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:** December **YEAR:** 2015
TO: Hydrologic Operations Division, W/OH2 National Weather Service National Oceanic and Atmospheric Administration Silver Spring, Maryland 20910	**SIGNATURE** Corey Loveland Service Hydrologist **DATE:** January 7, 2016
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).	

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

Overview:

Last month brought some much cooler temperatures across the Hydrologic Service Area (HSA), especially during the latter part of December. In the earlier part of the month, record high temperatures were set in Pocatello, Idaho Falls, Burley and Stanley as well as record low temperatures at the beginning of the month. The month also brought some daily maximum precipitation records, but overall the month was near average for precipitation/snowfall. Well above normal precipitation primarily fell in the central mountains and west of us, as it seems we missed most of the overall storms. Overall, mostly one half to ten inches of precipitation fell across the HSA during the past month with most of the precipitation falling in Blaine, Fremont, Teton, Bonneville and Caribou counties. Temperature departures from normal for December show that across the HSA, we ranged mostly -1 to 1 degrees F below normal in the southern half of the HSA and it was a little bit warmer in the northern half which was about 1 to 3 degrees F above normal. Mean average temperatures ranged from 10 to 32 degrees F across the HSA. The Oakley COOP station had 5 days of average temperatures over 40 degrees F during December.

As far as the short-term 8 to 14 day Climate Prediction Center Outlook is concerned, the forecast is for near normal temperatures across southern and eastern Idaho. Eastern Idaho continues with the wetter than normal pattern with a 40 to 50 percent chance of above normal precipitation across most of the state. The one-month forecast graphics are found below. For the three-month outlook, the temperatures are forecast to be warmer than normal in eastern Idaho; mostly ranging from 33 to 40 percent chance of above normal temperatures within the HSA. As for precipitation, the outlook is for mostly a 33 to 40 percent of below normal precipitation bringing a forecast of drier conditions across southern and eastern Idaho.

Of the data available for the month, the stations within the HSA reaching the highest 24-hour temperature was the Raft River RAWS station reaching 62°F on the 9th. The station (non-SNOTEL and non-RAWS) with the lowest recorded temperature was the Stanley COOP station at -30°F on December 27th. The highest recorded 24-hr precipitation (non-SNOTEL) occurred at the St. Anthony COOP station where 1.50 inches fell on the 23rd. The highest recorded precipitation total (non-SNOTEL) occurred also at the Stanley Ranger Station WBAN where 4.96 total inches was recorded for the month. The Vienna Mine and White Elephant SNOTELs recorded 11.5 and 8.5 inches respectively of total precipitation for the month according to NRCS.

Reservoirs last month increased capacity overall by around 7% in the upper Snake River basin system (an increase of about 314 KAF occurred over the month and is currently sitting at 50% of capacity overall). Compared to last year at this time, it was about 67% of capacity. According to Natural Resources Conservation Service and U.S. Bureau of Reclamation reservoir data, the most notable increase in storage capacity is the Mackay and American Falls Reservoirs both increasing percent capacity by 14%. Mackay is currently at 107% of average and Island Park reservoir is currently at 90% of average. Magic Reservoir has the lowest relative storage; at 46% of average and Jackson Lake is the fullest at 131% of average.

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

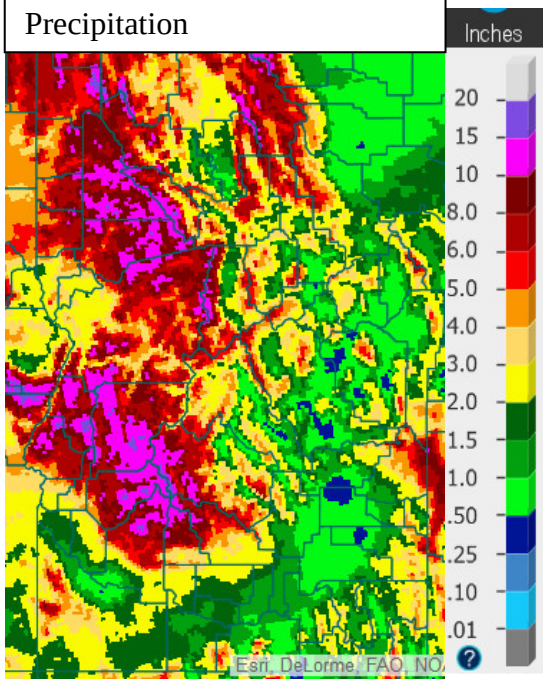
Drought conditions across eastern Idaho improved very slightly since last month's assessment. A portion of the Abnormally Dry area of the Snake River in Cassia county was removed. Currently, about 4 percent and 63 percent of the state is in Severe and Moderate drought respectively, with a recent removal of all Extreme Drought in the north. The latest U.S. Seasonal Drought Outlook shows a dramatic improvement in eastern Idaho with the forecast of persistent drought primarily in the central mountains and up into Montana including the Henrys Fork basin. The remainder of the HSA currently has no drought declarations.

The Idaho NRCS Snow Survey January 1st Idaho Surface Water Supply Index (SWSI) was not available this month.

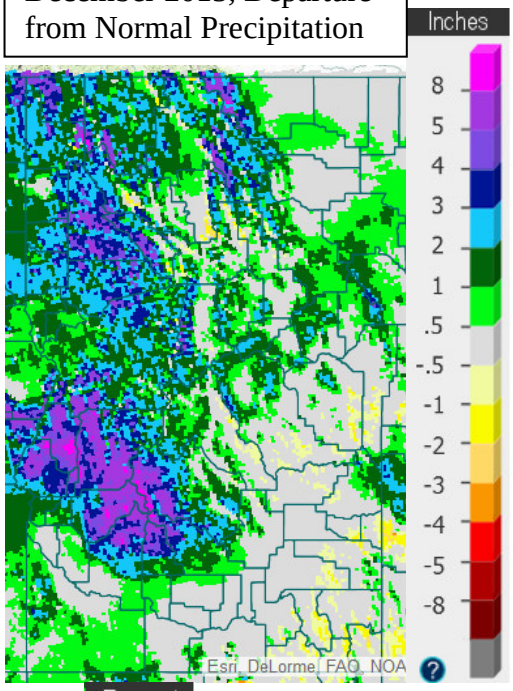
Please see the NWRFC (approximately daily computed ensembles), CBRFC, and NRCS Official January 1st beginning of water supply season streamflow volume forecasts and Bear Basin conditions below.

Precipitation:

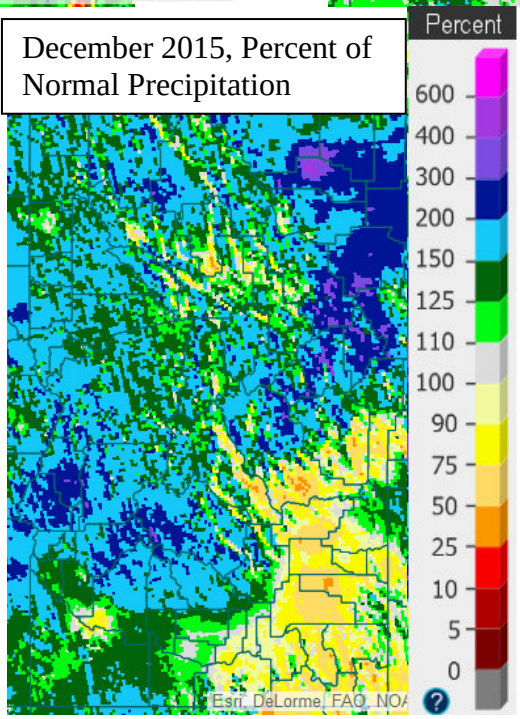
December 2015, Observed Precipitation



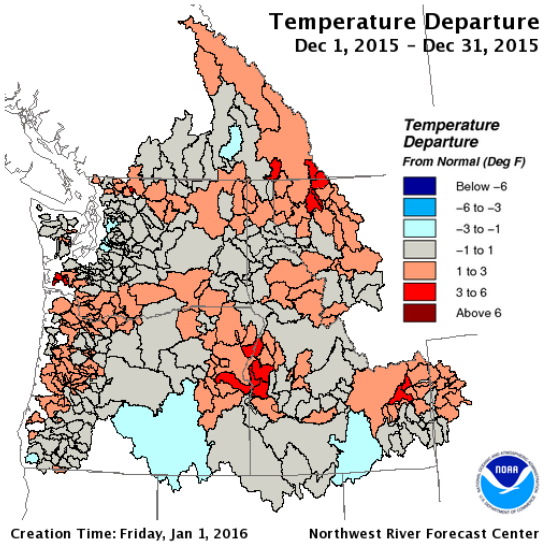
December 2015, Departure from Normal Precipitation



December 2015, Percent of Normal Precipitation



water.weather.gov/precip/#



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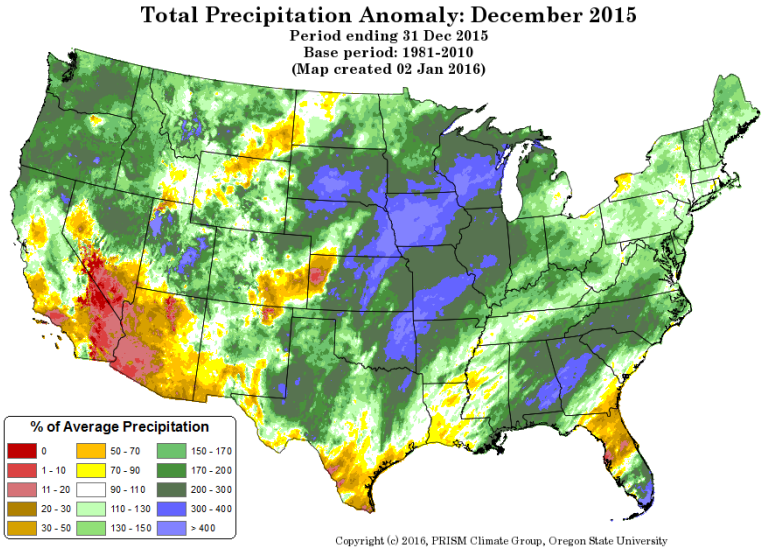
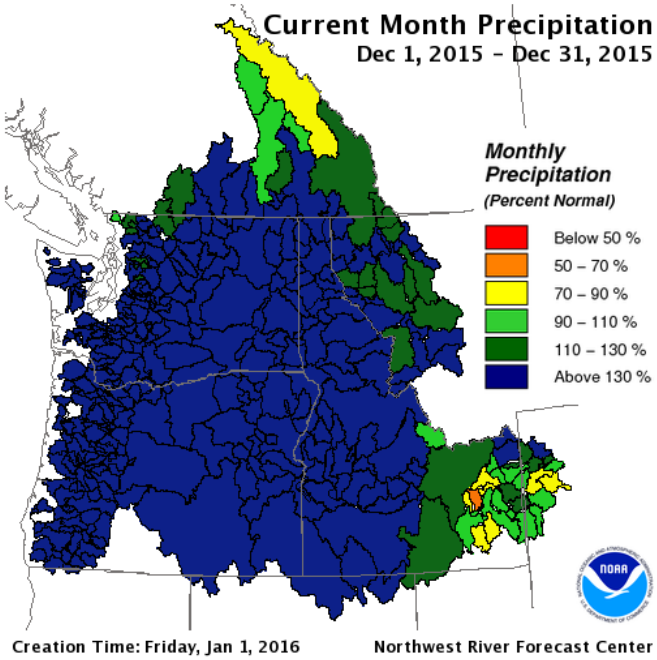


