| | |
|---|---|
| **NWS Form E-5**<br>U.S. DEPARTMENT OF COMMERCE<br>NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL WEATHER SERVICE<br><br>**MONTHLY REPORT OF HYDROLOGIC CONDITIONS** | **HYDROLOGIC SERVICE AREA:**<br>Pocatello, Idaho<br><br>**REPORT FOR:**<br><br>**MONTH:** February **YEAR:** 2016 |
| **TO:** Hydrologic Operations Division, W/OH2<br>National Weather Service<br>National Oceanic and Atmospheric Administration<br>Silver Spring, Maryland 20910 | **SIGNATURE**<br><br>Corey Loveland<br>Service Hydrologist<br><br>**DATE:** March 11, 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:

February was dry and relatively warm as well across the Hydrologic Service Area (HSA) with near mid-month record high temperatures in both Pocatello and Stanley. Overall, well below normal precipitation fell across the HSA especially in the Snake Plain; mostly in the 10 to 50 percent of normal range across the HSA. Overall, mostly a quarter to one inch of precipitation fell across our area during the past month with most of the precipitation falling in the mountainous regions of the Caribou Highlands, Henrys Fork and central mountains. Temperature departures from normal for February show that across the HSA, we ranged mostly 1 to 3 degrees F above normal in the southern half of the HSA with it being a little bit warmer in the northern half, which was about 3 to 6 degrees F above normal. Mean average temperatures ranged from 16 to 38 degrees F across the HSA. The Minidoka Dam COOP had 6 days of average temperatures over 45 degrees F during February.

As far as the short-term 8 to 14 day Climate Prediction Center Outlook is concerned, the forecast is for a 40 to 50 percent chance of below normal temperatures across eastern Idaho with a 40 to 50 percent chance of below normal chance of precipitation. 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 near normal precipitation across eastern Idaho with the Bear basin having a slightly greater than normal chance of precipitation.

Of the data available for the month, the stations within the HSA reaching the highest 24-hour temperature was the Oakley COOP station reaching 63°F on the 26th. The station (non-SNOTEL and non-RAWS) with the lowest recorded temperature was the Stanley COOP station at -27°F on February 3rd. The highest recorded 24-hr precipitation (non-SNOTEL) occurred at the Ashton COOP station where 1.00 inches fell on the 1st. The highest recorded precipitation total (non-SNOTEL) occurred at the Ashton COOP where 1.53 total inches was recorded for the month. The Franklin Basin and Howell Canyon SNOTELs recorded 3.70 and 3.40 inches respectively of total precipitation for the month according to NRCS. Both the Snake River above Palisades and the Raft River basins received 81% of average precipitation for February-based on SNOTEL data.

Reservoirs last month increased capacity overall by around 10% in the upper Snake River basin system (an increase of about 389 KAF occurred over the month and is currently sitting at 68% of capacity overall).

Compared to last year at this time, it was about 80% 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 American Falls Reservoir increasing percent capacity by 12% and is currently at 87% of average. Mackay is currently at 107% of average with Ririe at 117% and Oakley at 75% of average. Magic Reservoir has the lowest relative storage; at 49% of average and Jackson Lake is the fullest at 130% 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 have improved since last month's assessment. Currently, only about 14 percent of the state is in Moderate drought status with no areas in Severe Drought. The latest U.S. Seasonal Drought Outlook shows a forecast of persistent drought primarily in the central mountains including the Henrys Fork basin-just north of the Snake River. The remainder of the HSA currently has no drought declarations.

According to the Idaho NRCS Snow Survey March 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 the Oakley basin. This basin was given a SWSI rating of 1.0 (near normal). This rating reflects overall water availability in the basins and are mostly used for irrigational planning purposes. The three lowest ranked basins within the HSA are the Henrys Fork, Teton and Bear River basins, all rated at -0.8, which are still rated at near normal. Most basins within the HSA are below average for the NRCS Apr through Sept streamflow volume forecasts: Lost/Wood ranges from 84-94%, upper Snake 82-90%, Southside 118-125% and Bear about 81% of average for points within our HSA.

For more information on the Idaho Surface Water Supply Index (SWSI) March 1st Outlook please visit:
ftp://ftp.wcc.nrcs.usda.gov/states/id/webftp/swsi/tables/Mar/SWSI03.pdf

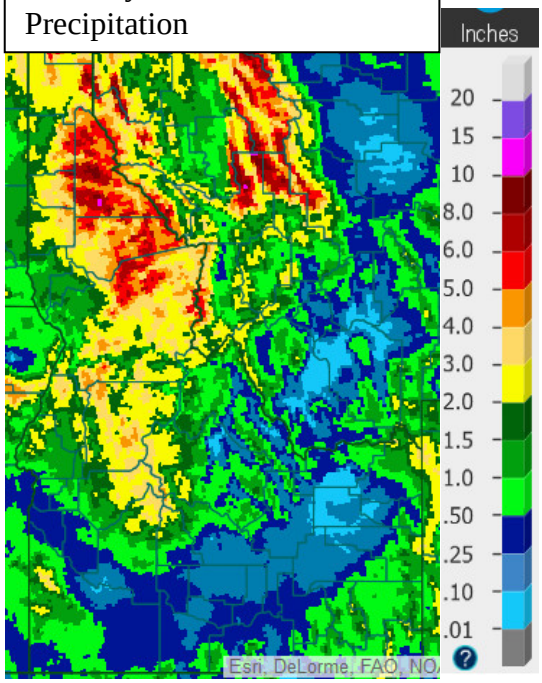
For more information on the Idaho Water Supply March 1st Outlook please go to:
ftp://ftp.wcc.nrcs.usda.gov/states/id/webftp/wsor/2016/borid316.pdf

