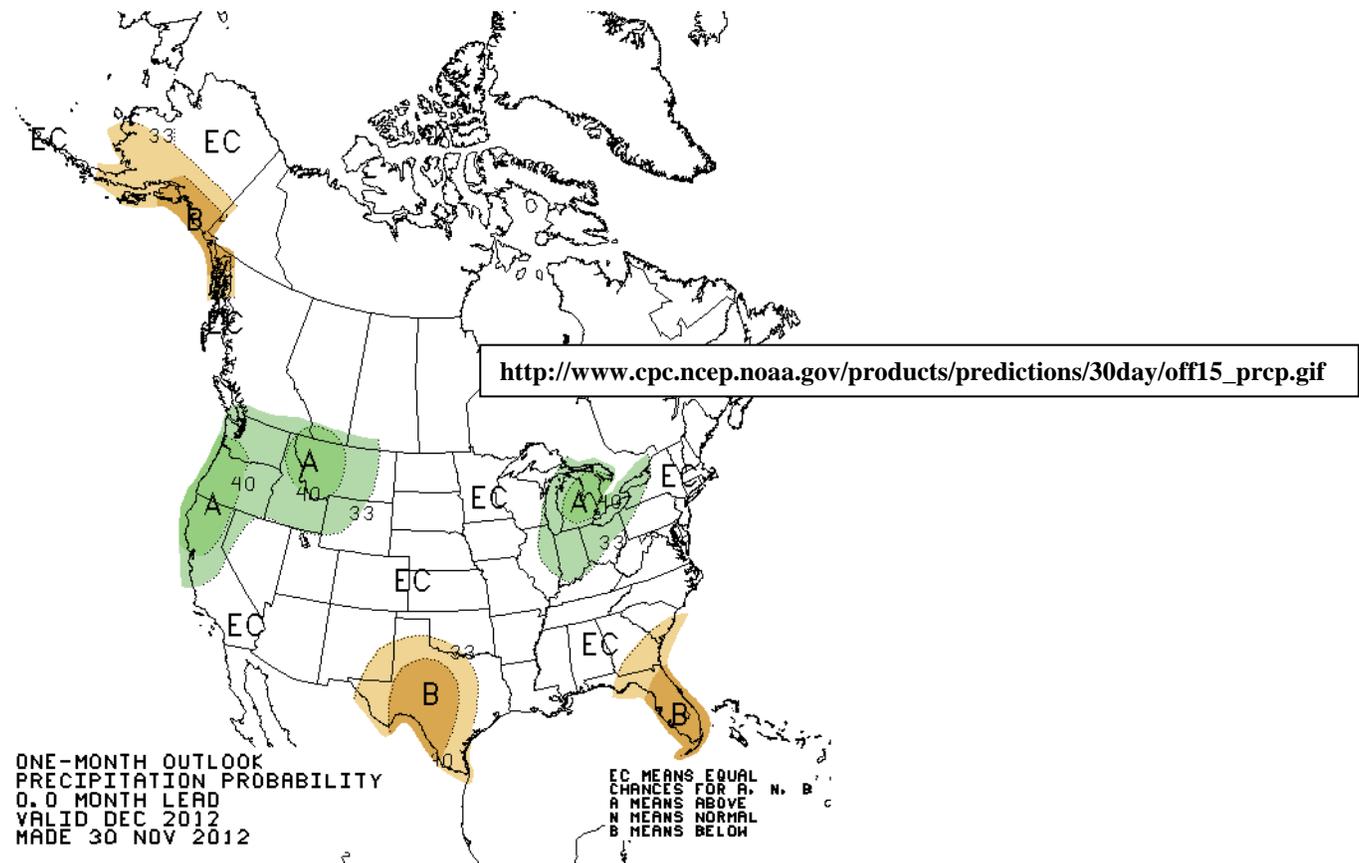
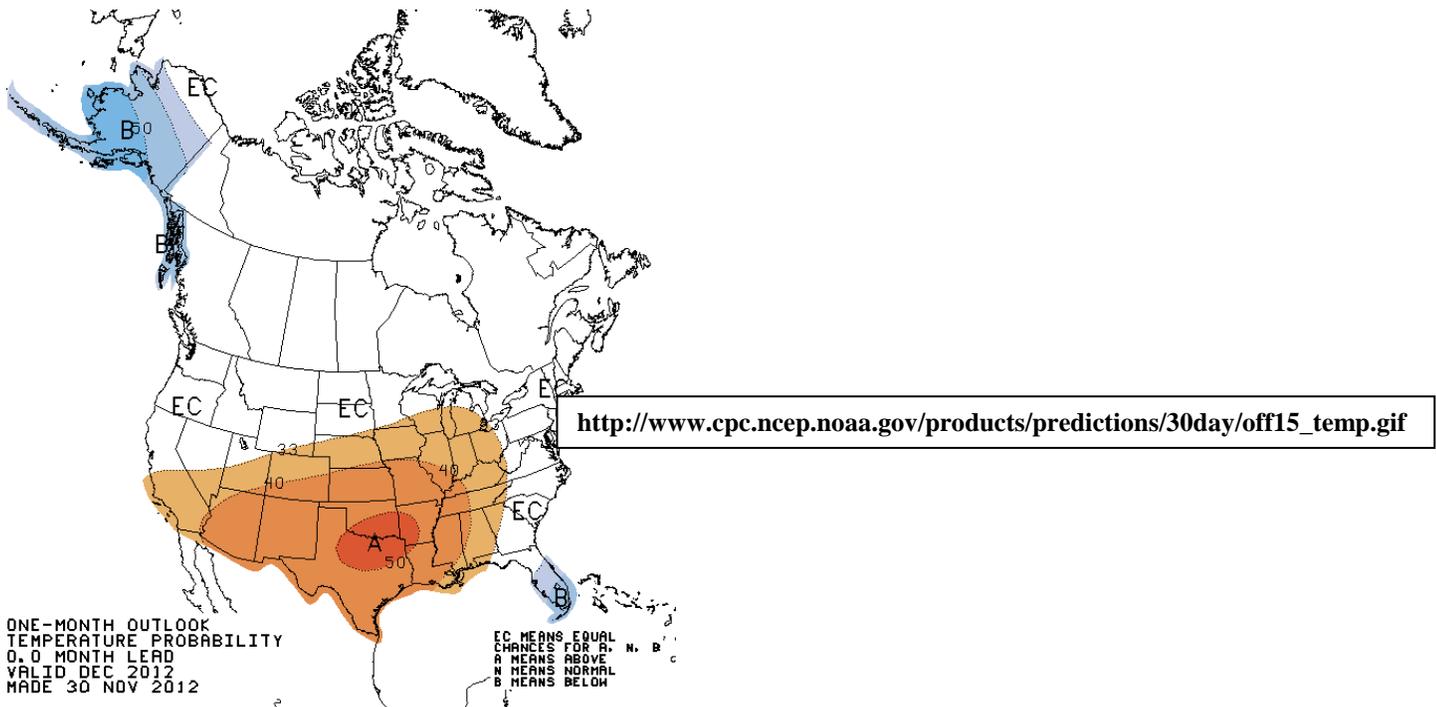


