

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: March 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: April 15, 2015	
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:

Warm temperatures and dry conditions continued across the Hydrologic Service Area (HSA) for the month of March. Overall, about a half an inch to one inch of precipitation fell across the mountainous areas and about a quarter of an inch fell across the Snake River Plain according to AHPS data. Total snowfall ranged from about 0 to 5 inches over the HSA. Temperature departures from normal for March shows that across the HSA, temperatures were mostly 3 to 10 degrees F above normal within the HSA. Mean average temperatures ranged from 30 to 50 degrees F as well. The Minidoka Dam and Oakley COOP stations have had 8 and 6 days respectively with average temperatures over 55 degrees F in March.

Mountain snowpack is continuing to look scarce as we edge into spring. Higher than normal temperatures and little precipitation continues; water supply volume forecasts have dropped rapidly as drier than normal conditions dominate; 27 SNOTEL sites set record snow water equivalent lows for their period of record at the end of the month. Snowpack in the Big Wood ranges from nearly melted out to 67% above Hailey. The Big Lost and Little Wood basins are well below normal with many stations not recording snow or new lows. The Oakley basin is currently at 58% of average snowpack being the 13th lowest since 1961, with streamflow forecasts in the 55-60% of average. Irrigation shortages should occur in the Big/Little Wood, Big Lost and Southside basins.

As far as the short-term 8 to 14 day Climate Prediction Center Outlook is concerned, the forecast is a 40 to 50 percent chance of above normal temperatures in eastern Idaho and 33 to 40 percent of below normal precipitation. The one-month forecast graphics are below. For the three-month outlook, the trend seems to continue with a 40 to 50 percent chance of above normal temperatures within the HSA and for precipitation, the outlook is for near normal conditions across eastern Idaho with slightly better chance of precipitation in the Bear Basin.

Of the data available for the month, the station within the HSA reaching the highest 24-hour temperature (non-SNOTEL) was the Raft River RAWS station reaching 72°F on the 15th. The station with the lowest recorded temperature was the Copper Basin RAWS station at -17°F on March 1st. The highest recorded 24-hr precipitation (non-SNOTEL) occurred at the Preston COOP where 0.55 inch fell on the 23rd. The highest recorded precipitation total (non-SNOTEL) occurred at the Stanley Ranger Station WBAN site where 1.20 total inches was recorded. The Emigrant Summit SNOTEL station received the most snowfall which recorded 2.60

inches of precipitation total for the month. The second highest was the Howell Canyon SNOTEL recording 2.30 total inches.

Reservoirs last month increased capacity overall by around 7% in the upper Snake River basin system (an increase of about 291 KAF occurred over the month and is currently sitting at 87% of capacity overall). Compared to last year at this time, it was about 57% of capacity. According to NRCS and U.S. Bureau of Reclamation reservoir data, the most notable increases were Lake Walcott increasing 67%, Little Wood 17% and Magic Reservoirs increasing 10% of capacity. Of reservoir low storage significance, the Oakley Reservoir is currently 76% of average and Magic Reservoir is sitting at 91% of average. The upper Snake reservoirs are nearly full.

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

Drought conditions across eastern Idaho have degraded since last month's assessment. Abnormally Dry conditions have now been assigned to all of eastern Idaho. Moderate Drought expanded into Oneida, Franklin, S. Bannock and S. Caribou counties. Severe Drought now extends more into Butte, Blaine and Minidoka counties. Currently, about 39 percent and near 18 percent of the state is in Moderate and Severe drought respectively. The USDA has just declared drought disaster in Cassia county. The U.S. Seasonal Drought Outlook continues to forecast drought to persist/intensify across the central mountains and middle Snake River plain where the extreme eastern Idaho and southeast counties are excluded from the outlook.

According to the Idaho NRCS Snow Survey April 1st Idaho Surface Water Supply Index (SWSI); combining streamflow volume forecasts and reservoir storage (where appropriate), rates the greatest valued basin for water supply within the HSA as being Bear River basin with the Henrys Fork data not available. The basin was given a SWSI rating of -0.7 (near normal). This rating reflects overall water availability in the basins and are mostly used for irrigational planning purposes. The two lowest ranked basins within the HSA are the Little Wood and Big Lost basins rated at -4.0 and -3.8 respectively, which are much below normal. All basins within the HSA are below average for the NRCS Apr- Sept streamflow volume forecasts: Lost/Wood ranges from 10-54% , upper Snake 37-72% , Southside 6-25% and Bear 22-36% of average for points within our HSA.

For more information on the Idaho Surface Water Supply Index (SWSI) April 1st Outlook please visit:
<ftp://ftp.wcc.nrcs.usda.gov/states/id/webftp/swsi/tables/Apr/SWSI04.pdf>

For more information on the Idaho Water Supply April 1st Outlook please go to:
<ftp://ftp.wcc.nrcs.usda.gov/states/id/webftp/wsor/2015/borid415.pdf>

Please see NWRFC, CBRFC, and NRCS Official April 1st and current water supply season streamflow volume forecasts:

www.nwrfc.noaa.gov/ws

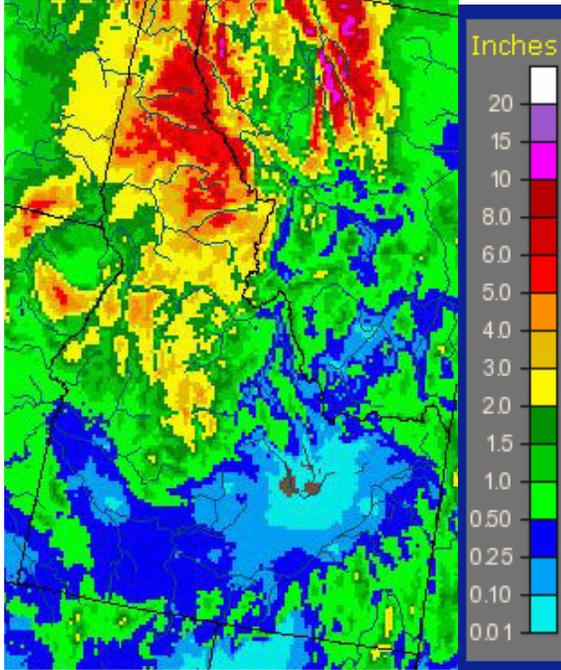
www.cbrfc.noaa.gov/lmap.php?interface=wsup

<ftp://ftp-fc.sc.egov.usda.gov/ID/snow/webftp/watersupply/forecasts/ID04.txt>

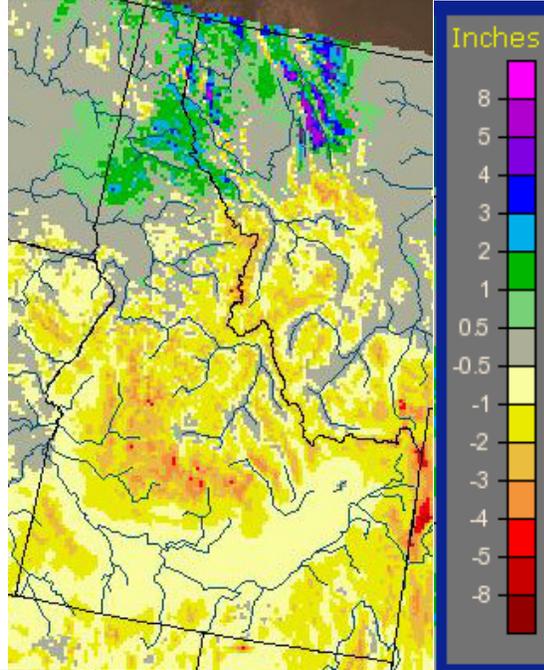
For a table format of the current volume forecasts and current runoff for WFO PIH:
www.nwrfc.noaa.gov/water_supply/ws_report.cgi

Precipitation:

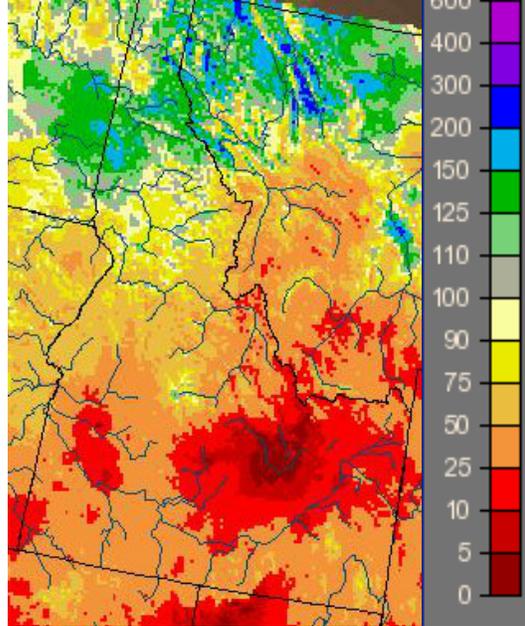
March 2015, Observed
Precipitation



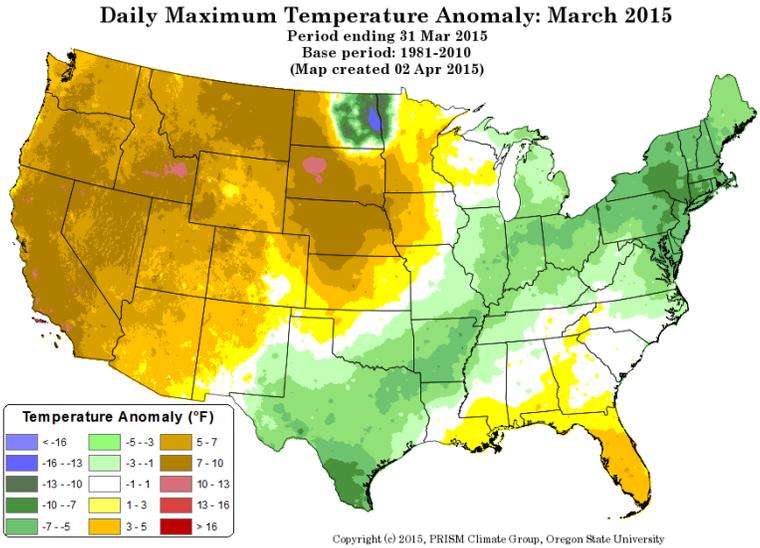
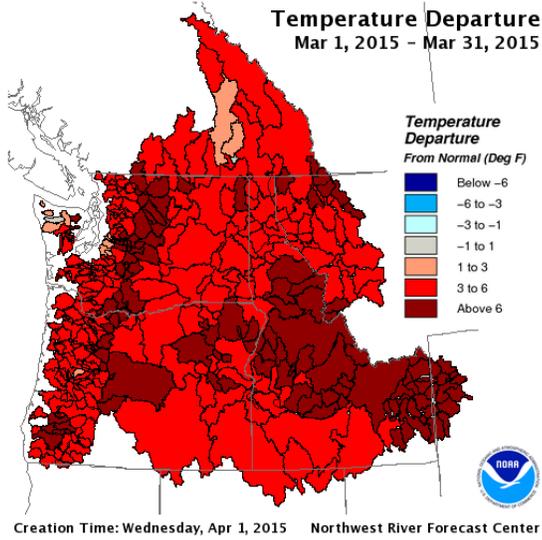
March 2015, Departure from
Normal Precipitation