prism.oregonstate.edu/



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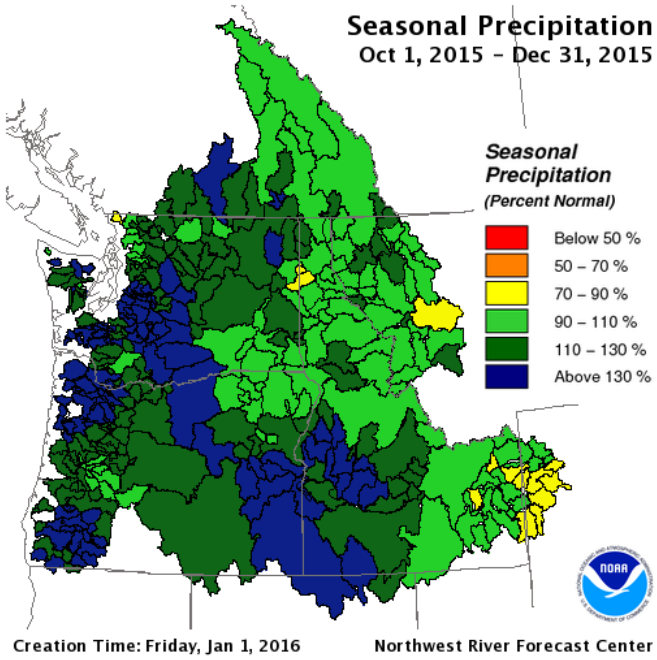

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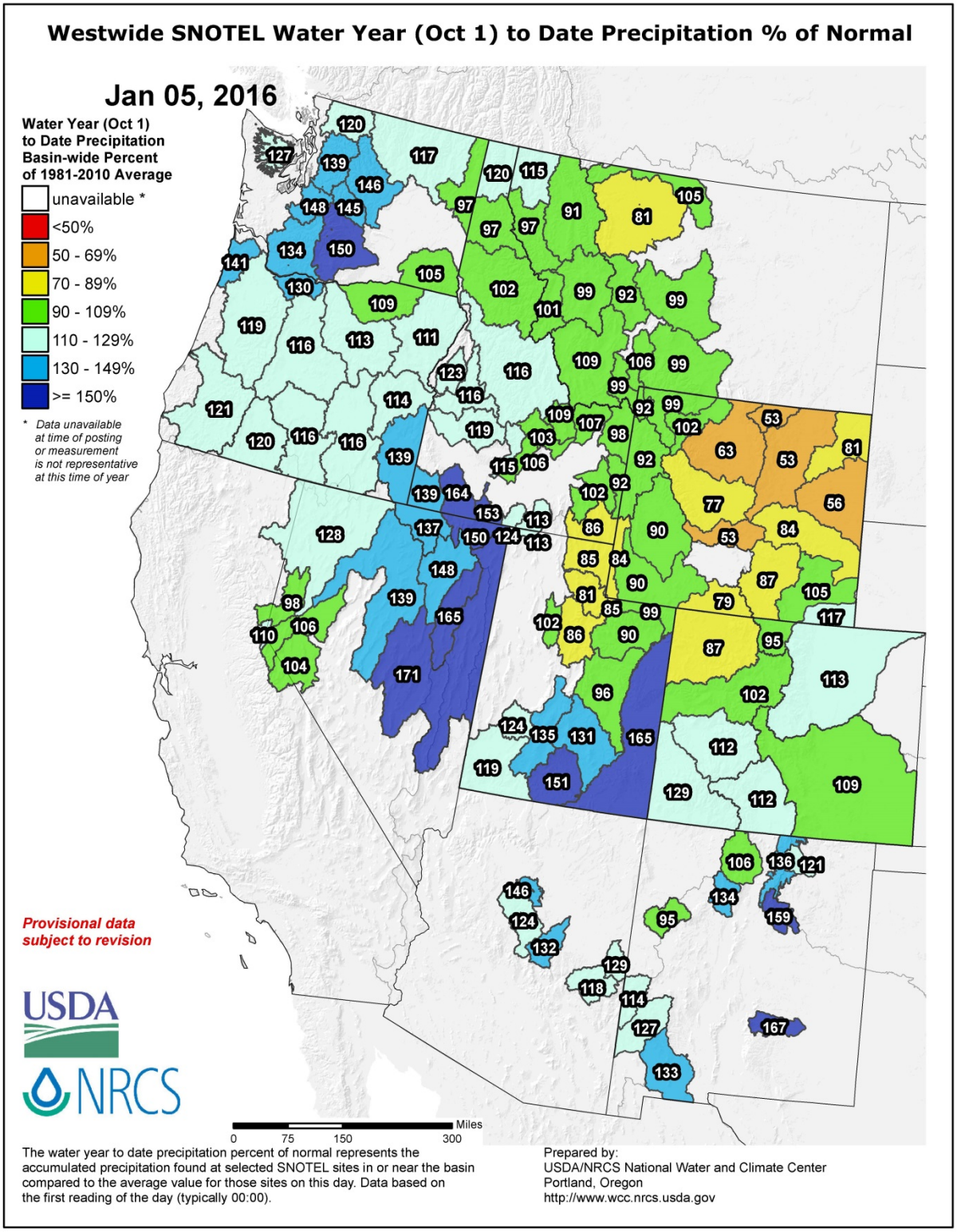
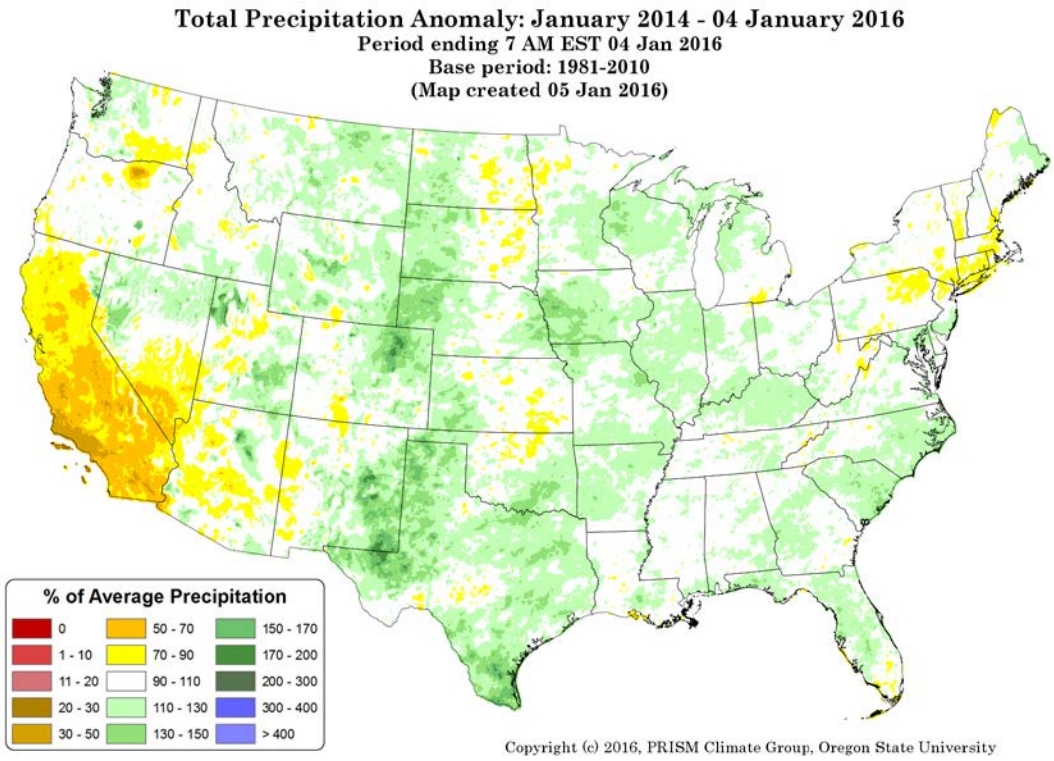
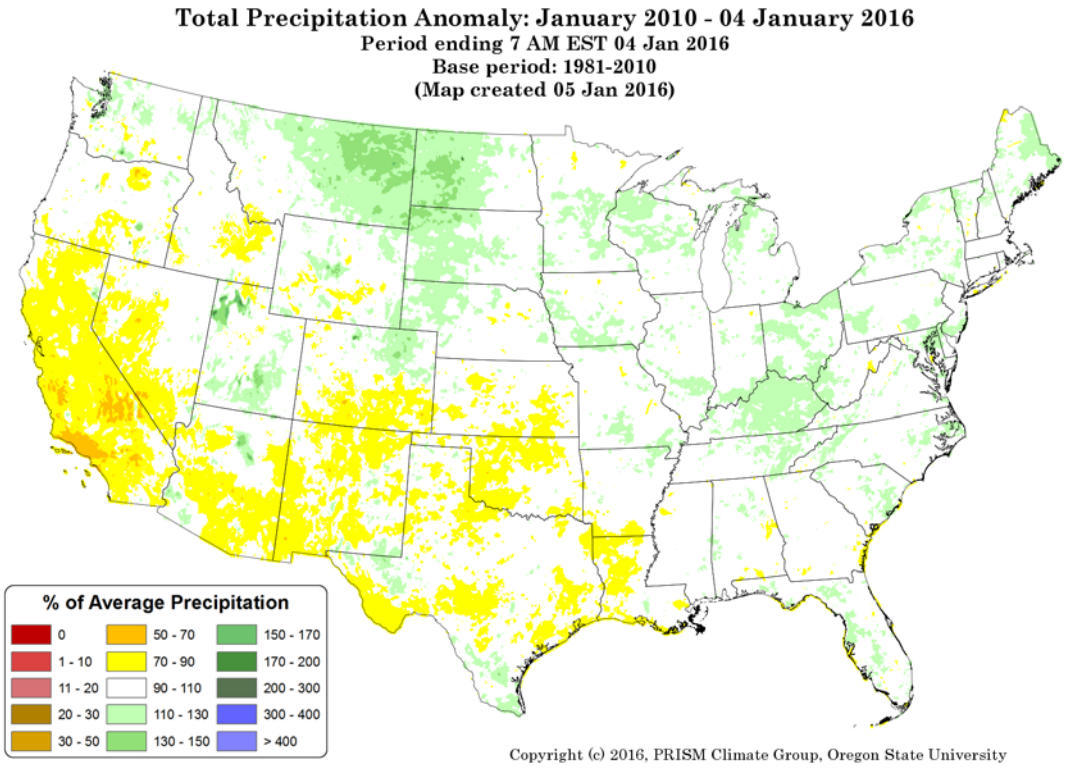


wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_wytdprecpctnormal_update.pdf