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

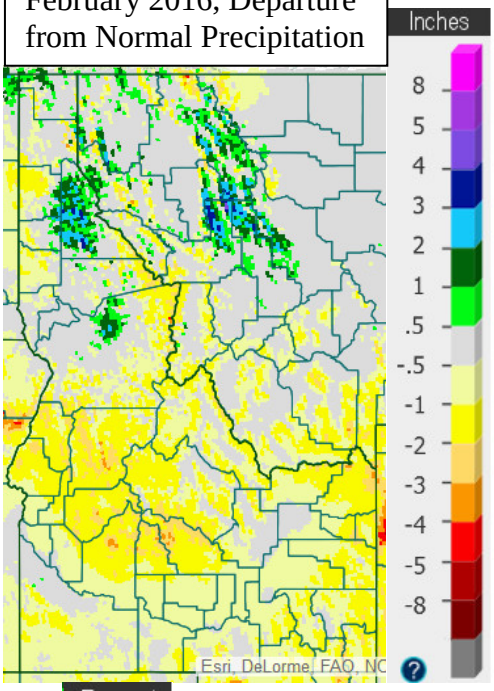
Please see the NWRFC (approximately daily computed ensembles), CBRFC, and NRCS Official March 1st streamflow volume forecasts and Bear Basin conditions below.