March 2015, Percent of
Normal Precipitation

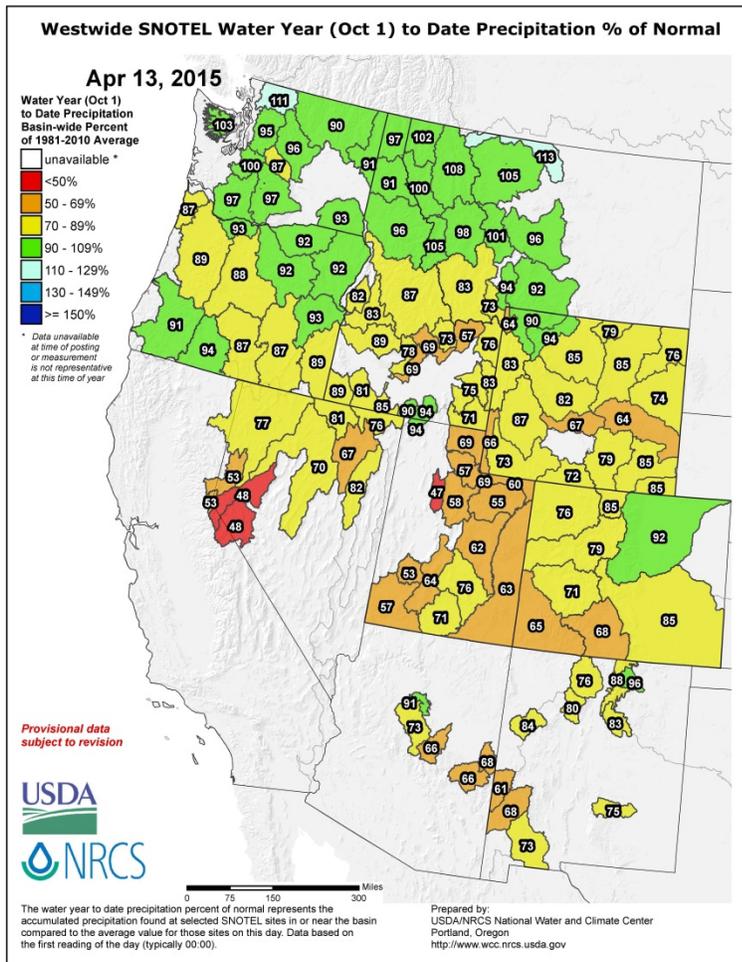


water.weather.gov/precip/index.php

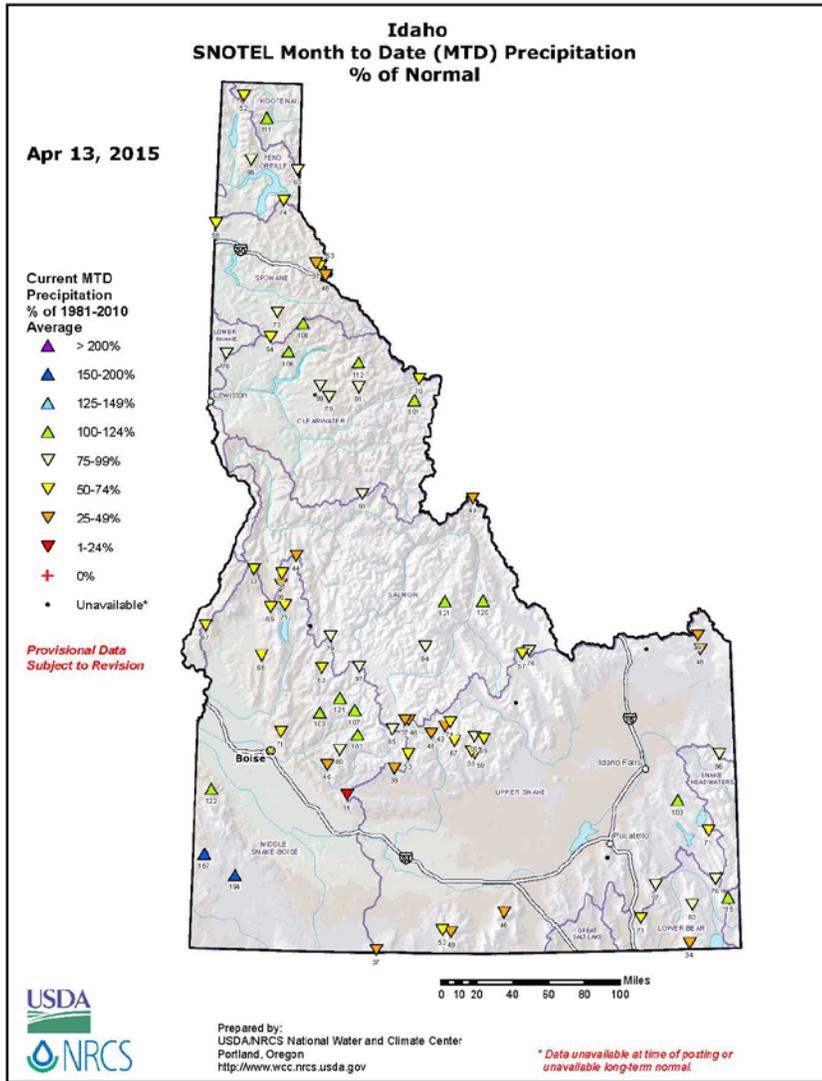


nwrfc.noaa.gov/WAT_RES_wy_summary/20150401/CurMonMAT_2015Mar31_2015040123.png

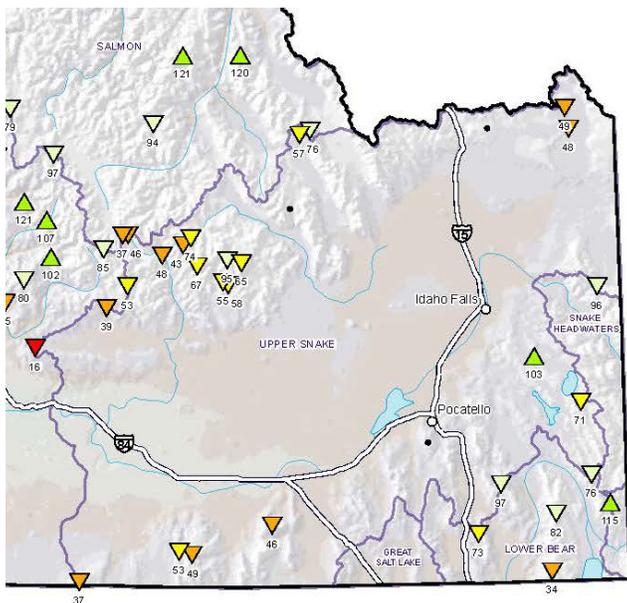
prism.oregonstate.edu/



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



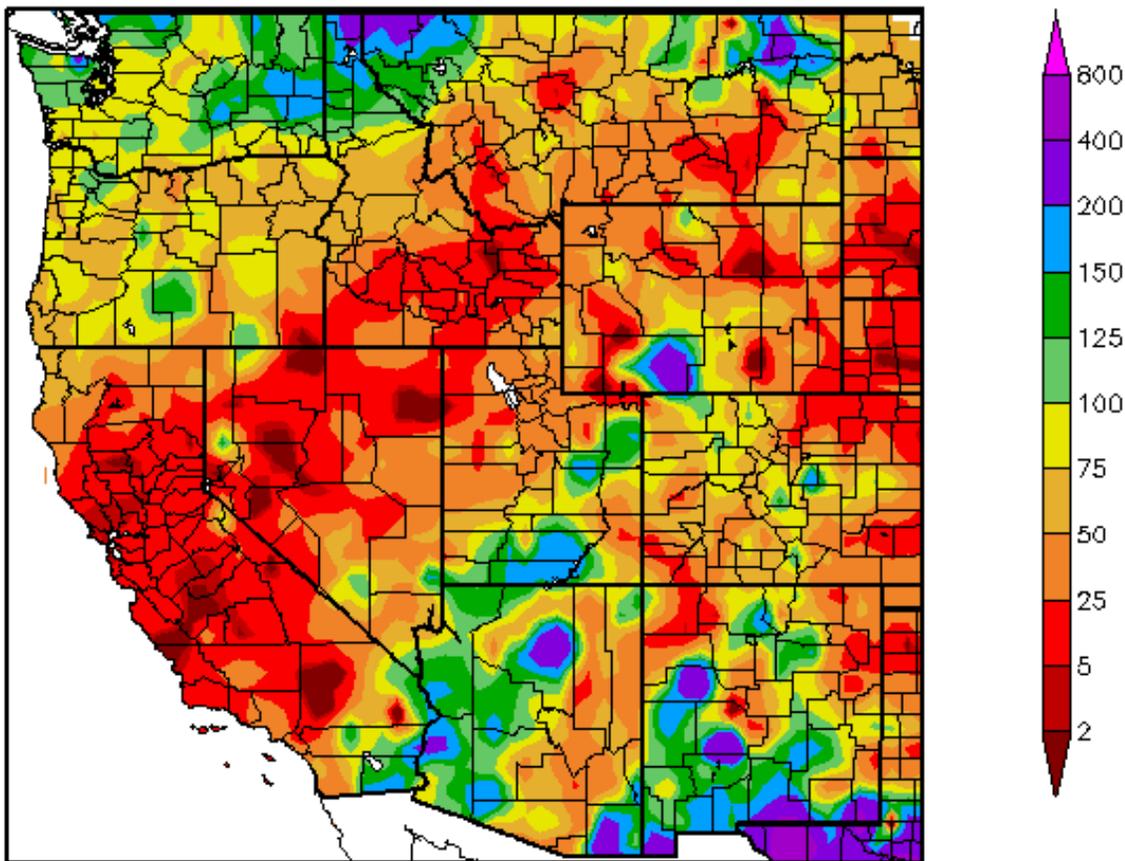
wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_mtdprecptnormal.pdf



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

March's precipitation pattern was very dry across the HSA; especially Jefferson County and all of southern Idaho. Most of the HSA received 5-25% of normal for the month. Across the West it continued to be dry, including CA, NV, MT, WY, CO and the Midwest, whereas parts of WA, central OR, northern ID, northwestern MT, southern UT, and southcentral WY received well above normal precipitation.

Percent of Normal Precipitation (%) 3/1/2015 - 3/31/2015



Generated 4/11/2015 at HPRCC using provisional data.

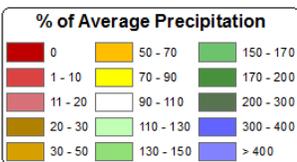
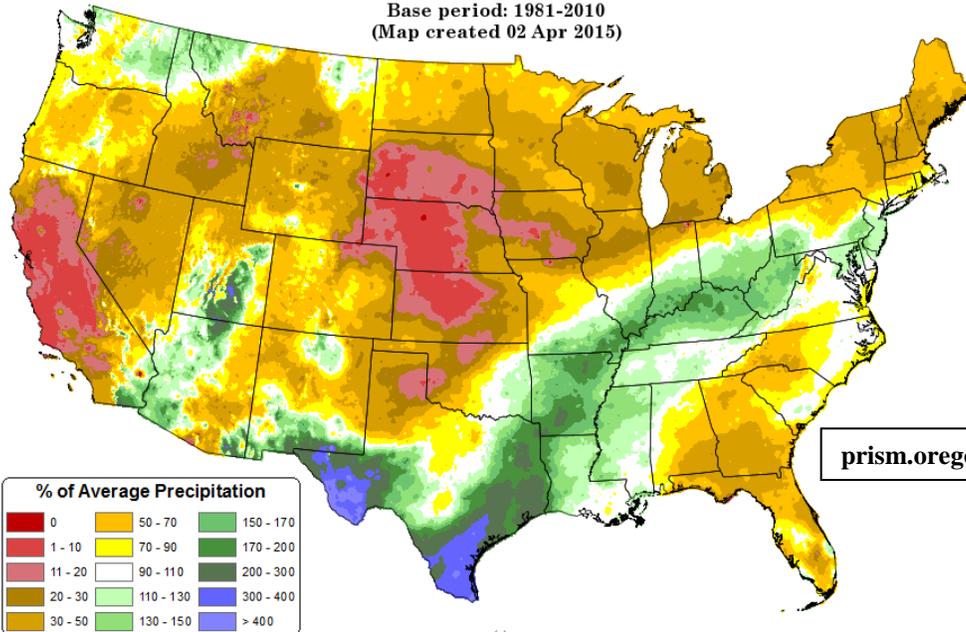
Regional Climate Centers

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

March CONUS Precipitation Anomaly:

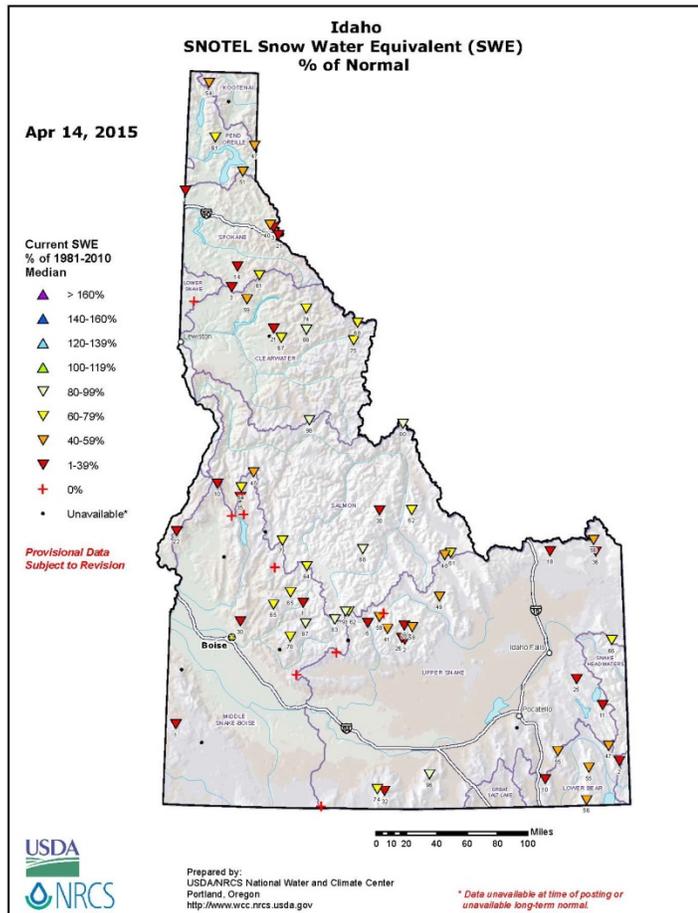
Total Precipitation Anomaly: March 2015

Period ending 31 Mar 2015
Base period: 1981-2010
(Map created 02 Apr 2015)