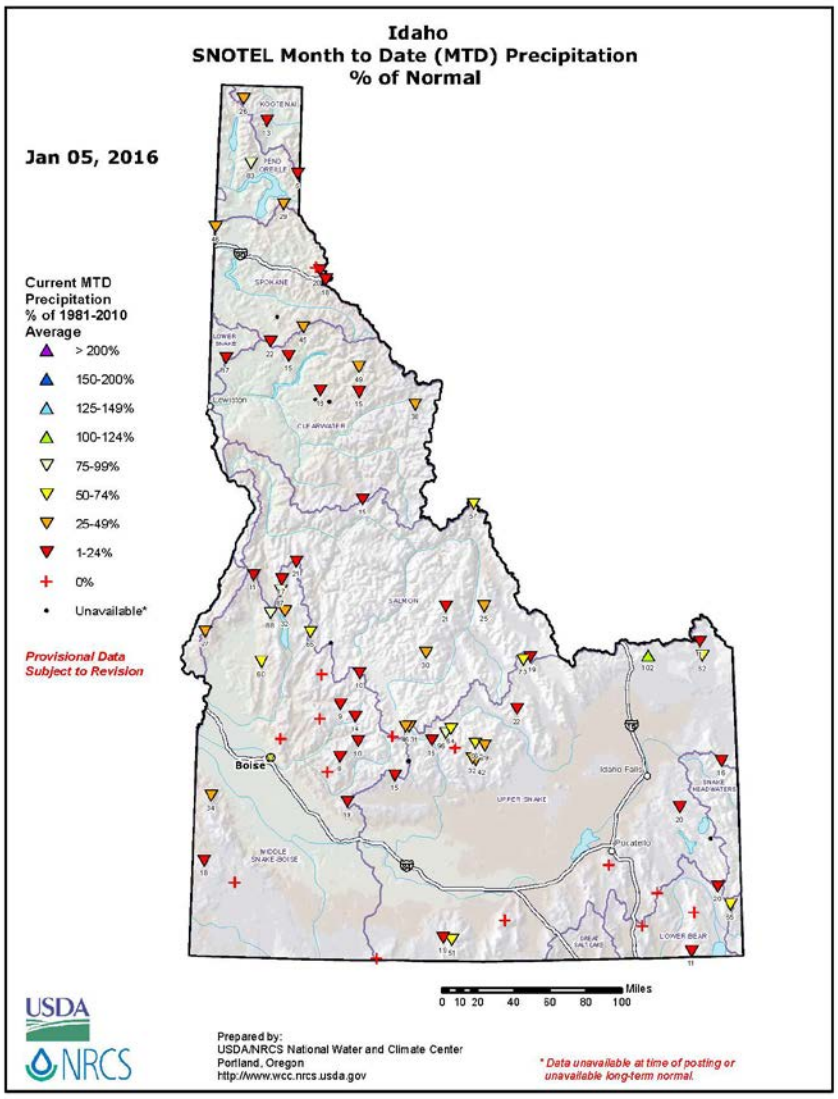
Past 2 Years of Precipitation % of Average:



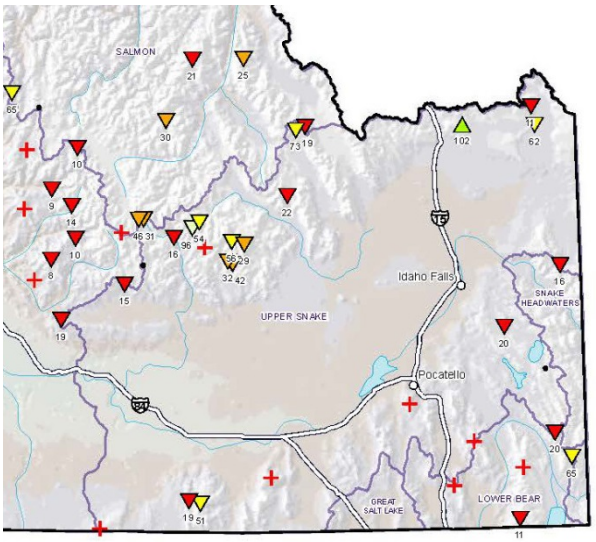
Past 6 Years of Precipitation % of Average:



prism.oregonstate.edu/comparisons/drought.php

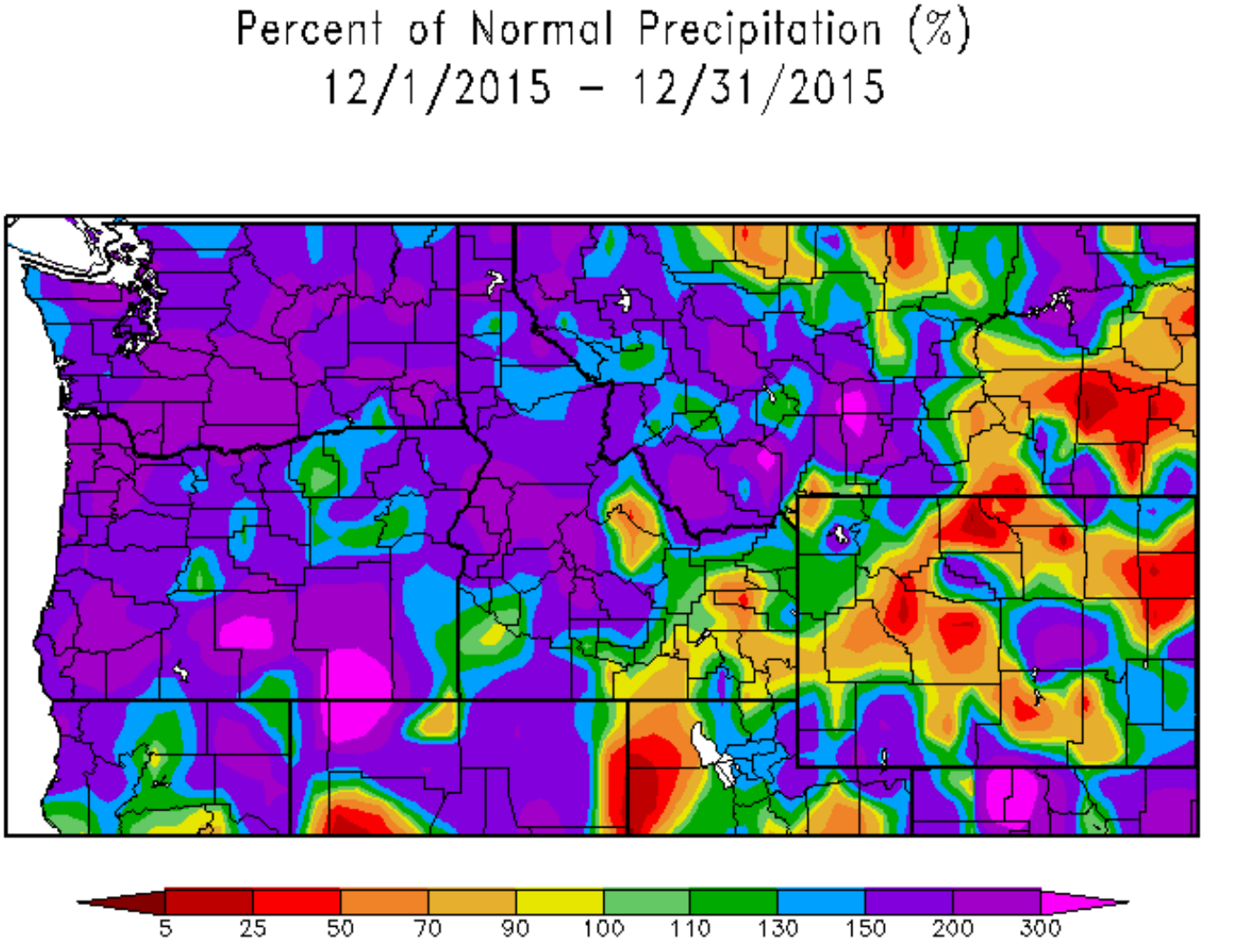


wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_mtdprecpctnormal.pdf



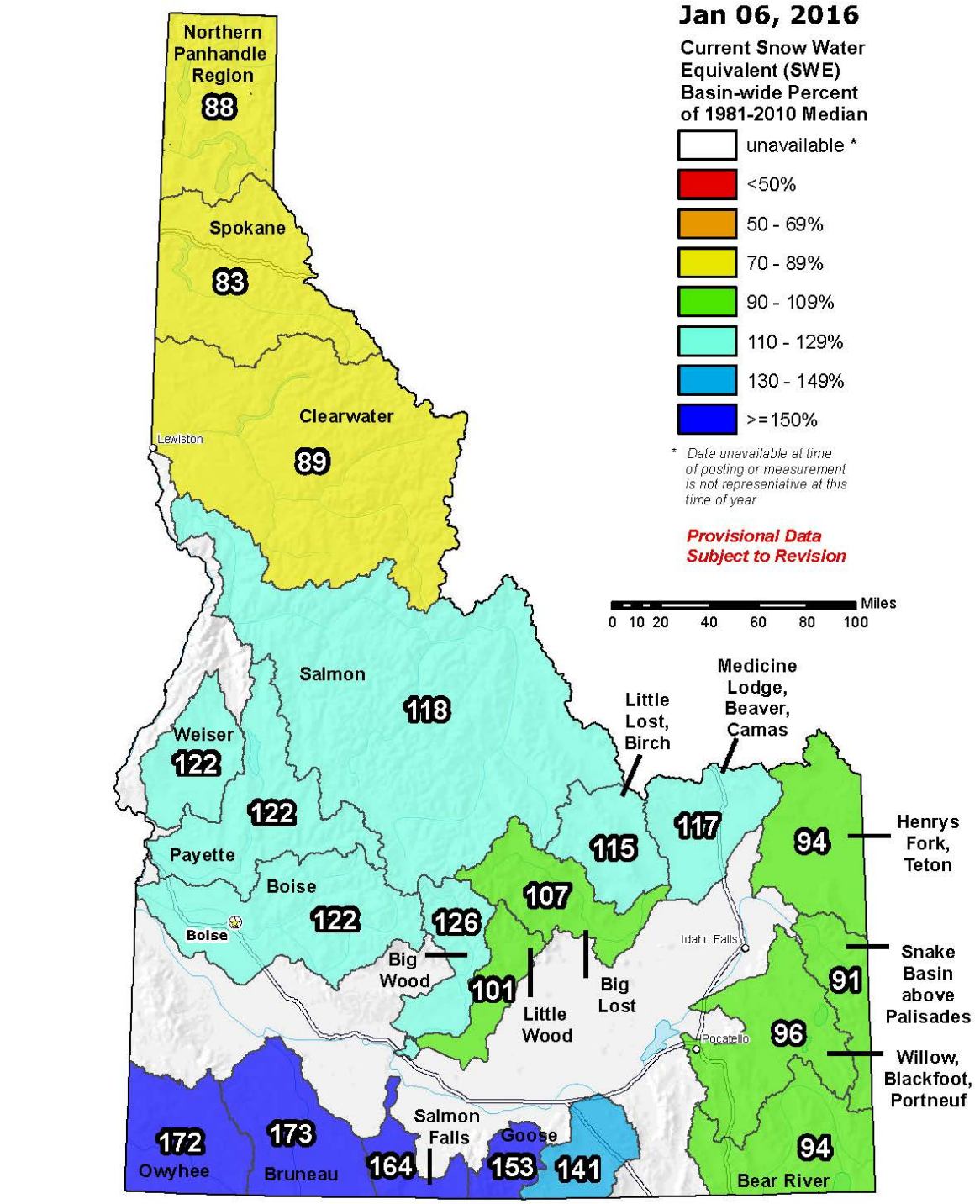
SNOTEL MTD % of Normal Precipitation for end of December 2015
(image is cropped from above image)

December brought much needed precipitation to the Pacific Northwest, which mostly seemed to miss eastern Idaho. Blaine county seemed to benefit the most with 150 to 200% of normal snow falling in the central mountains. Clark county near the Continental Divide received nearly 130 to 200% of normal as well as a small area near Malad in Oneida county. Cassia county, the mid to upper Snake and Caribou Highlands received less than normal precipitation with near normal amounts in the remaining areas/counties of eastern Idaho. Generally, December was good for WA, OR, ID, northern CA, NV and western MT receiving much needed well above average moisture. In eastern Idaho the benefitting counties for precipitation were: Clark, Fremont, Blaine, Lincoln and Oneida.



hprcc.unl.edu/maps.php?map=ACISClimateMaps

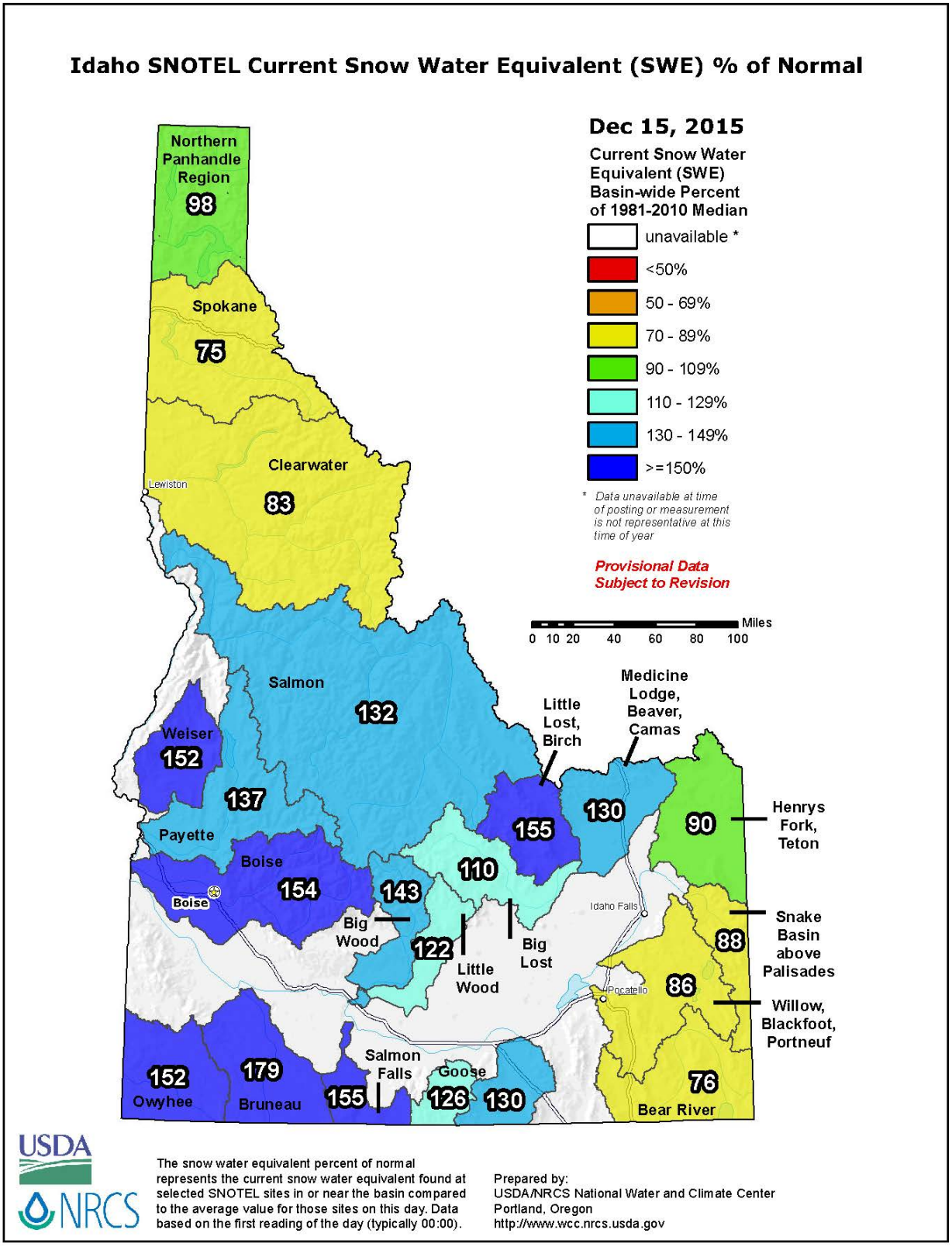
Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal



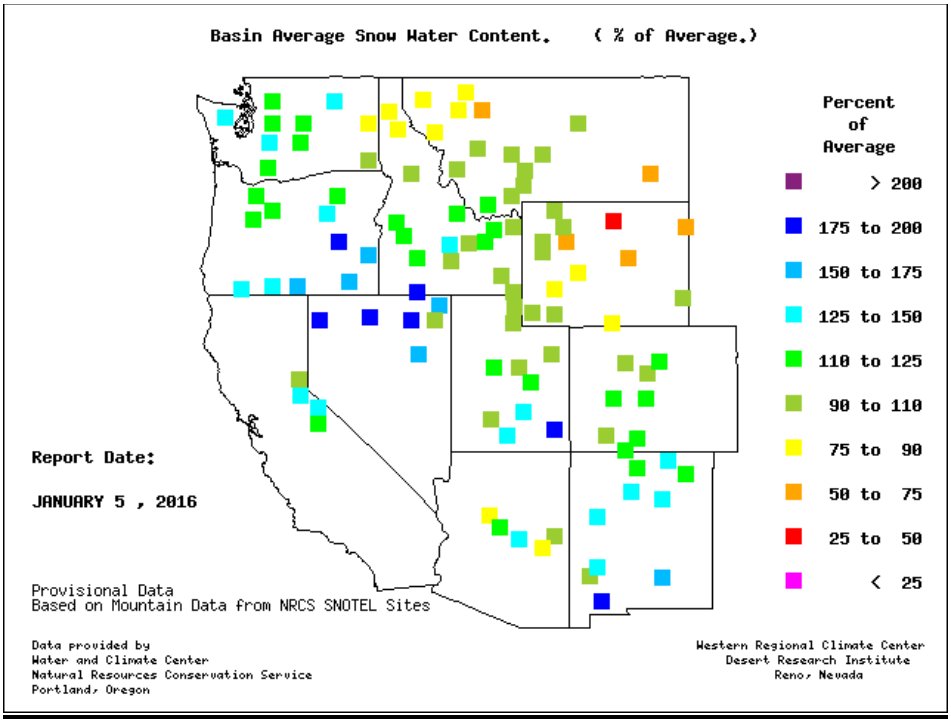
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

Basinwide SWE compared to last month: mostly improvements across basins except for central mountains. Most notable gain was Goose and most notable loss was Little Lost basins compared to last month (see below):