The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

<http://droughtmonitor.unl.edu>



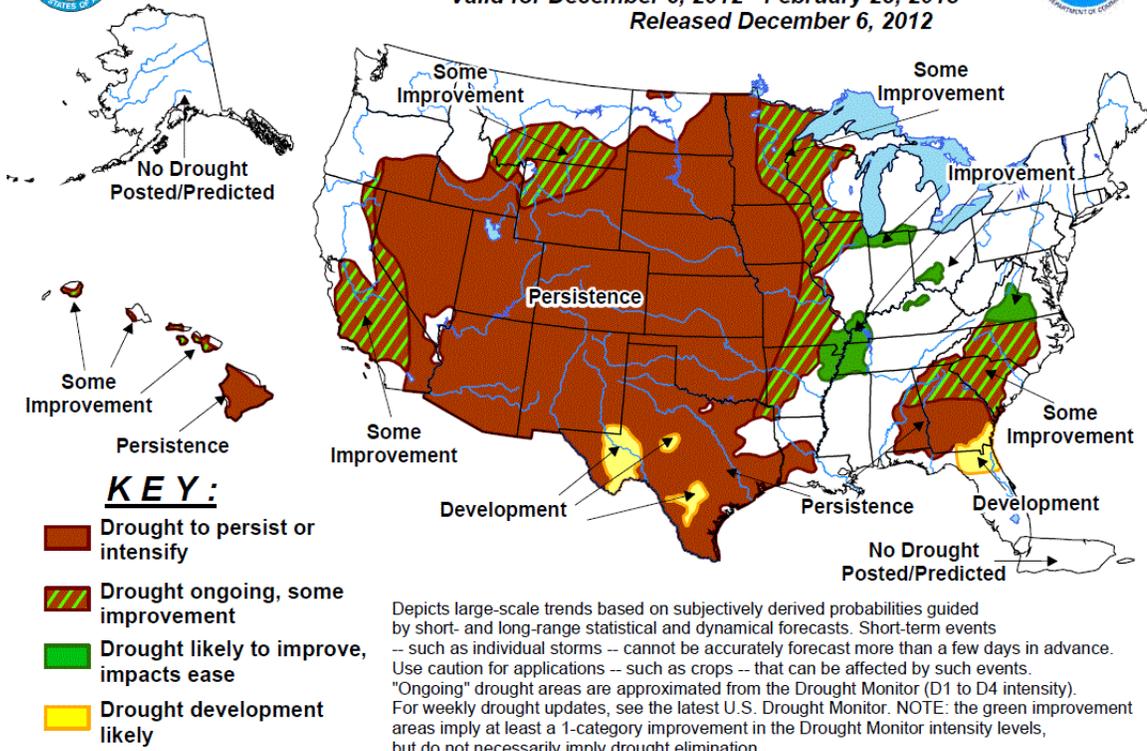
Released Thursday, December 6, 2012
Richard Tinker, NOAA/CPC