**Precipitation:**

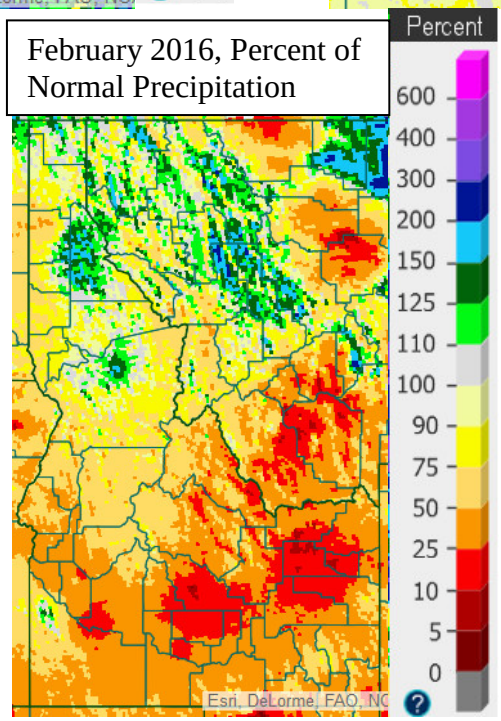
February 2016, Observed Precipitation



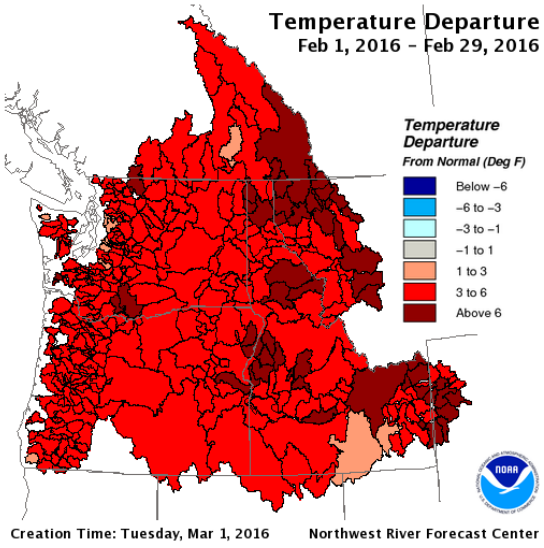

February 2016, Departure from Normal Precipitation



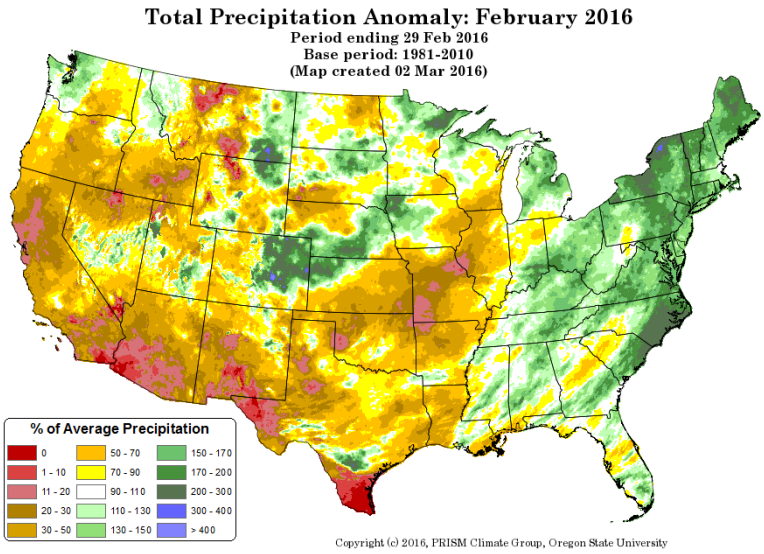

February 2016, Percent of Normal Precipitation



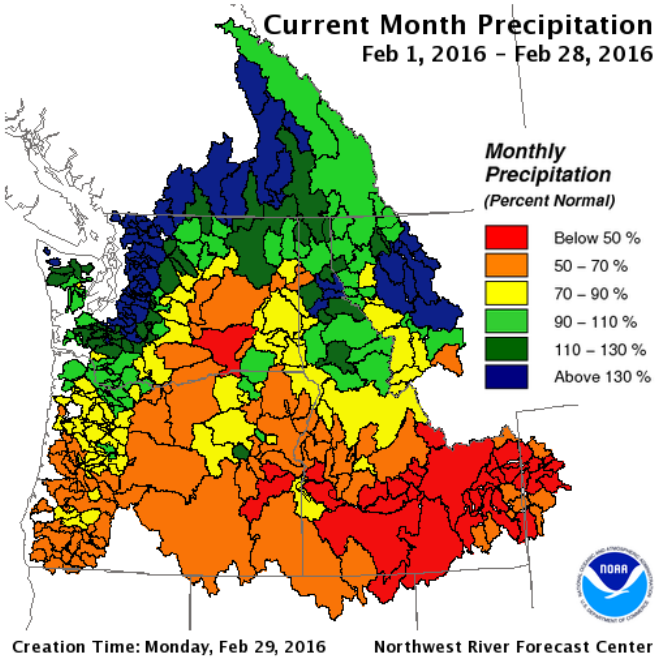

**water.weather.gov/precip/#**



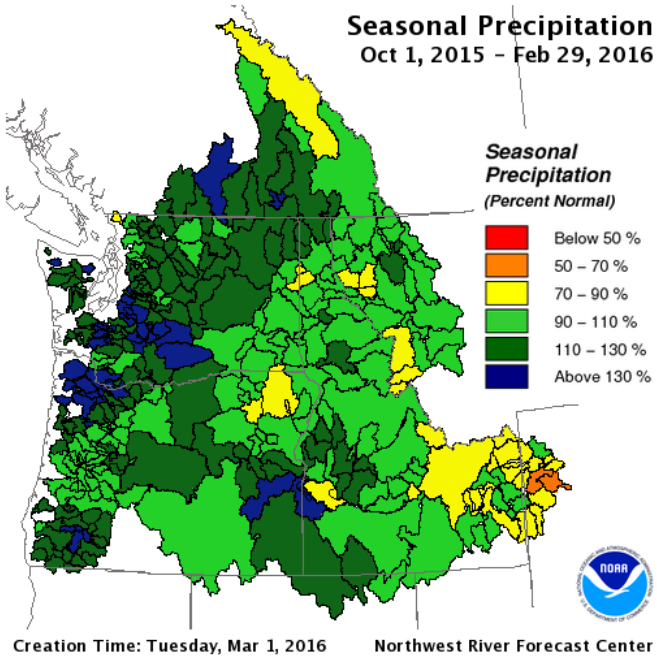

nwrfc.noaa.gov/WAT_RES_wy_summary/20160301/CurMonMAT_2016Feb29_2016030123.png