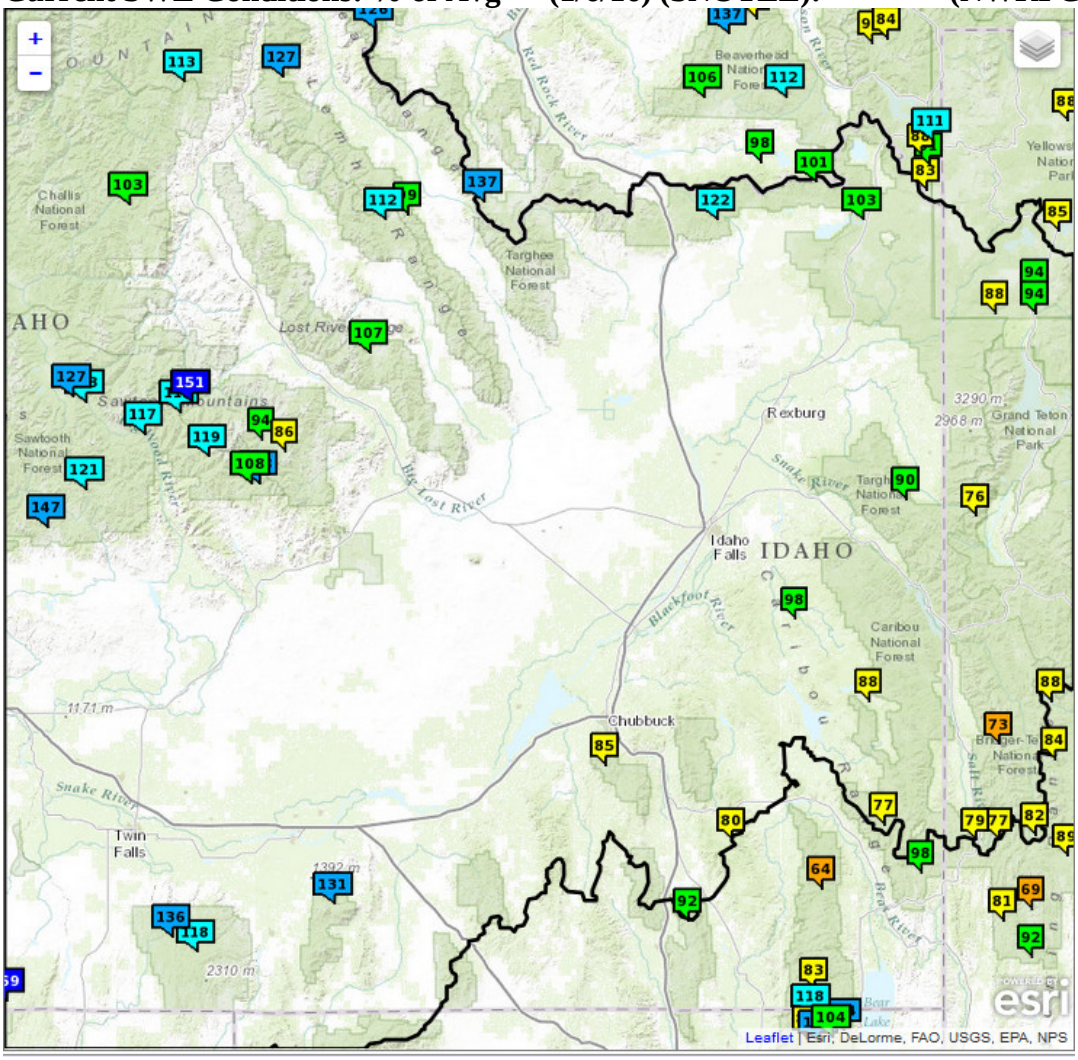


wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_swepctnormal_update.pdf

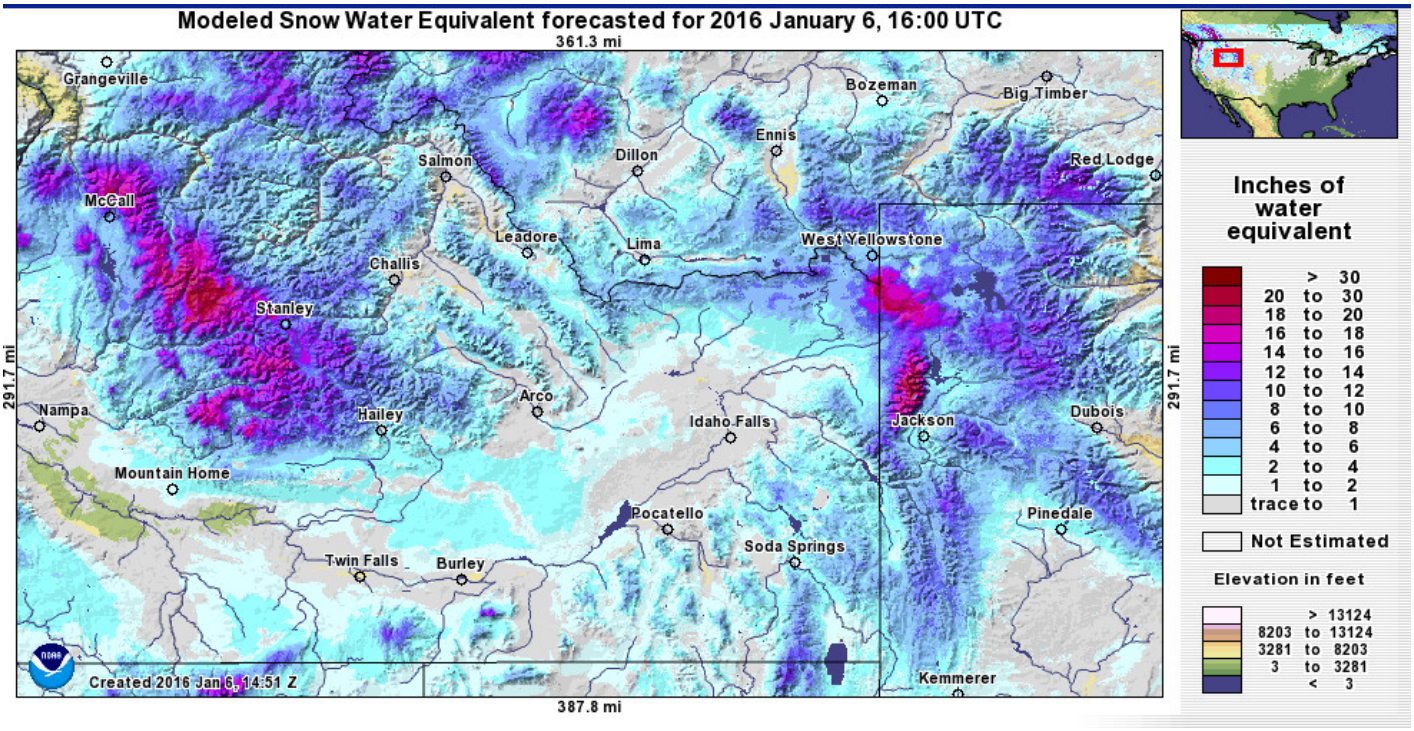


wrcc.dri.edu/snotelanom/basinswe.html

Current SWE Conditions: % of Avg (1/6/16) (SNOTEL): (NWRFC)



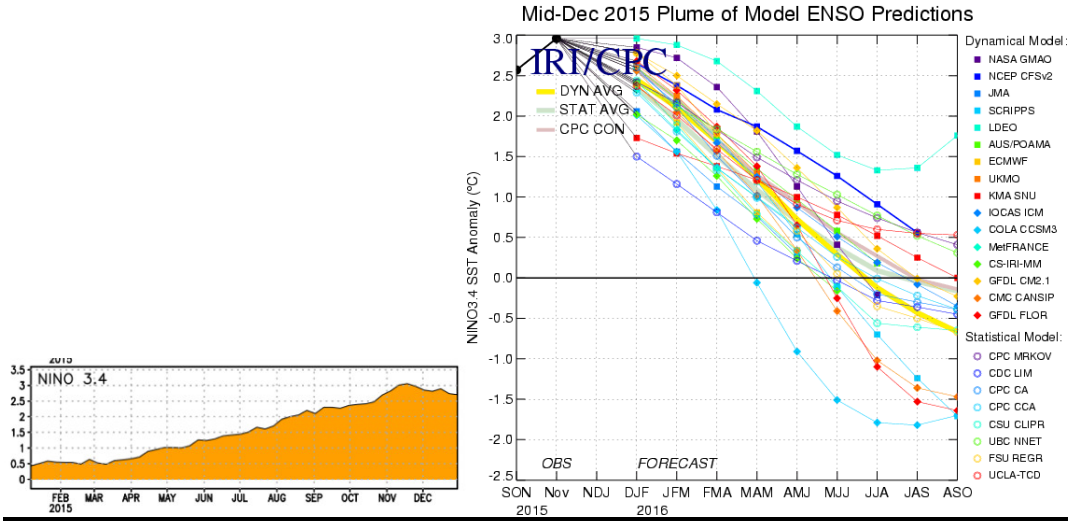
nwrfc.noaa.gov/snow



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

ENSO Update:

Latest Observed SST Departure: Niño 3.4 ~ 2.7 Deg C



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

CPC Synopsis: El Niño Advisory continues. There is a 95% chance that El Niño will continue through this winter gradually weakening through Spring 2016.

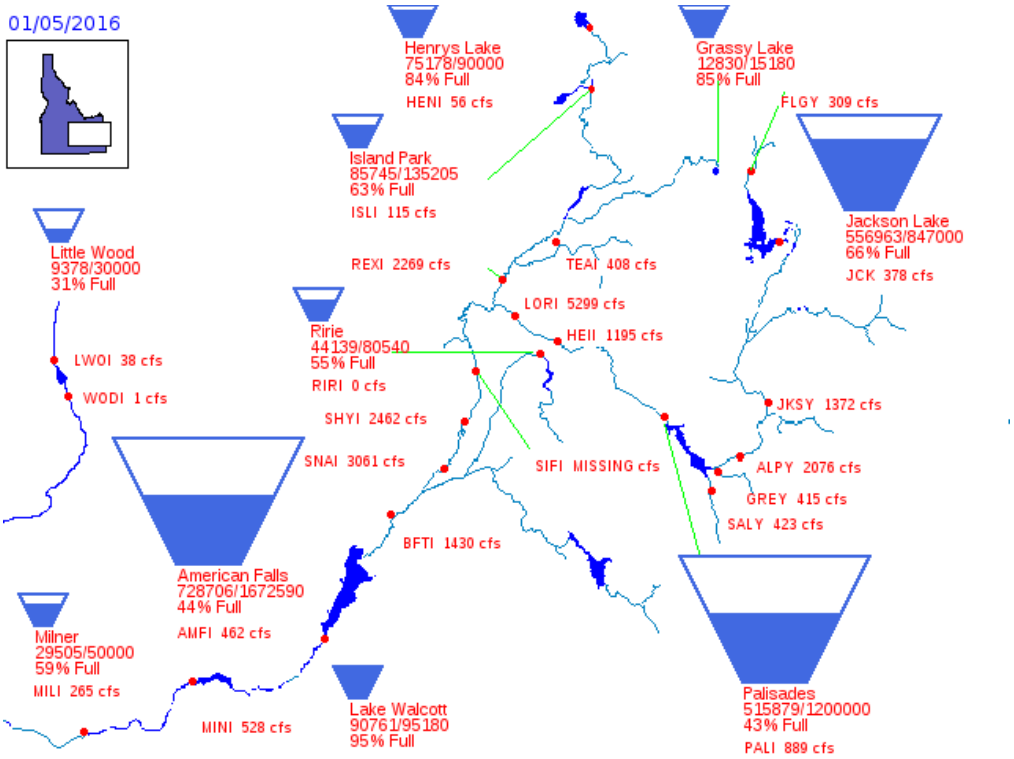
Note: Positive equatorial sea surface temperature (SSTs) anomalies continue across most of the Pacific Ocean. MJO remains coherent and active. The Pacific Decadal Oscillation (PDO) is currently positive.