prism.oregonstate.edu/comparisons/anomalies.php

Copyright (c) 2015, PRISM Climate Group, Oregon State University

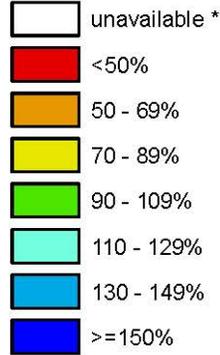


wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_swep_chnormal.pdf

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

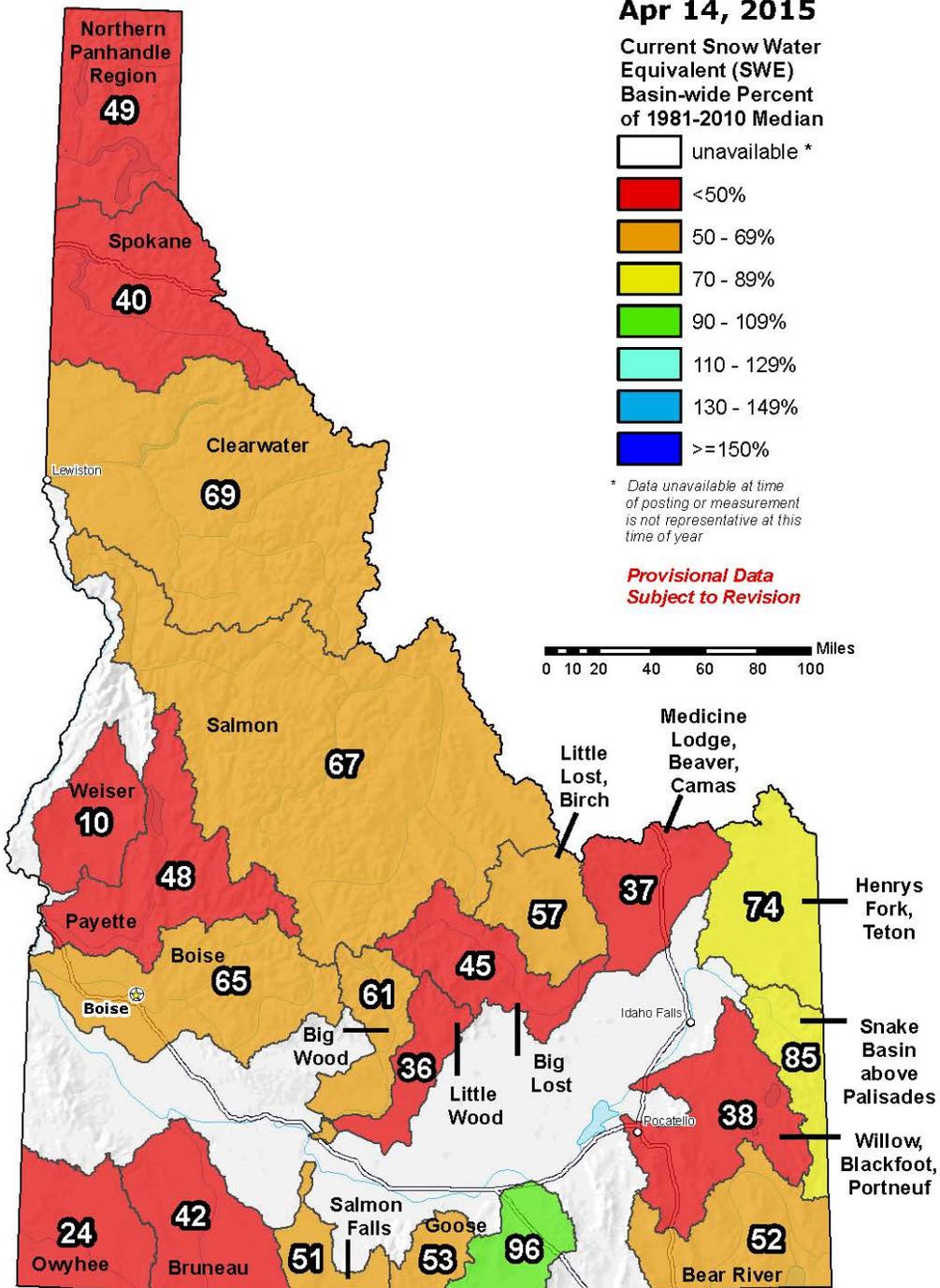
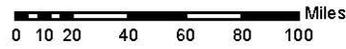
Apr 14, 2015

Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median



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

*Provisional Data
Subject to Revision*

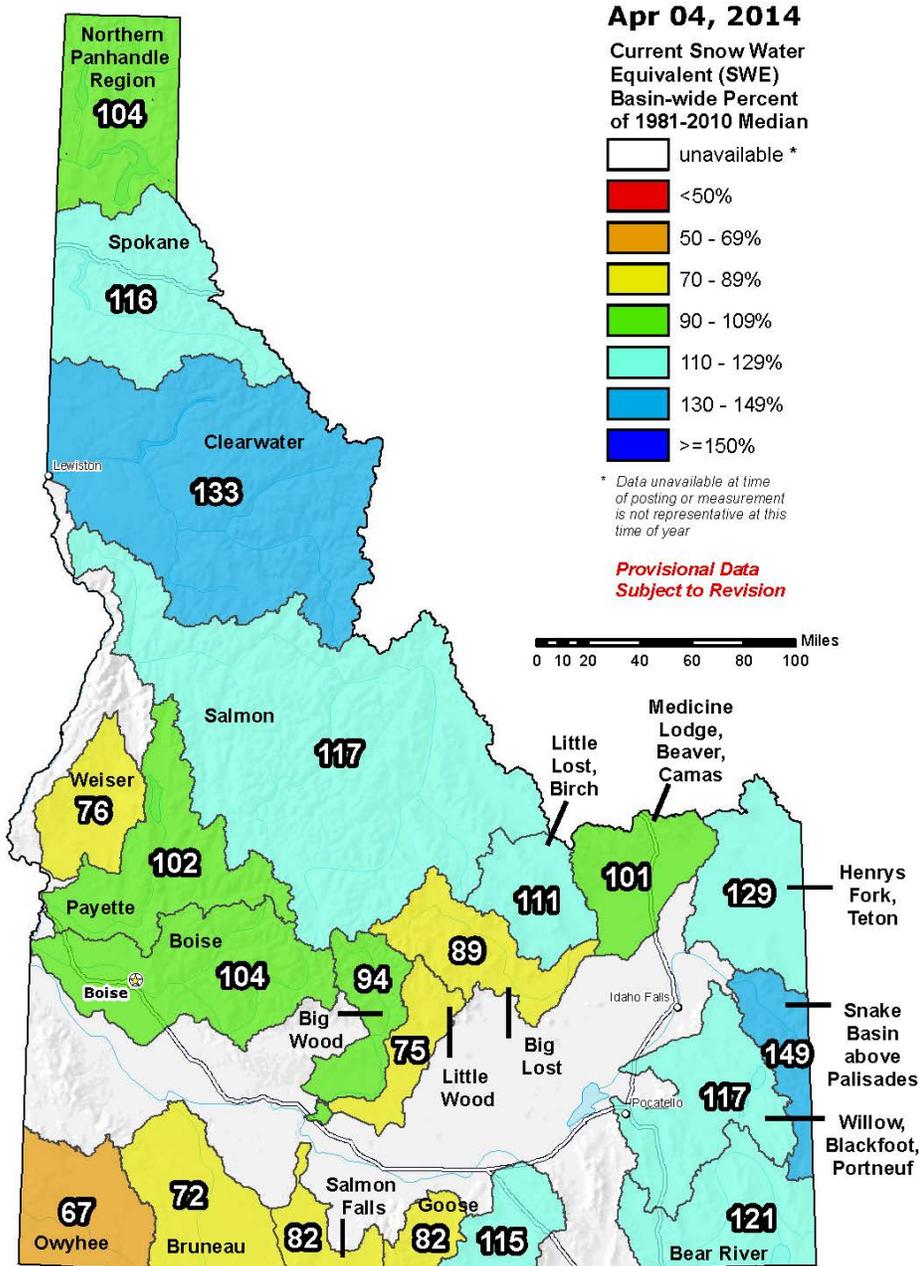


The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

Idaho Basinwide SWE compared to last year; major reductions across all basins. Most notable losses were the Willow/Blackfoot/Portneuf and Snake above Palisades basins compared to last year at this time, basins dropped between 33 and 79% (see below):

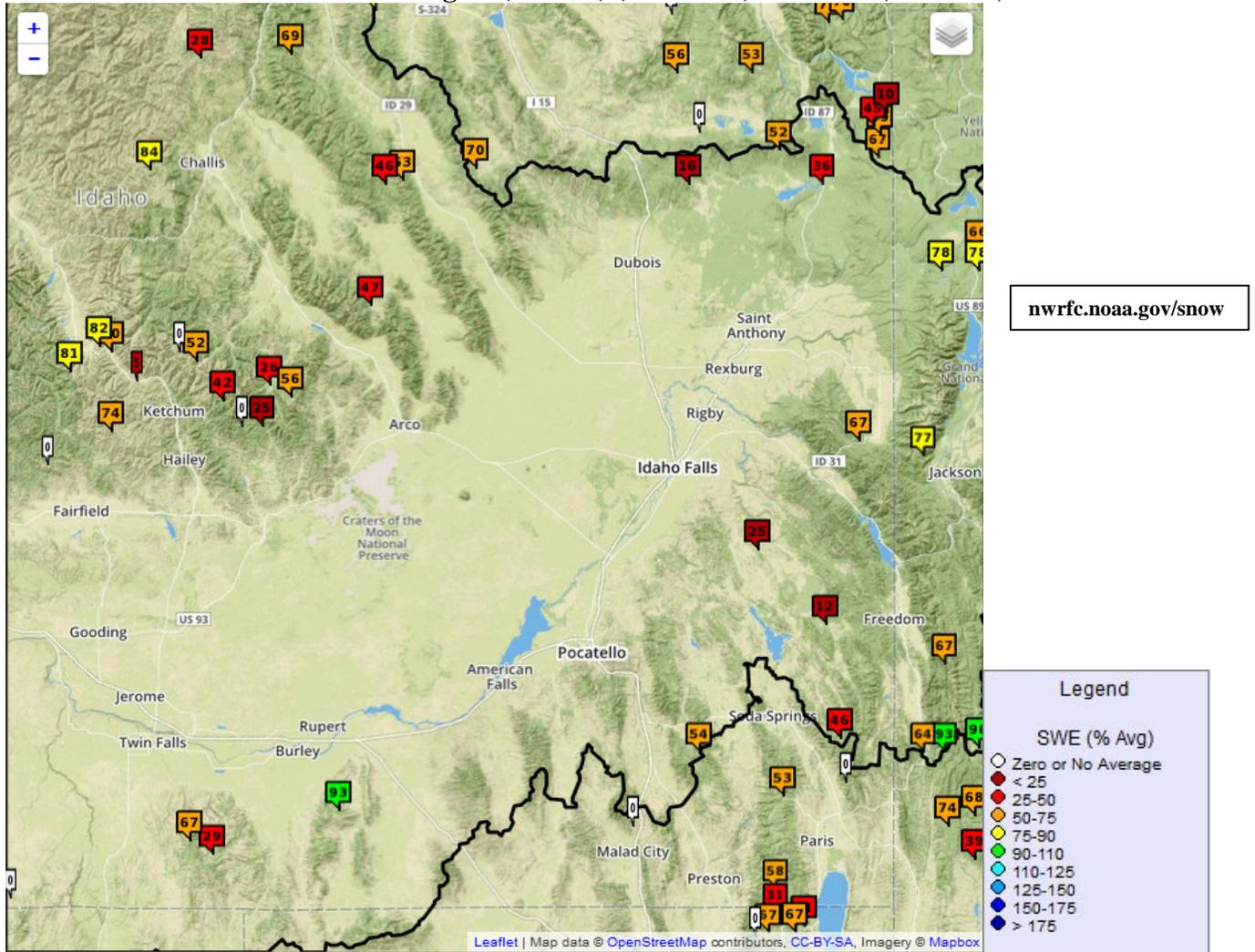
Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal



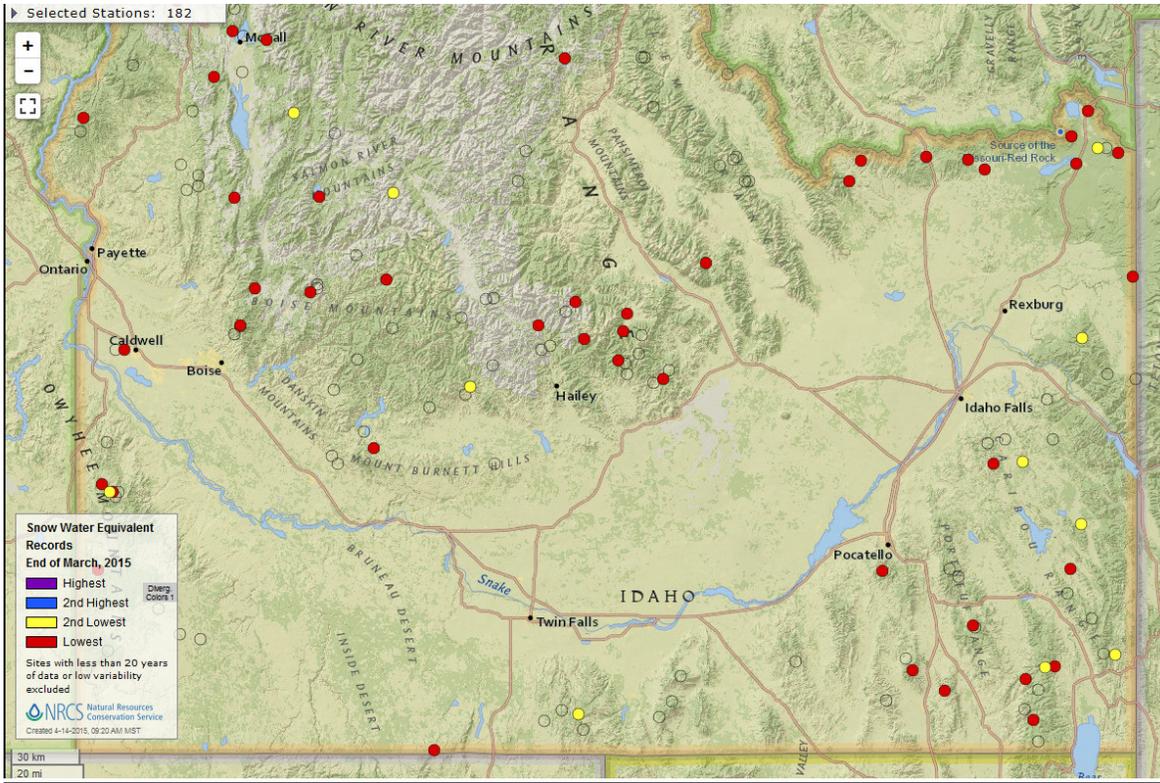
The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

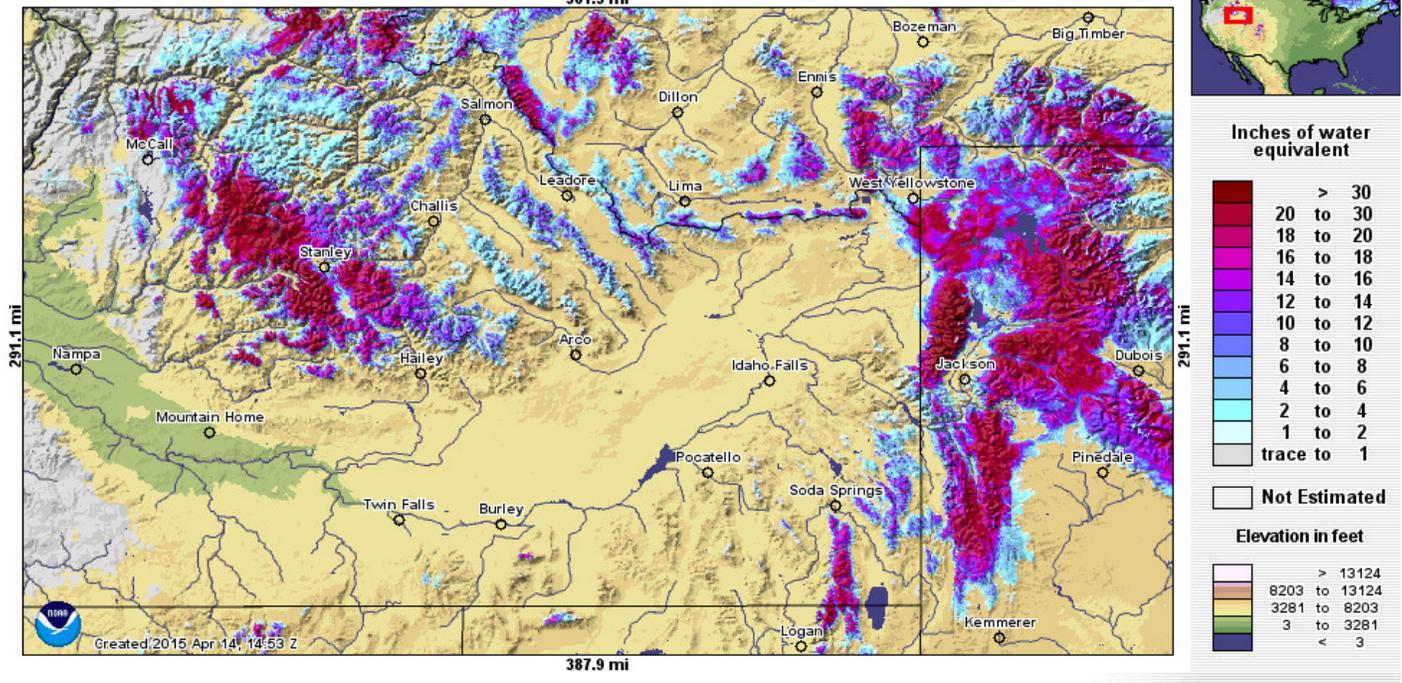
Current SWE Conditions: % of Avg (4/14/15) (SNOTEL): (NWRFC)



SNOTEL Record Lows for swe at end of March:



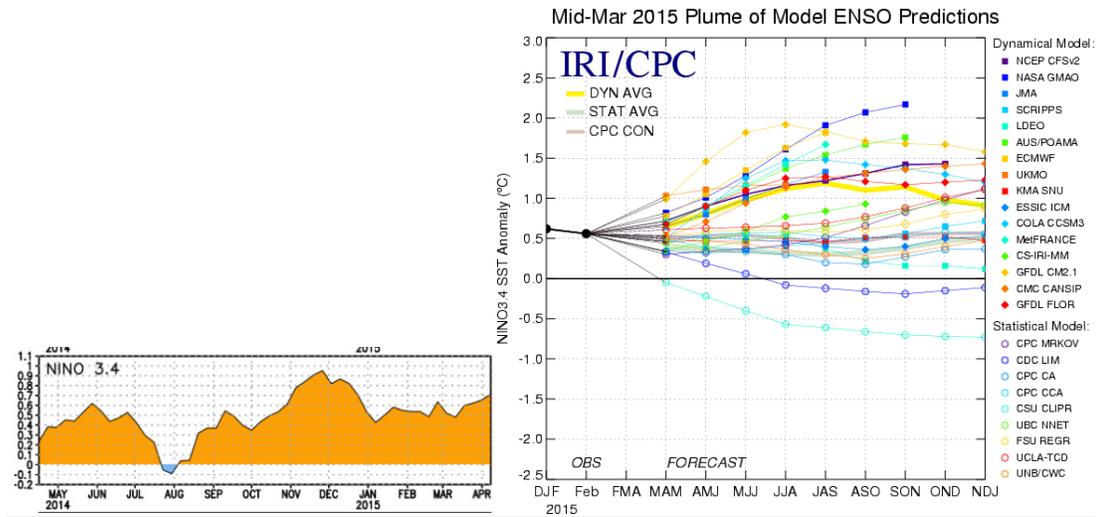
Modeled Snow Water Equivalent forecasted for 2015 April 14, 15:00 UTC
361.5 mi



nohrc.noaa.gov/interactive/html/map.html

ENSO Update:

Latest Observed SST Departure: Niño 3.4 ~ 0.7 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 conditions continue. There is an approximately 70% chance that El Niño conditions continue in the Northern Hemisphere during summer 2015.