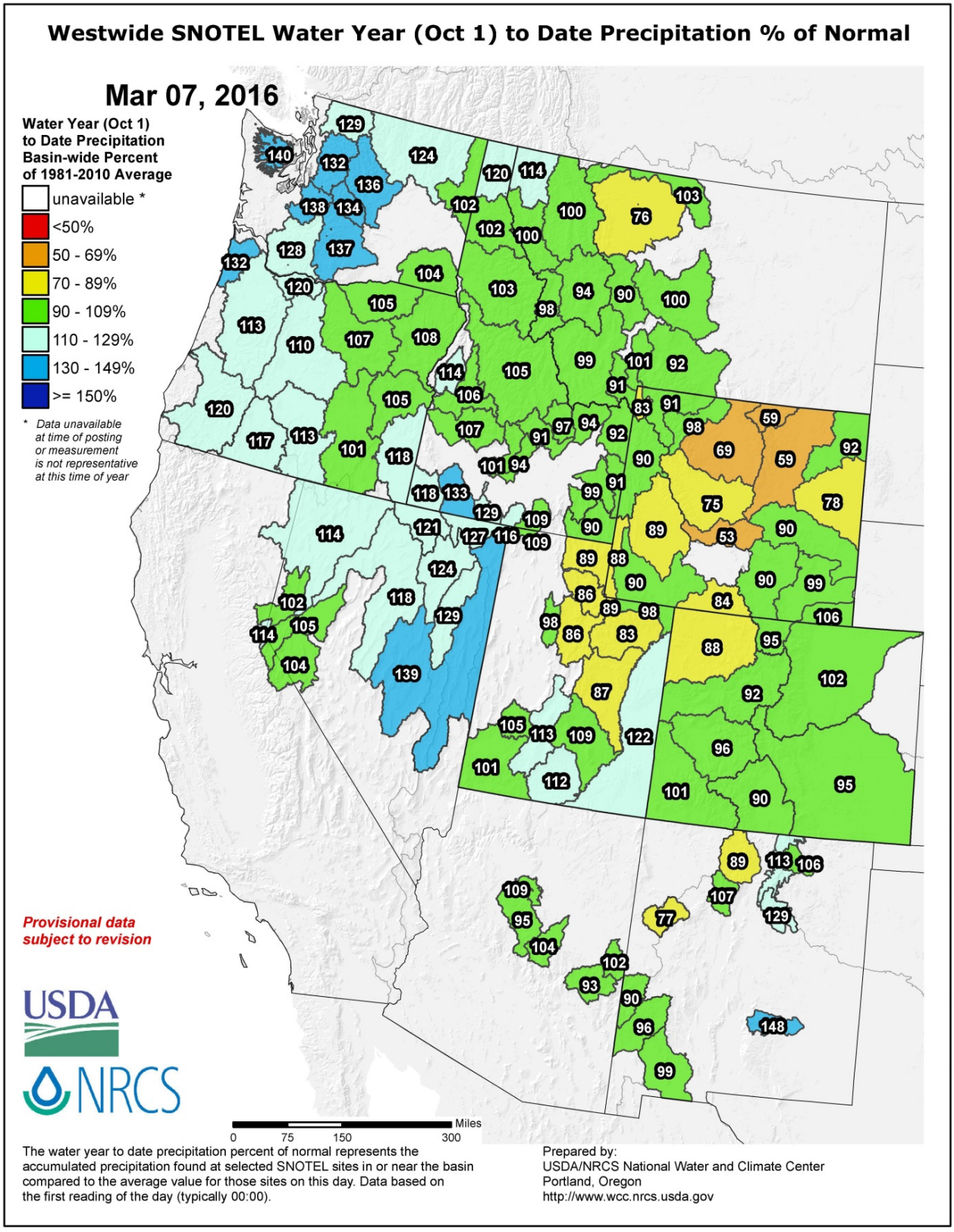

**prism.oregonstate.edu/**




nwrfc.noaa.gov/WAT_RES_wy_summary/20160229/CurMonMAP_2016Feb28_2016022916.png

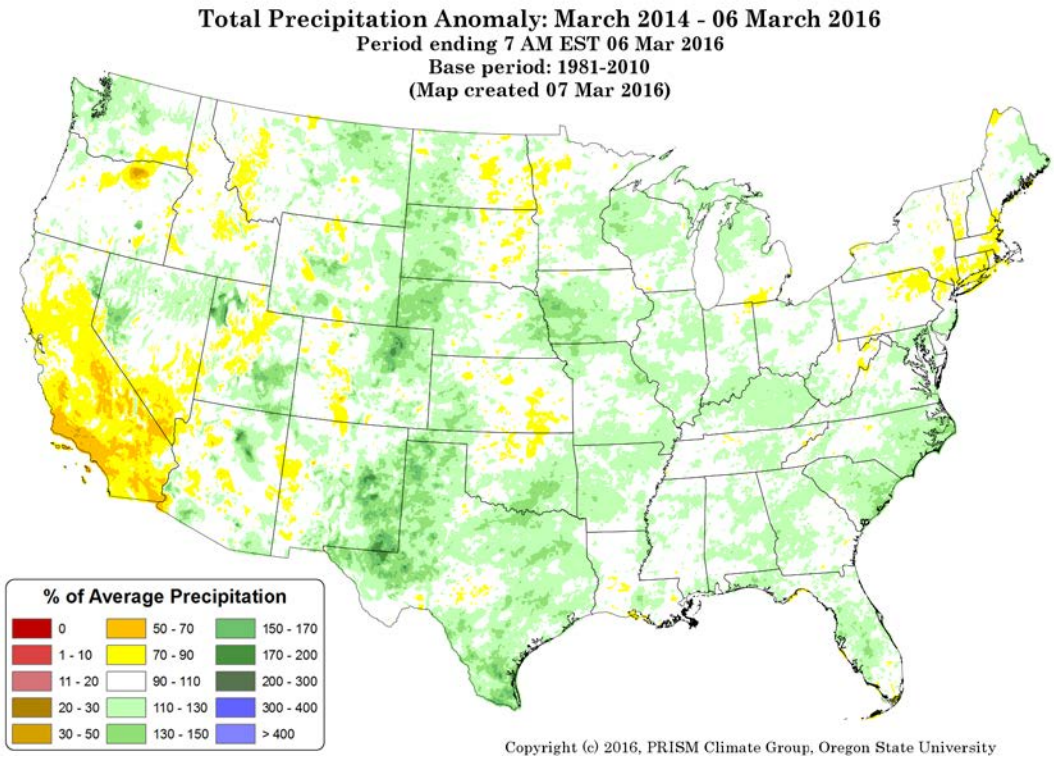



nwrfc.noaa.gov/WAT_RES_wy_summary/20160301/SeasonalMAP_2016Feb29_2016030123.png

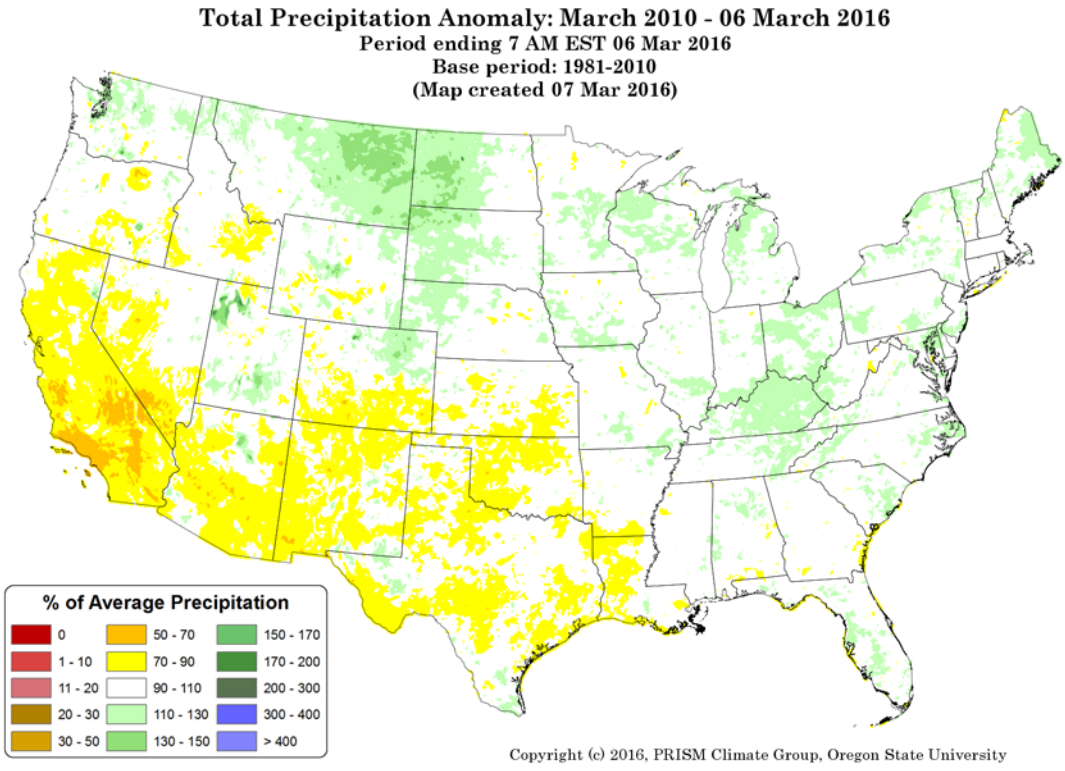



wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/west_wytdprecpctnormal_update.pdf