Reservoirs:

Reservoir	% Capacity November 30[1]	% Capacity December 31[2]	Percent Change	% of Average[2]	% of Average Last Year[2]
Jackson Lake	65	66	1	131	153
Palisades	44	50	6	80	116
Henrys Lake	80	83	3	95	110
Island Park	52	62	10	90	109
Grassy Lake	82	84	2	110	107
Ririe	52	55	3	122	121
Blackfoot	47	49	2	97	90
American Falls	28	42	14	73	105
Mackay	39	53	14	107	110
Little Wood	22	30	8	65	69
Magic	13	16	3	46	53
Oakley	13	16	3	59	72
Bear Lake	35	35	0	79	90
Lake Walcott	93[3]	95[4]	2	n/a	n/a
Milner	54[3]	59[4]	5	n/a	n/a

Source: (1) NRCS November 30, 2015; (2) NRCS December 31, 2015.
(3) US Bureau of Reclamation (BOR) December 7, 2015 (4) BOR January 5, 2016

wcc.nrcs.usda.gov/ftpref/support/water/SummaryReports/ID/BRes_1_2016.pdf

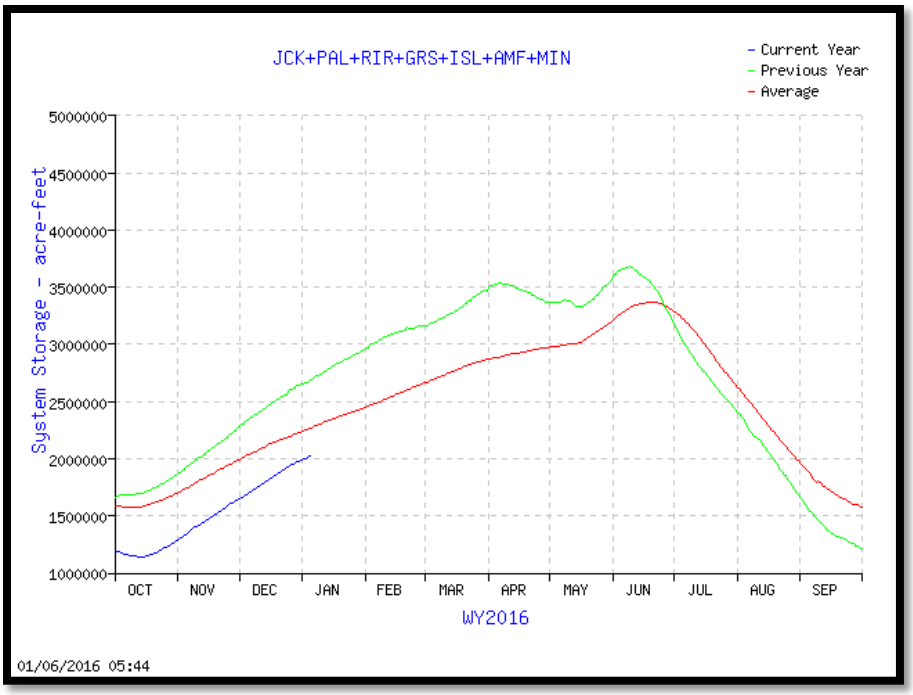


50% of Capacity in Upper Snake River System
(Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls & Lake Walcott)

usbr.gov/pn/hydromet/burtea.html

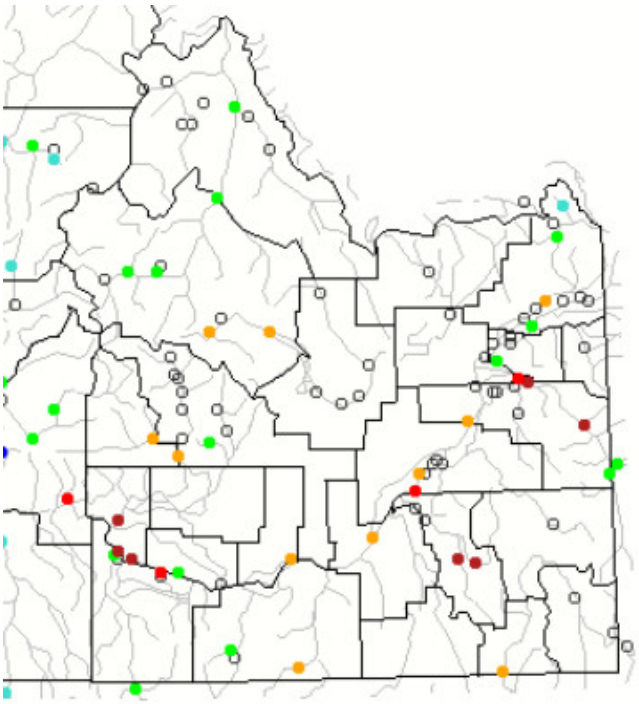
Upper Snake River:
Total Space Available: 2,010,671 AF
Total Storage Capacity: 4,045,695 AF

Graph of Upper Snake River Current Total System Reservoir Storage



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

Streamflow:



Monthly average streamflow compared to historical average streamflow for December 2015.

USGS

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

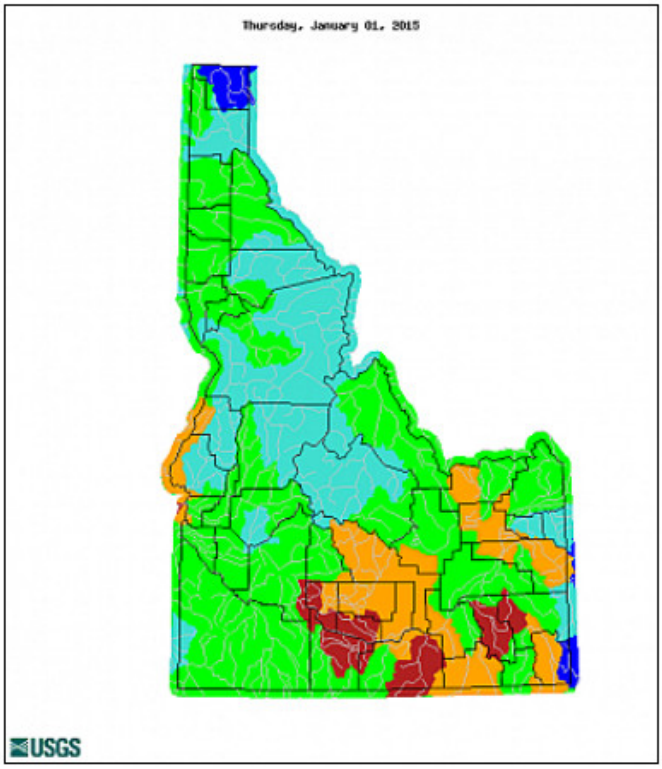
Explanation - Percentile classes							
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High	Not-ranked

Comparison of Streamflow Maps

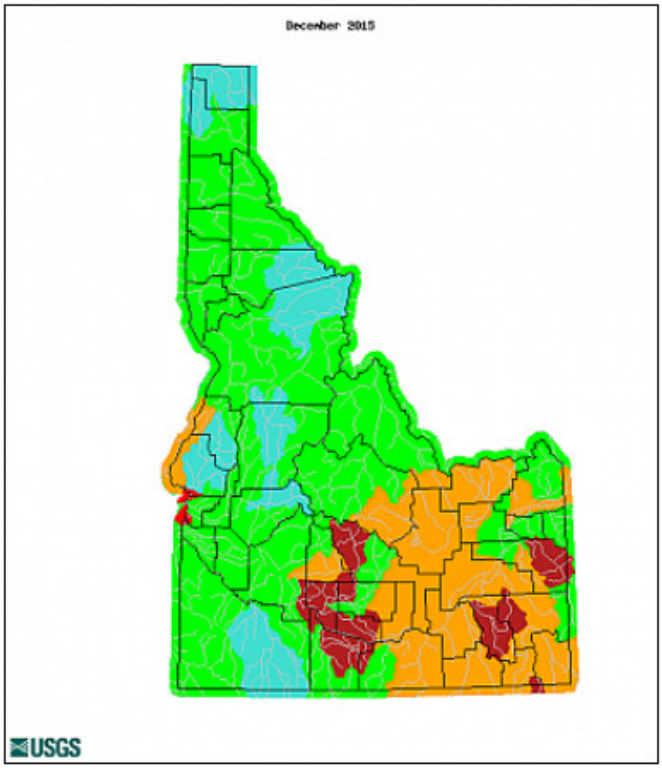
Geographic area: Idaho | Water resource region: | GO

Map type: Monthly Streamflow (month of year) | Sub type: HUC Streamflow Map

Date (YYYYMM): 201412



Date (YYYYMM): 201512

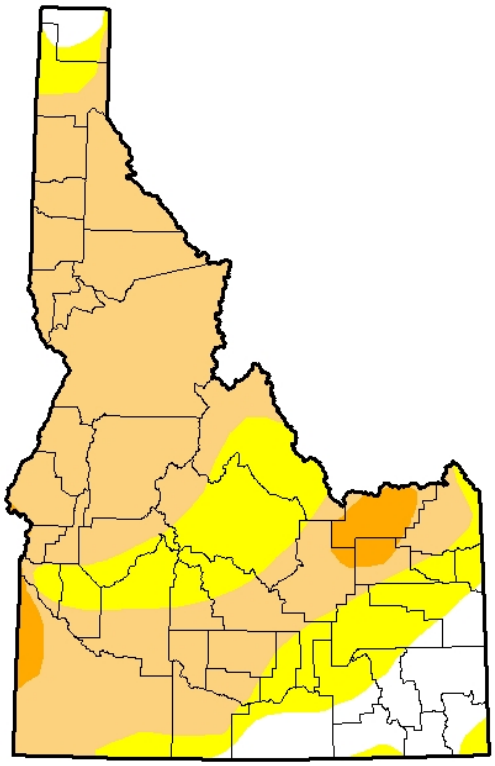


Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	No Data
	Much below normal	Below normal	Normal	Above normal	Much above normal		

waterwatch.usgs.gov/index.php

Drought:

U.S. Drought Monitor
Idaho



January 5, 2016
(Released Thursday, Jan. 7, 2016)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	10.98	89.02	63.25	3.66	0.00	0.00
Last Week 12/29/2015	10.98	89.02	64.05	24.35	1.18	0.00
3 Months Ago 10/6/2015	8.51	91.49	82.14	49.19	28.49	0.00
Start of Calendar Year 12/29/2015	10.98	89.02	64.05	24.35	1.18	0.00
Start of Water Year 9/29/2015	0.00	100.00	85.59	47.55	29.26	0.00
One Year Ago 1/6/2015	24.53	75.47	41.46	18.49	3.40	0.00

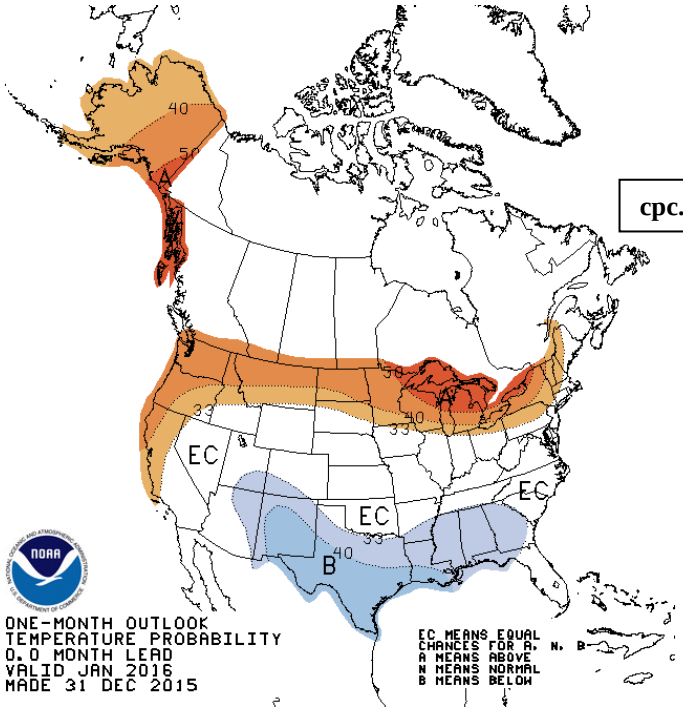
Intensity:

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

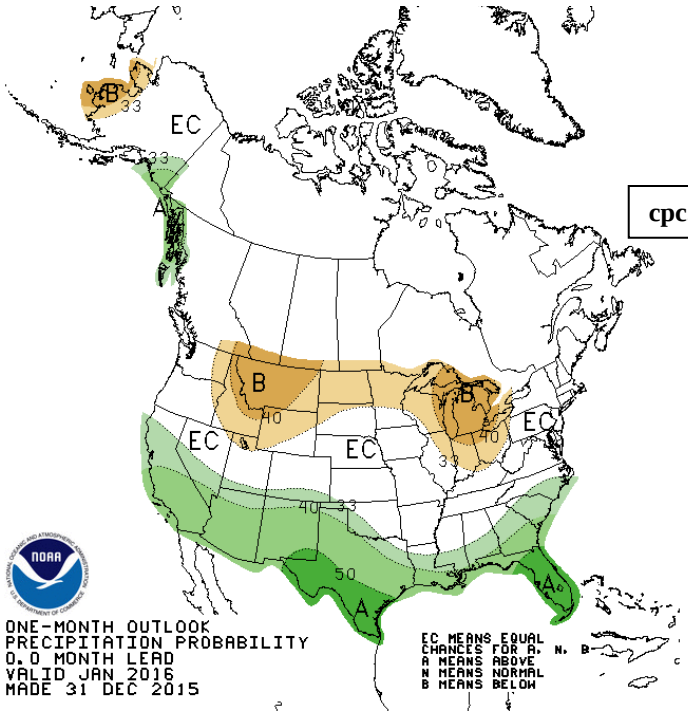
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brian Fuchs
National Drought Mitigation Center

http://droughtmonitor.unl.edu/



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



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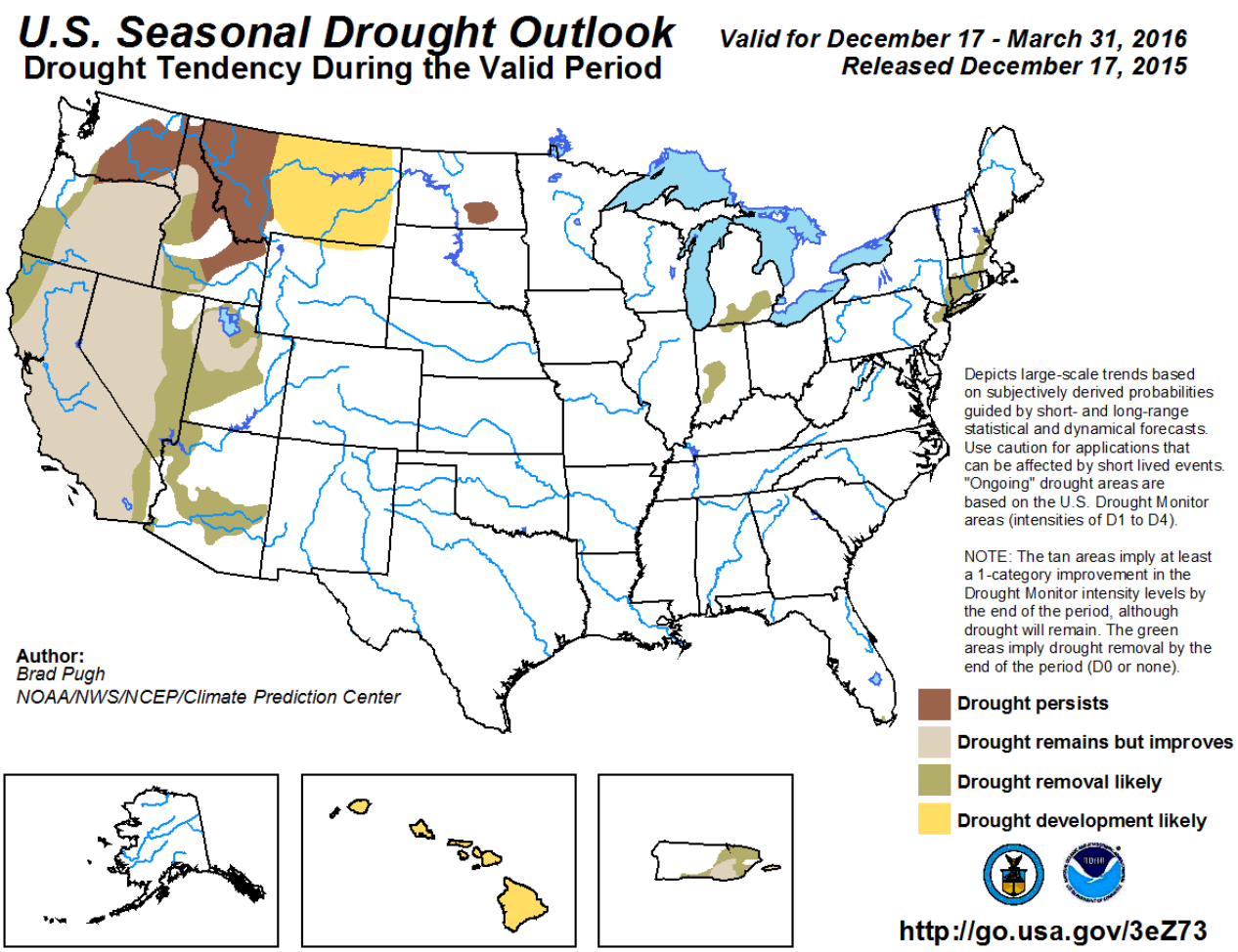
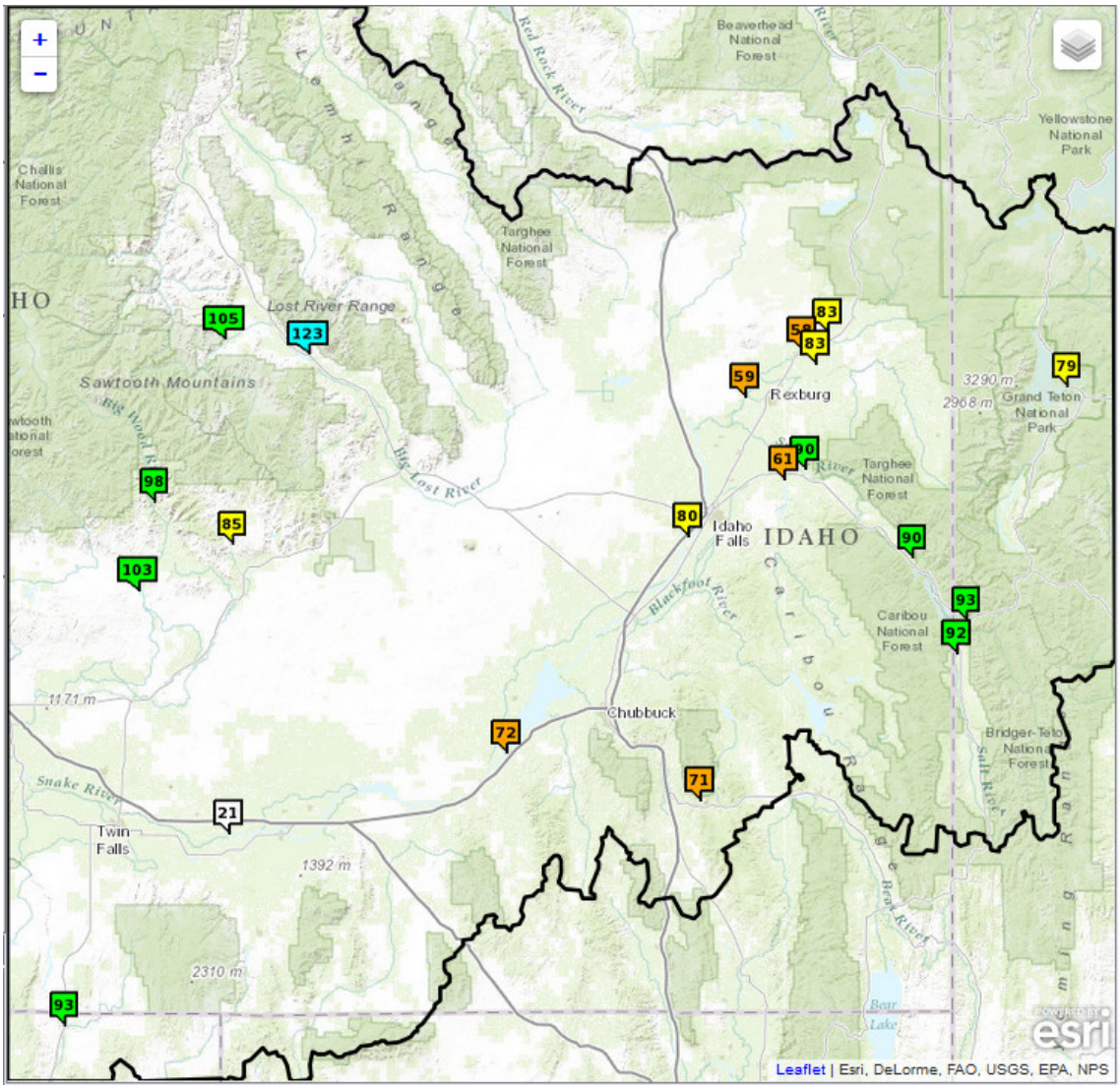


cpc.ncep.noaa.gov/products/expert_assessment/season_drought.png

Water Supply: **NWRFC Water Supply Volume Forecast Map (1/6/16):**



nwrfc.noaa.gov/ws

NWRFC Water Supply Forecasts:

*For the current Forecast Period Table showing the 90% volume, 50% volume, Percent Normal (official forecast) and 10% volume Exceedence Forecast Ensemble Probabilities in conjunction with the current 30-Year Normal (1981 - 2010): (to select the locations within the Weather Forecast Office Pocatello, click on the column header “Servicing WFO” to sort to PIH)

www.nwrfc.noaa.gov/water_supply/ws_summary.cgi

*For a table format of the current Volume Forecasts and current Runoff statistics for various forecast periods for locations within the Weather Forecast Office Pocatello: (select type: WFO and Site: Pocatello)

www.nwrfc.noaa.gov/water_supply/ws_report.cgi

CBRFC Water Supply Forecast Report for Bear River basin (January 1 Forecast):

Water Supply Volume Percent Average/Median Condition
▲ <70 △ 70-90 ▲ 90-110 △ 110-130 ▲ >130 ▲ Regulated

Options (on/off): Plot
Area: CBRFC Green Colorado San Juan Great Sevier Virgin Low Col WGRFC ABRFC

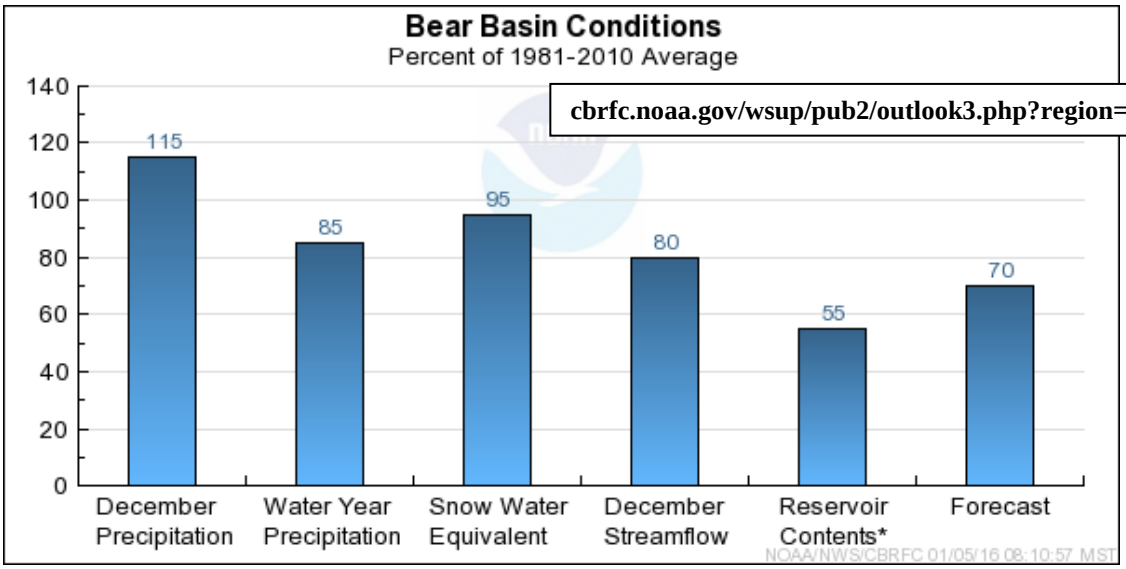
Columns (on/off): Area Sub Area NWS ID DS River Location Forecast Date Avg Cond Med Cond Forecast Period Min 90 P 70 MP 50 P 30 Max 10 Avg M Med

Click column heading to sort by that data. Click ID to view point info. Click Area, Sub Area, or Forecast Period to show only those points.

	Area	Sub Area	NWS ID	River	Location	Forecast Date	Avg Cond	Med Cond	Forecast Period	Min 90	P 70	MP 50	P 30	Max 10	Avg	Med	Pct Avg	Pct Med
1	Great	Bear	BERU1	Bear	Utah	2016-1-1	△	▲	Apr 01-Jul 31	53	81	**97**	109	133	112	106	*87*	*92*
2	Great	Bear	BEAW4	Bear	Woodruff Narrows Rsvr	2016-1-1	△	△	Apr 01-Jul 31	41	69	**86**	101	149	121	110	*71*	*78*
3	Great	Bear	BORW4	Smiths Fork	Border	2016-1-1	△	△	Apr 01-Jul 31	39	55	**70**	82	103	89	80	*79*	*88*
4	Great	Bear	STDI1	Bear	Montpelier	2016-1-1	▲	▲	Apr 01-Jul 31	38	57	**84**	109	162	182	117	*46*	*72*
5	Great	Bear	LGNU1	Logan	Logan	2016-1-1	△	△	Apr 01-Jul 31	49	63	**83**	105	124	111	97	*75*	*86*
6	Great	Bear	HRMU1	Blacksmith Fork	Hyrum	2016-1-1	▲	▲	Apr 01-Jul 31	15.4	21	**27**	35	52	43	29	*63*	*93*
7	Great	Bear	PRZU1	Little Bear	Paradise	2016-1-1	▲	▲	Apr 01-Jul 31	11.7	17.4	**24**	35	53	47	51	*51*	*47*

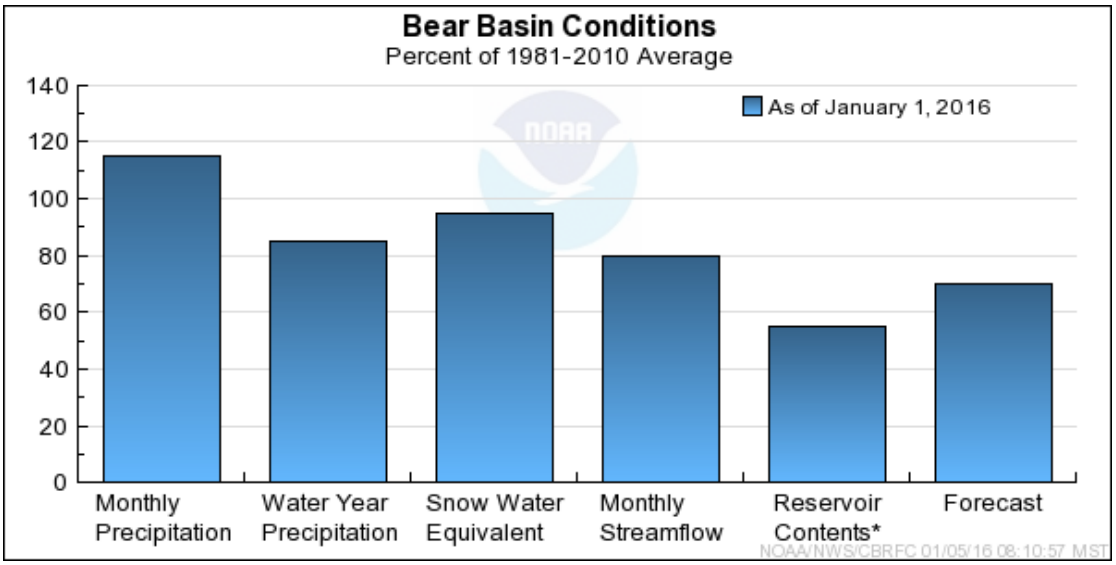
cbrfc.noaa.gov/rmap/wsup/wsuplist.php

Bear River Basin Conditions:



cbrfc.noaa.gov/wsup/pub2/outlook3.php?region=sl&month=1&year=2016#br

Snow Water Equivalent in Percent of Median.
* Percent usable capacity, not percent average contents.



cbrfc.noaa.gov/wsup/pub2/graph/png/br.cond.2016.1.png

NRCS-NWCC Water Supply Forecast Report for the upper Snake River and Bear River basins (January 1 Forecast):

*For a table format of the current Volume and Percent of Average Forecasts for both the upper Snake and Bear River basins which show various forecast periods for the 50% volume, percent of average (official forecast), max volume (10%), 30% volume, 70% volume , min volume (90%) and the 30-year 1981 - 2010 average, please visit:

www.wcc.nrcs.usda.gov/wsf/west_fcst.html
and click on appropriate first of month forecast and then either UPPER SNAKE or BEAR

cc:

Mike Schaffner, Western Region HCSD
Joe Intermill, Hydrologist-in-Charge, Northwest River Forecast Center
Steve King, Development and Operations Hydrologist, Northwest River Forecast Center
Michelle Stokes, Hydrologist-in-Charge, Colorado Basin River Forecast Center
Greg Smith, Acting Service Coordination Hydrologist, Colorado Basin River Forecast Center
John Lhotak, Development and Operations Hydrologist, Colorado Basin River Forecast Center
Hydrometeorological Information Center
Dean Hazen, Meteorologist-in-Charge, Pocatello, Idaho
Dawn Harmon, Acting Science and Operations Officer, Pocatello, Idaho
Vern Preston, Warning Coordination Meteorologist, Pocatello, Idaho
Troy Lindquist, Senior Service Hydrologist, Boise, Idaho
Brian McInerney, Senior Service Hydrologist, Salt Lake City, Utah
Kevin Berghoff, Senior Hydrologist, Northwest River Forecast Center
Taylor Dixon, Hydrologist, Northwest River Forecast Center
Brent Bernard, Hydrologist, Colorado Basin River Forecast Center
PIH Mets/HMT (pih.ops)

End

cbl