Note: Positive equatorial sea surface temperature (SSTs) anomalies continue across the Pacific Ocean. MJO remains active. The AO has been mostly positive since mid-February.

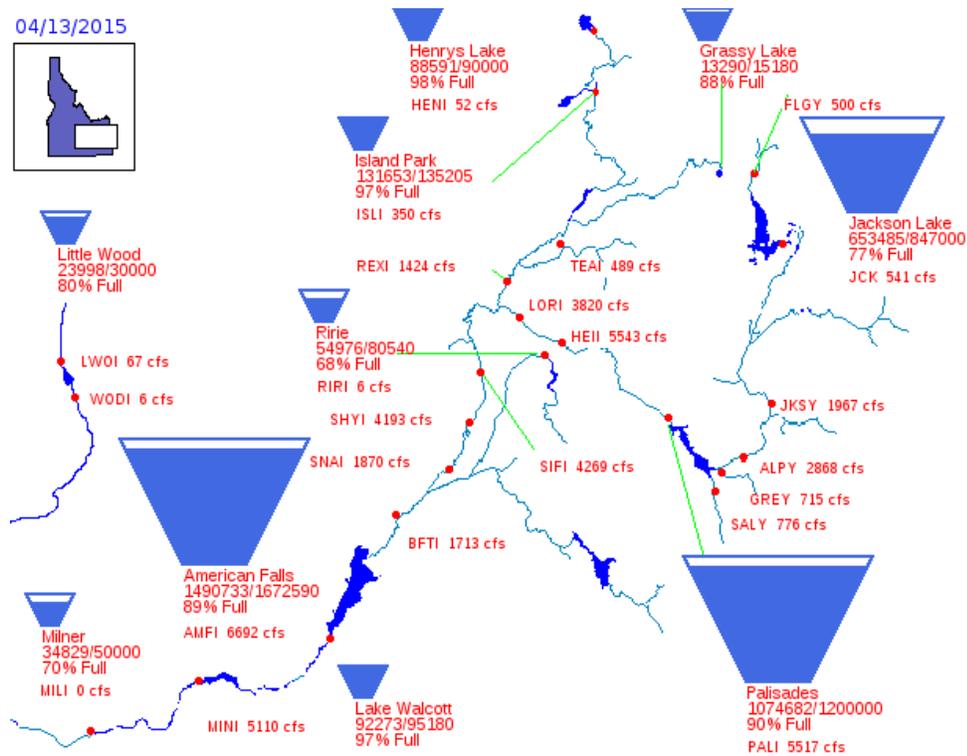
Reservoirs:

Reservoir	% Capacity February 28 ¹	% Capacity March 31 ²	Percent Change	% of Average ²	% of Average Last Year ²
Henrys Lake	98	99	1	110	96
Island Park	86	93	7	113	93
Grassy Lake	85	86	1	107	113
Jackson Lake	76	76	0	150	57
Palisades	85	89	4	138	69
Ririe	60	66	6	118	119
Blackfoot	50	52	2	95	96
American Falls	80	89	9	100	90
Bear Lake	44	45	1	95	97
Magic	32	42	10	91	82
Little Wood	57	74	17	112	98
Mackay	72	77	5	110	103
Oakley	26	30	3	76	74
Lake Walcott	30 ³	97 ⁴	67	n/a	n/a
Milner	64 ³	70 ⁴	6	n/a	n/a

Source: (1) NRCS February 28, 2015; (2) NRCS March 31, 2015.
 (3) US Bureau of Reclamation (BOR) March 8, 2015 (4) BOR April 13, 2015

wcc.nrcs.usda.gov/ftpref/support/water/SummaryReports/ID/BRes_4_2015.pdf

04/13/2015

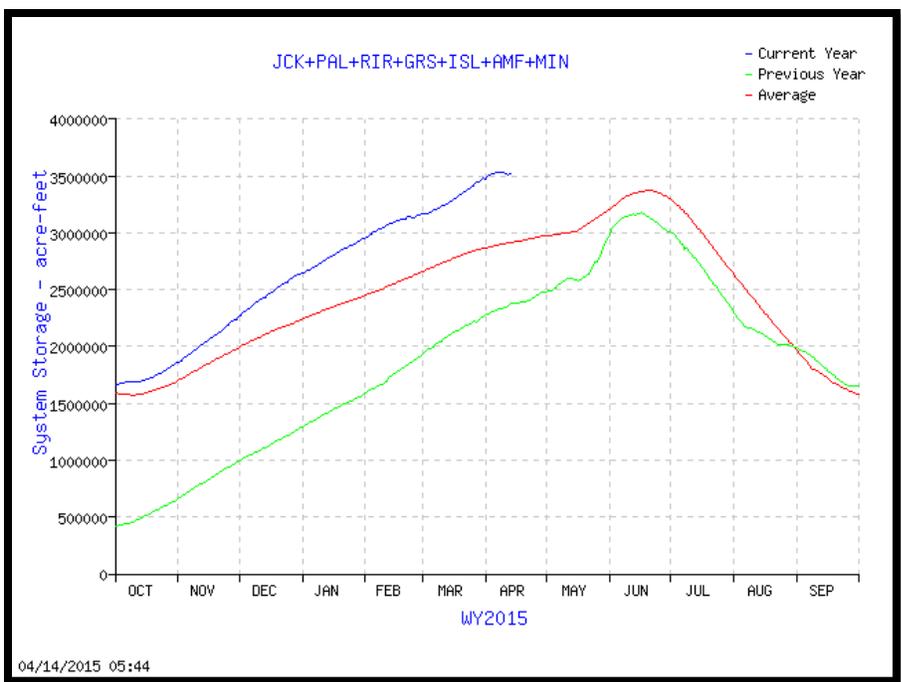


**87% of Capacity
in Upper Snake
River System**
(Jackson Lake, Palisades,
Grassy Lake, Island Park,
Ririe, American Falls &
Lake Walcott)

usbr.gov/pn/hydromet/burtea.html

Upper Snake River:
Total Space Available: 534,602 AF
Total Storage Capacity: 4,045,695 AF

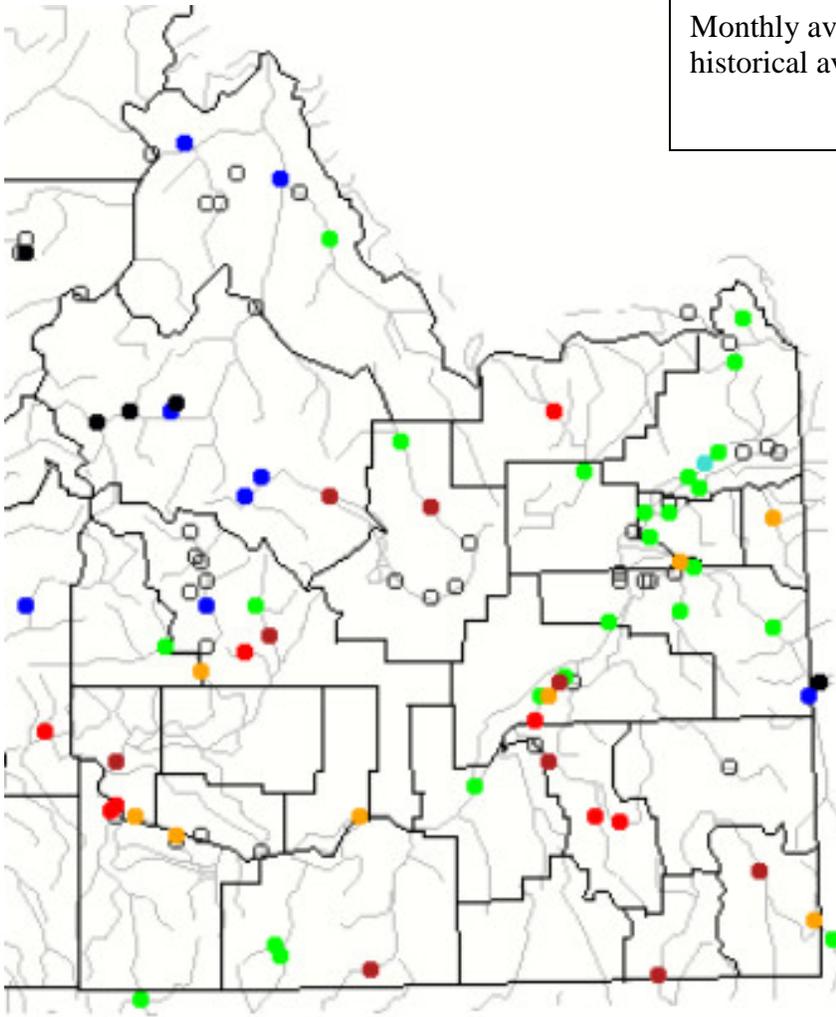
**Graph of Upper Snake River
Current Total System Reservoir
Storage**



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

Streamflow:

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



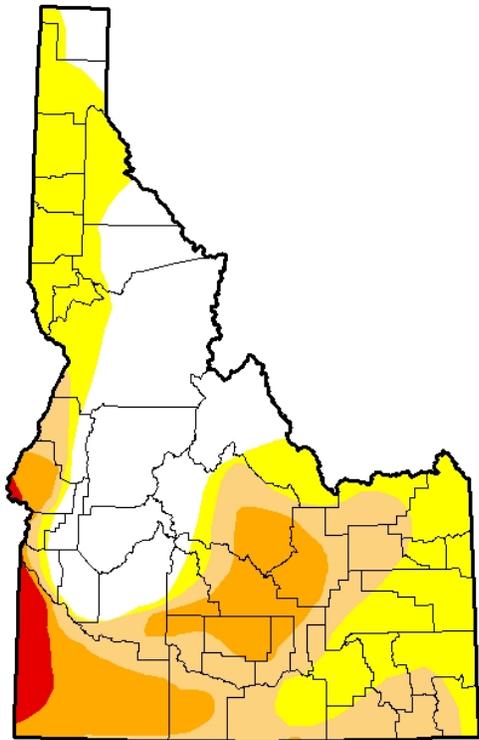
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

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

Drought Information:

**U.S. Drought Monitor
Idaho**

April 7, 2015
(Released Thursday, Apr. 9, 2015)
Valid 7 a.m. EST



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	30.47	69.53	39.05	17.55	2.41	0.00
Last Week 3/31/2015	30.47	69.53	39.05	15.46	2.41	0.00
3 Months Ago 1/8/2015	24.53	75.47	41.46	18.49	3.40	0.00
Start of Calendar Year 12/31/2014	23.76	76.24	41.73	18.49	3.40	0.00
Start of Water Year 9/30/2014	13.19	86.81	52.39	26.35	3.53	0.00
One Year Ago 4/8/2014	44.49	55.51	40.36	27.96	1.63	0.00

Intensity:

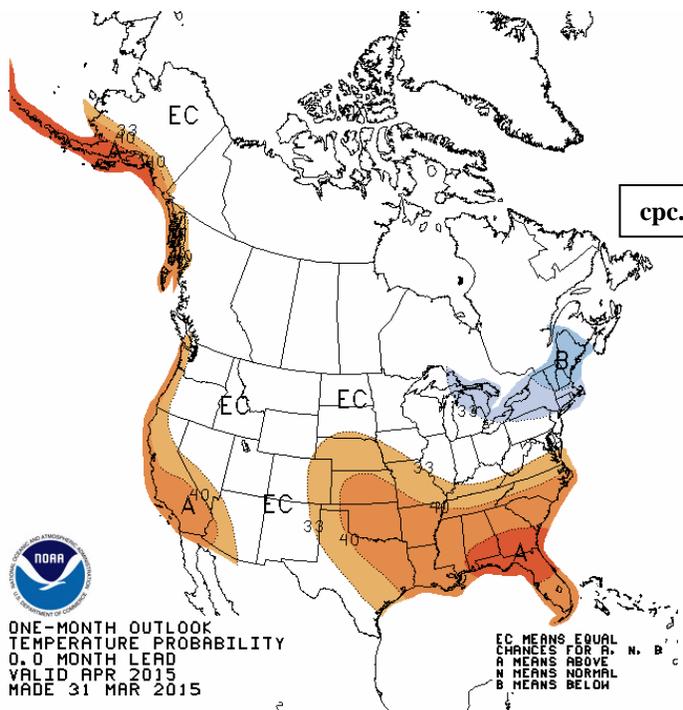
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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

Author:
Michael Brewer
NCDC/NOAA



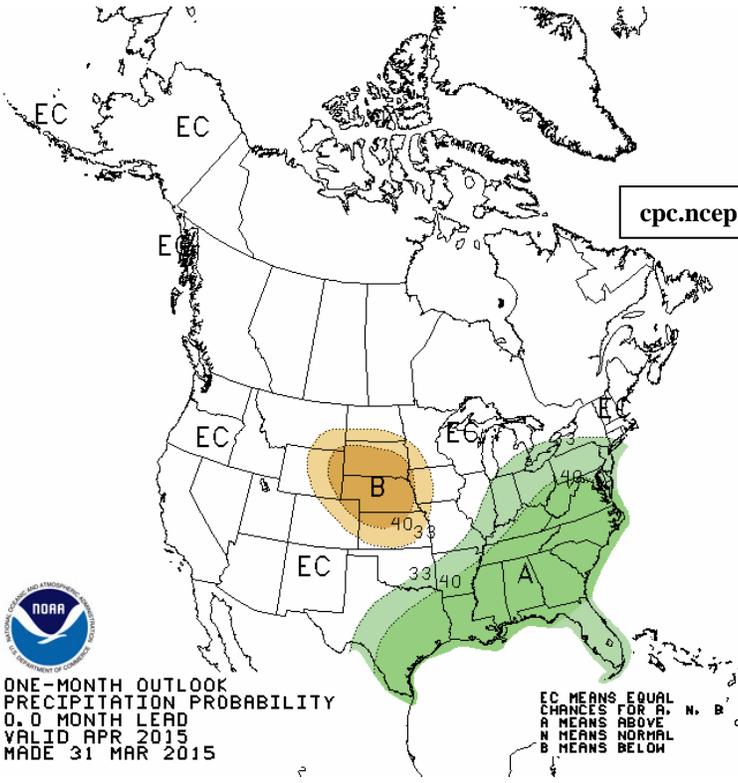
<http://droughtmonitor.unl.edu/>



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

NOAA
ONE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
0.0 MONTH LEAD
VALID APR 2015
MADE 31 MAR 2015

cpc.ncep.noaa.gov/products/predictions/30day/off15_prpcp.gif

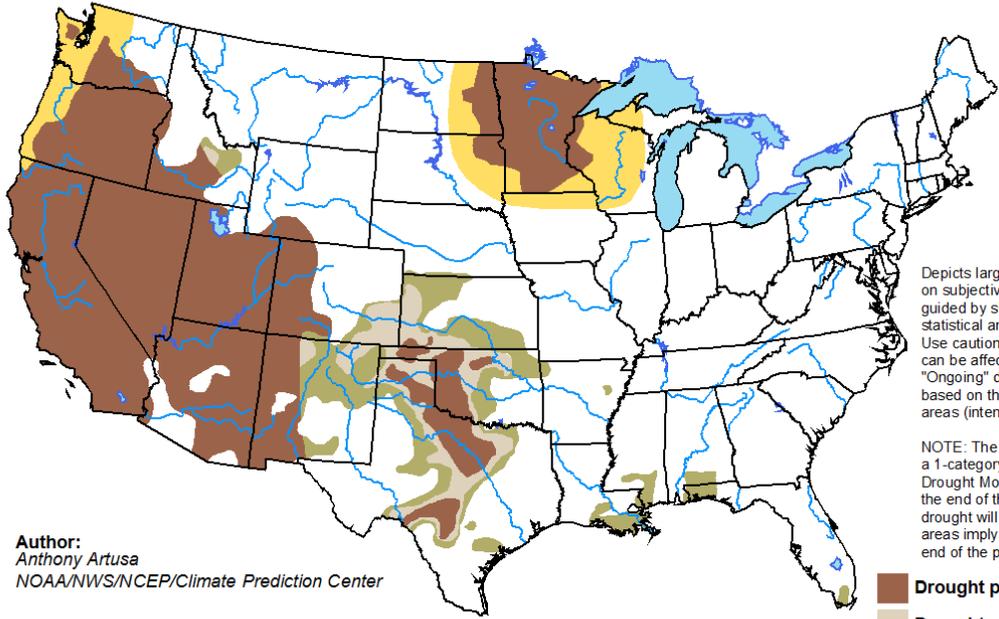


ONE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
0.0 MONTH LEAD
VALID APR 2015
MADE 31 MAR 2015

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

U.S. Seasonal Drought Outlook Drought Tendency During the Valid Period

Valid for March 19 - June 30, 2015
Released March 19, 2015

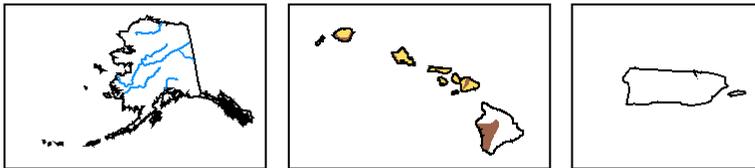


Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan 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).