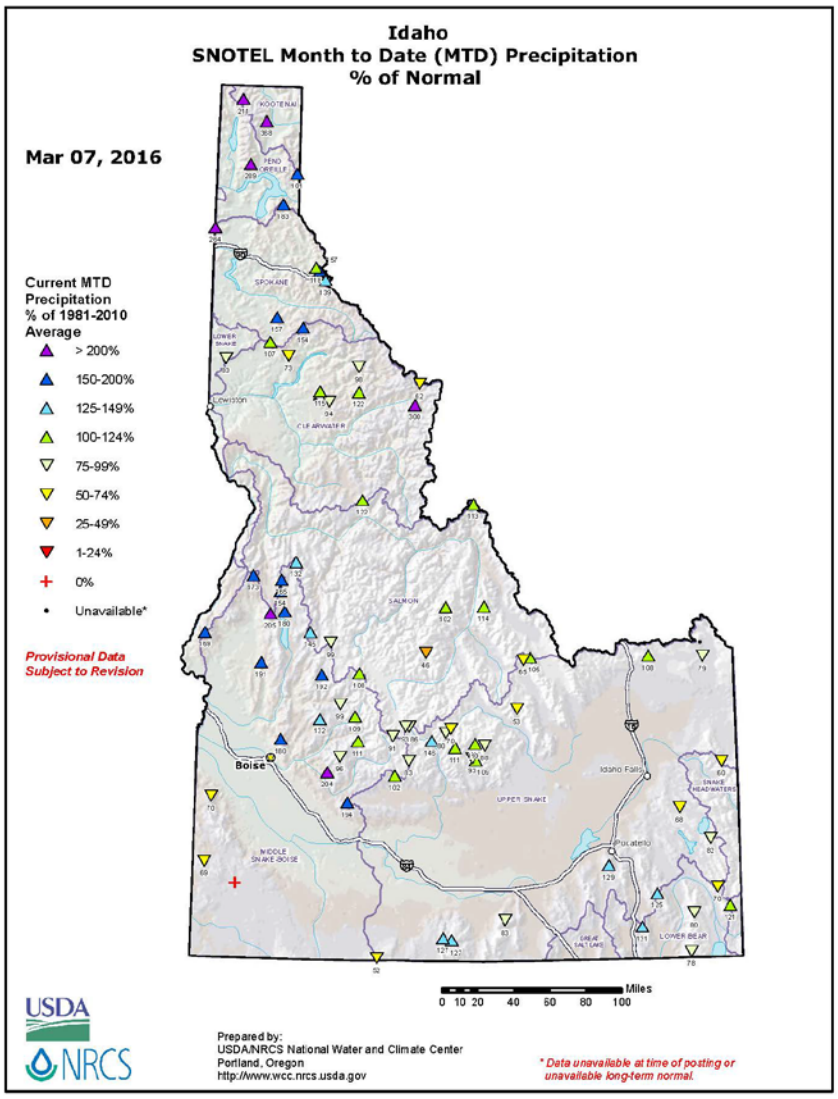
## Past 2 Years of Precipitation % of Average:



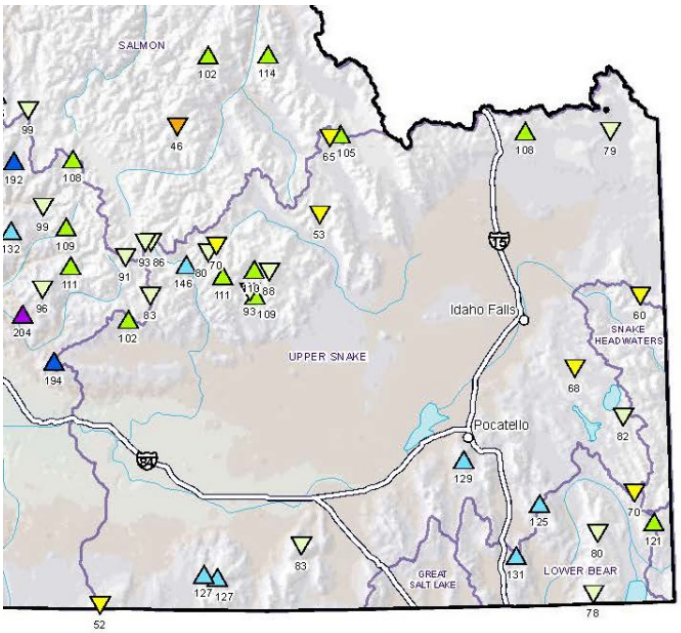

## Past 6 Years of Precipitation % of Average:




**prism.oregonstate.edu/comparisons/drought.php**

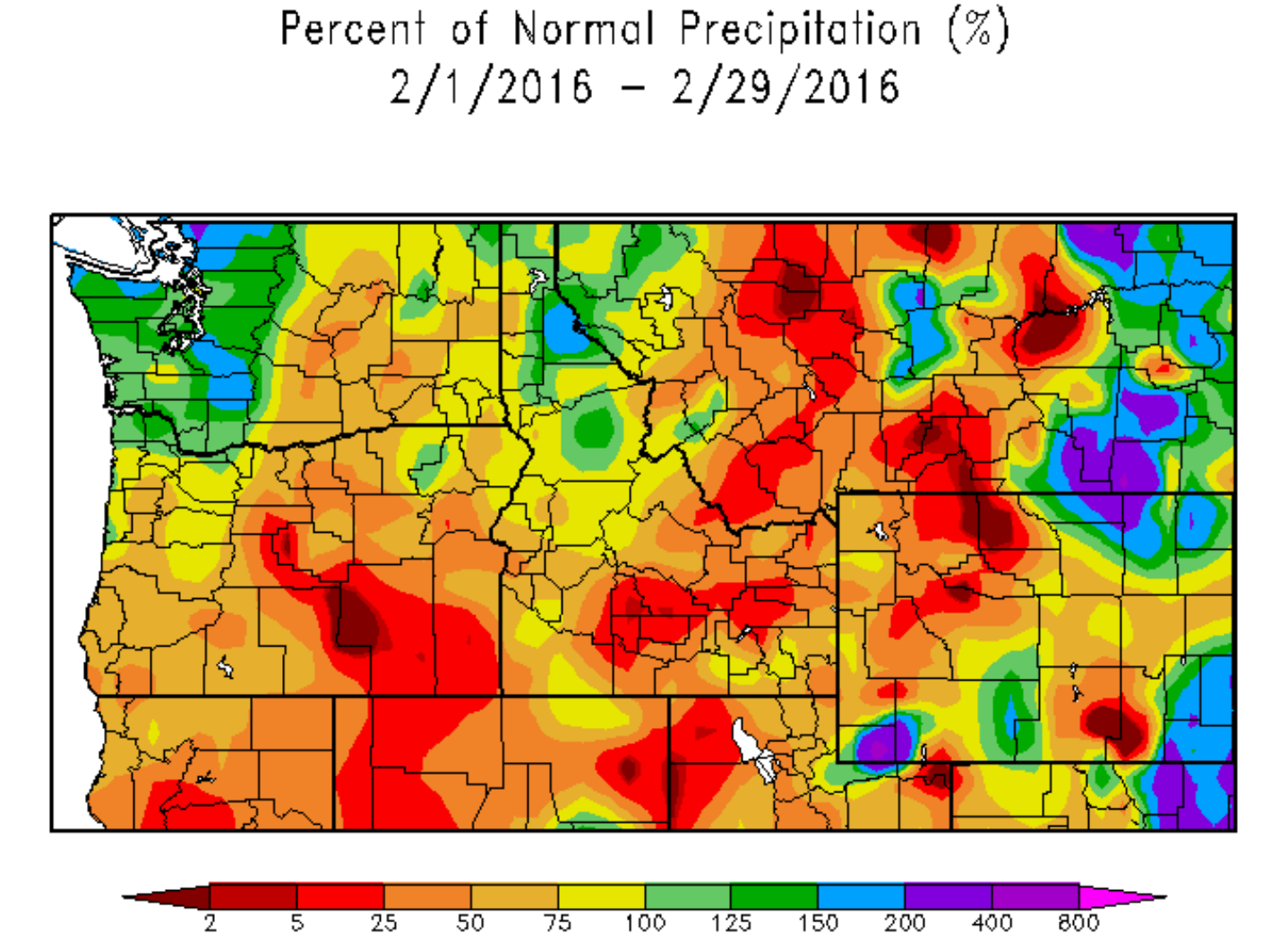



**wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_mtdprecpctnormal.pdf**



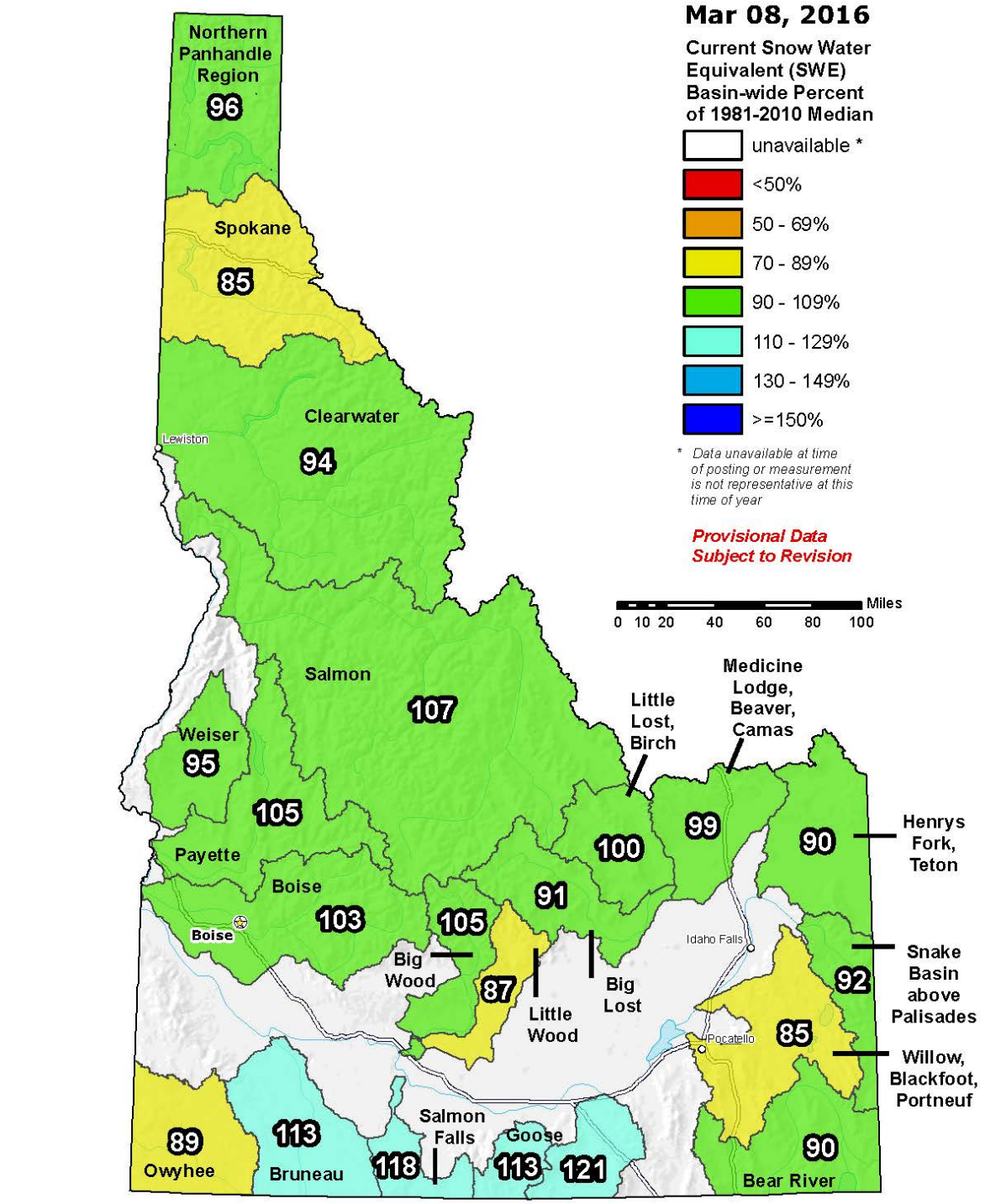

**SNOTEL MTD % of Normal Precipitation for end of February 2016**
**(image is cropped from above image)**

February proved to be fairly dry across the board in southern Idaho, especially along the Snake