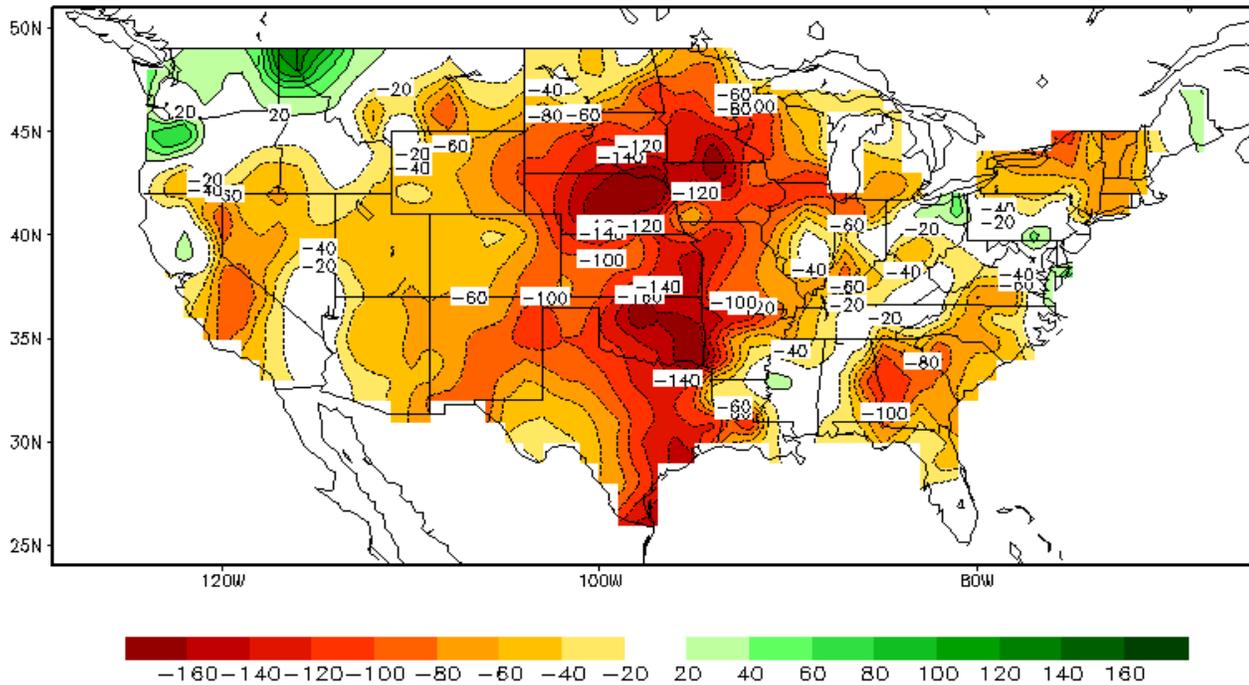
U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period
Valid for December 6, 2012 - February 28, 2013
Released December 6, 2012