Author:
Anthony Artusa
NOAA/NWS/NCEP/Climate Prediction Center

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

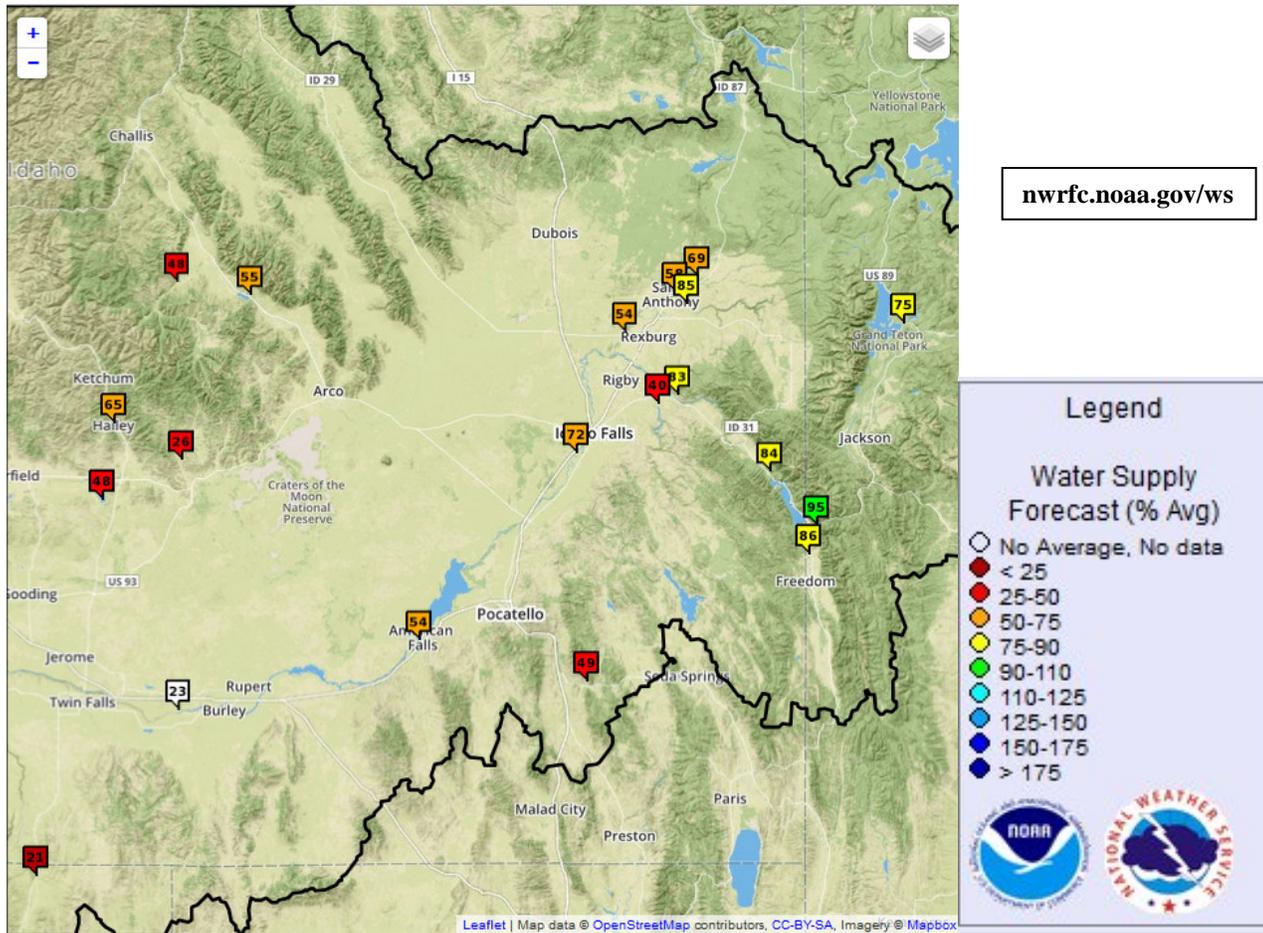


<http://go.usa.gov/hH7e>

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

Water Supply:

NWRFC Water Supply Volume Forecast Map (4/14/15):



CBRFC Water Supply Forecast Report for Bear River basin (April 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

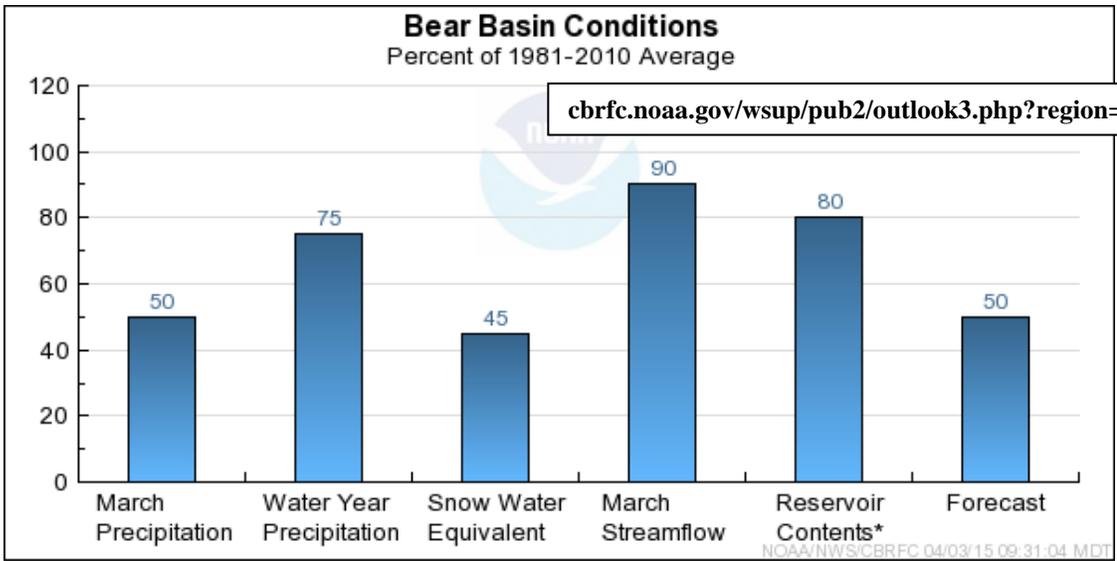
Columns (on/off): Area Sub Area NWS ID DS River Location Forecast Date Avg Cond Med Cond Forecast Period Min 90 MP 50 Max 10 Avg Med Pct Avg Pct Med

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.

ID	Area	Sub Area	NWS ID	River	Location	Forecast Date	Avg Cond	Med Cond	Forecast Period	Min 90	MP 50	Max 10	Avg	Med	Pct Avg	Pct Med
1	Great	Bear	BERU1	Bear	Utah	2015-4-1	▲	▲	Apr 01-Jul 31	64	80	102	112	106	71	75
2	Great	Bear	BEAW4	Bear	Woodruff Narrows Rsvr	2015-4-1	▲	▲	Apr 01-Jul 31	48	61	87	121	110	50	55
3	Great	Bear	BORW4	Smiths Fork	Border	2015-4-1	▲	▲	Apr 01-Jul 31	61	74	90	89	80	83	92
4	Great	Bear	STDH1	Bear	Montpelier	2015-4-1	▲	▲	Apr 01-Jul 31	48	60	91	182	117	33	51
5	Great	Bear	LGNU1	Logan	Logan	2015-4-1	▲	▲	Apr 01-Jul 31	53	64	84	111	97	58	66
6	Great	Bear	HRMU1	Blacksmith Fork	Hyrum	2015-4-1	▲	▲	Apr 01-Jul 31	14.3	16.8	23	43	29	39	58
7	Great	Bear	PRZU1	Little Bear	Paradise	2015-4-1	▲	▲	Apr 01-Jul 31	8.9	10.4	16.7	47	51	22	20

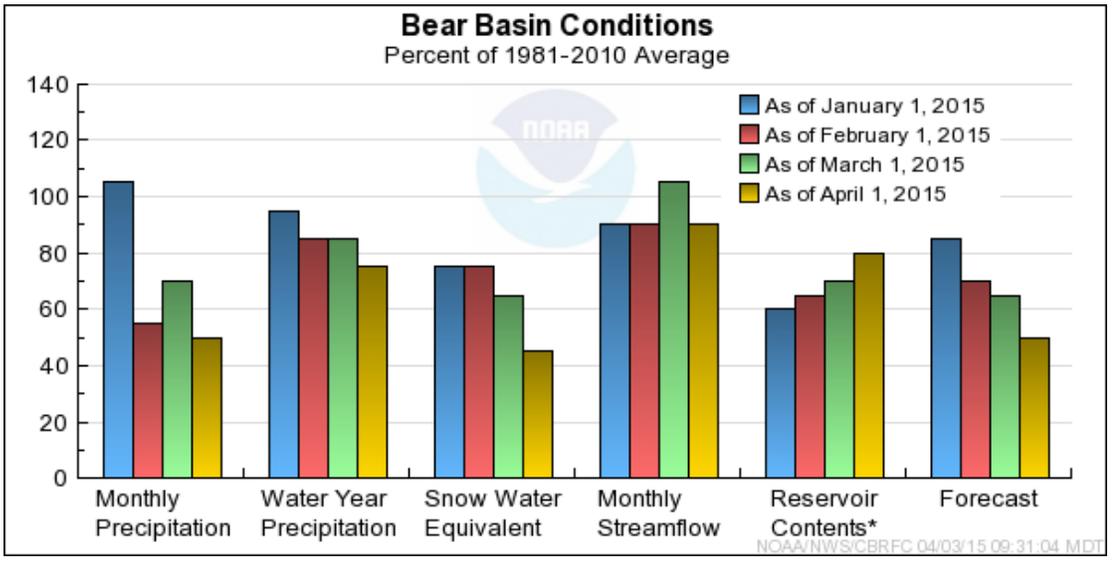
cbrfc.noaa.gov/rmap/wsuf/wsulist.php

Bear River Basin Conditions:



Snow Water Equivalent in Percent of Median.

* Percent usable capacity, not percent average contents.



cbrfc.noaa.gov/wsup/pub2/graph/png/br.cond.2015.3.png

cc:
Mike Schaffner, Western Region HCSD
Joe Intermill, Acting HIC/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
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's

End

cbl