River plain. Mostly in the 5 to 50 percent of normal range within our HSA occurred. Southern Bannock and around the Raft River basin received the greatest amount of precipitation, but only in the 75 percent range. Regionally, it has been dry across MT, WY, UT, NV, Northern CA and eastern OR. Northern ID faired fairly well in Clearwater county.




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

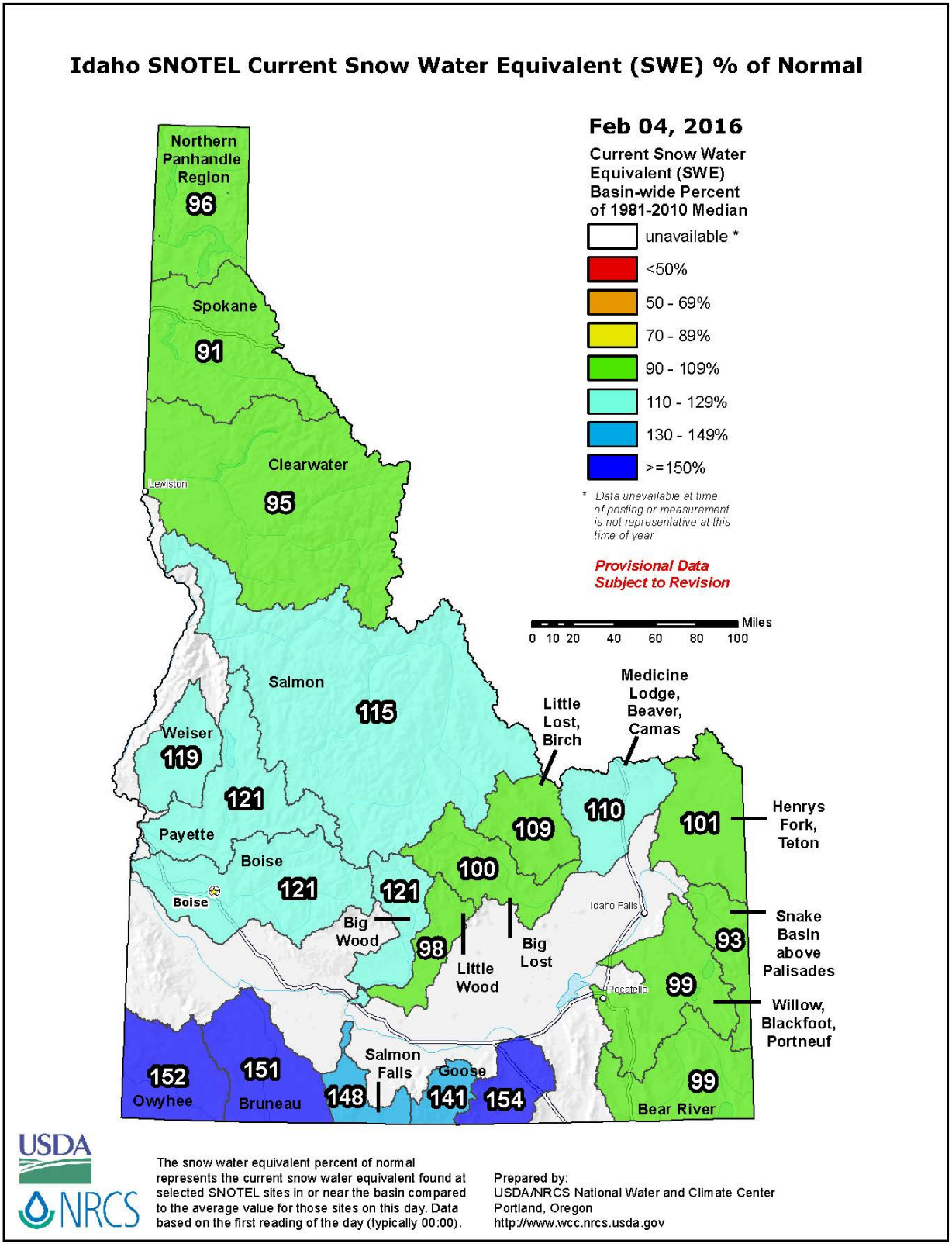
# Idaho SNOTEL Current Snow Water Equivalent (SWE) % of Normal