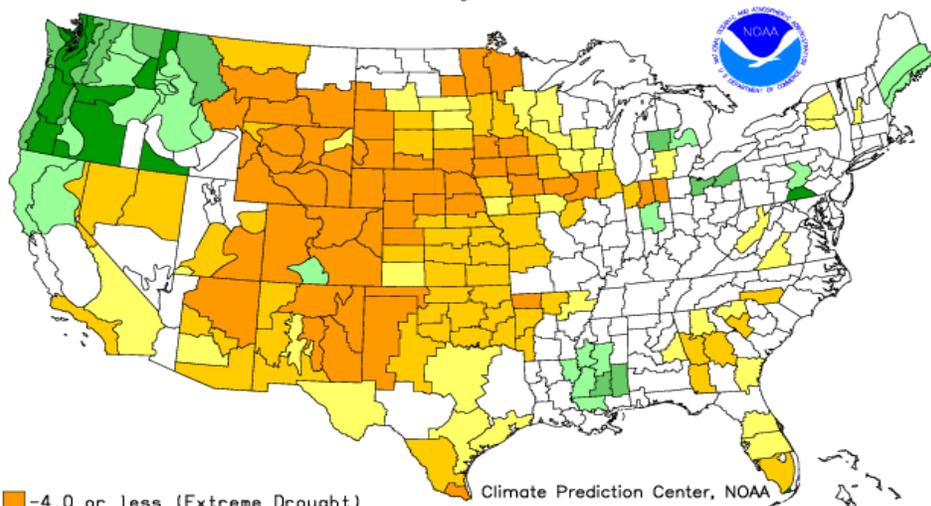
http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.gif

Soil Moisture Anomaly (mm) Last day of NOV, 2012



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

Drought Severity Index by Division
 Weekly Value for Period Ending DEC 1, 2012
 Long Term Palmer

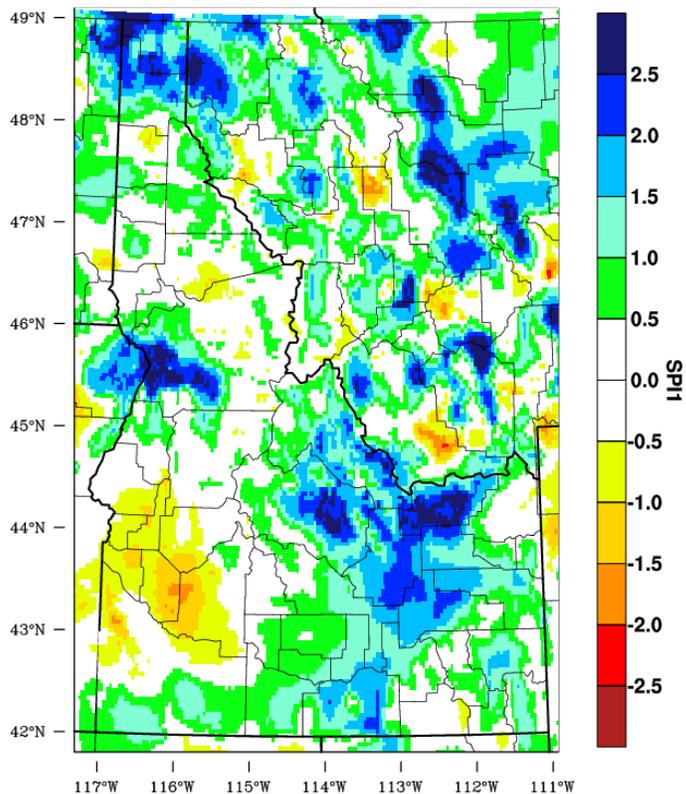


- | | |
|-----------------------------------|--------------------------------------|
| ■ -4.0 or less (Extreme Drought) | ■ +2.0 to +2.9 (Unusual Moist Spell) |
| ■ -3.0 to -3.9 (Severe Drought) | ■ +3.0 to +3.9 (Very Moist Spell) |
| ■ -2.0 to -2.9 (Moderate Drought) | ■ +4.0 and above (Extremely Moist) |
| ■ -1.9 to +1.9 (Near Normal) | |

Climate Prediction Center, NOAA

http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/regional_monitoring/palmer.gif

Idaho - 1 month SPI
 November 2012



WestWide Drought Tracker - WRCC/UI Data Source - PRISM (Prelim), created 6 DEC 2012

<http://www.wrcc.dri.edu/monitor/WWDT/index.php?region=id>

cc:
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Harold Opitz, Hydrologist-in-Charge, Northwest River Forecast Center
Joe Intermill, Service Coordination Hydrologist, Northwest River Forecast Center
Andy Wood, Development and Operations Hydrologist, Northwest River Forecast Center
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Hydrometeorological Information Center
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