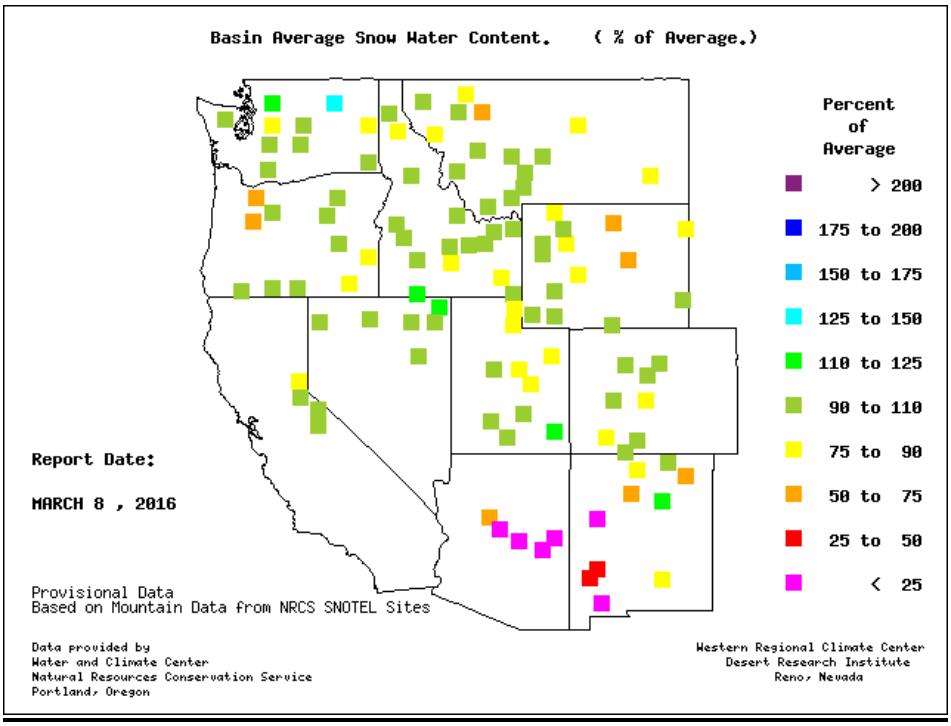

The snow water equivalent percent of normal represents the current snow water equivalent found at selected SNOTEL sites in or near the basin compared to the average value for those sites on this day. Data based on the first reading of the day (typically 00:00).

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

Basinwide SWE compared to last month: A relatively dry February brought degradations across all the basins. Most notable loss was the Raft River basin; losing 33% of normal compared to last month (see below):

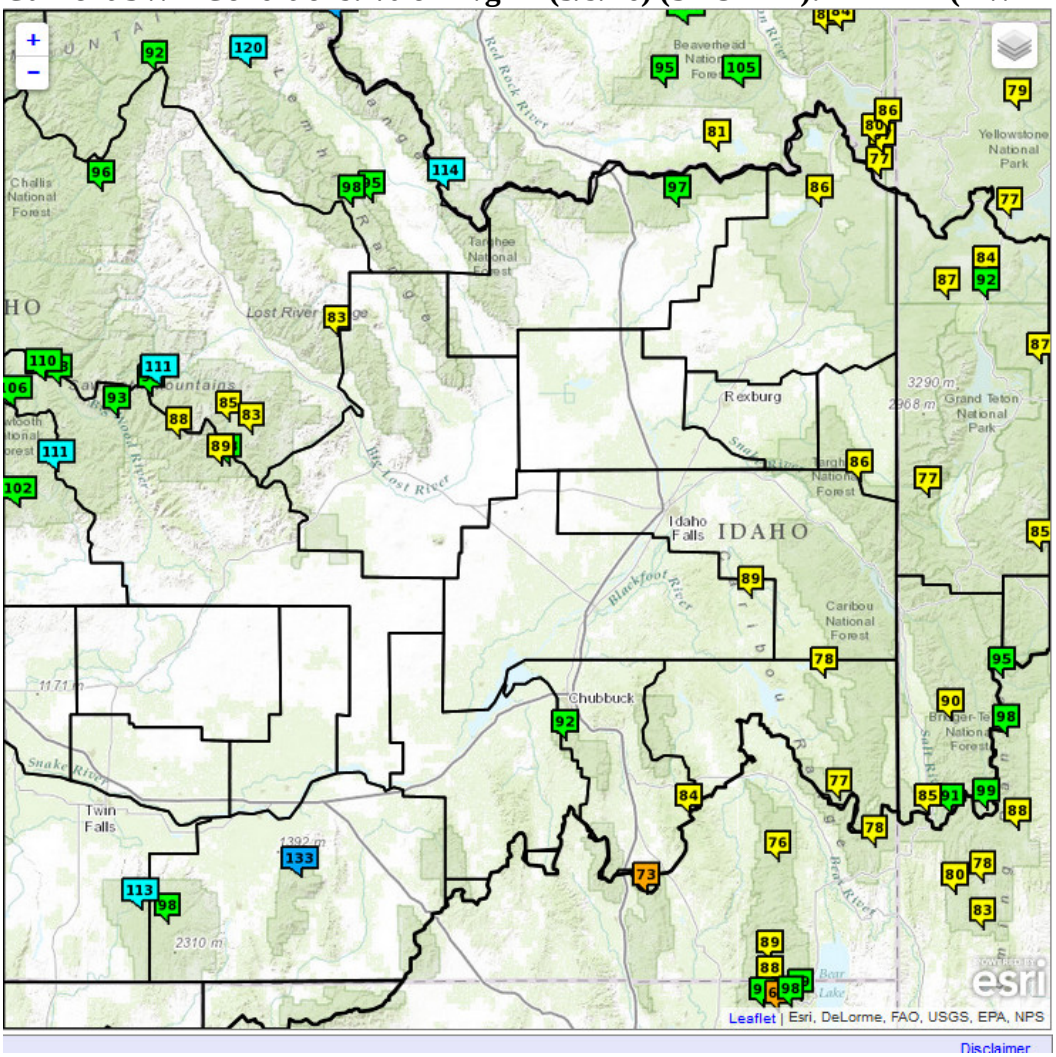



wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/id_swepctnormal_update.pdf

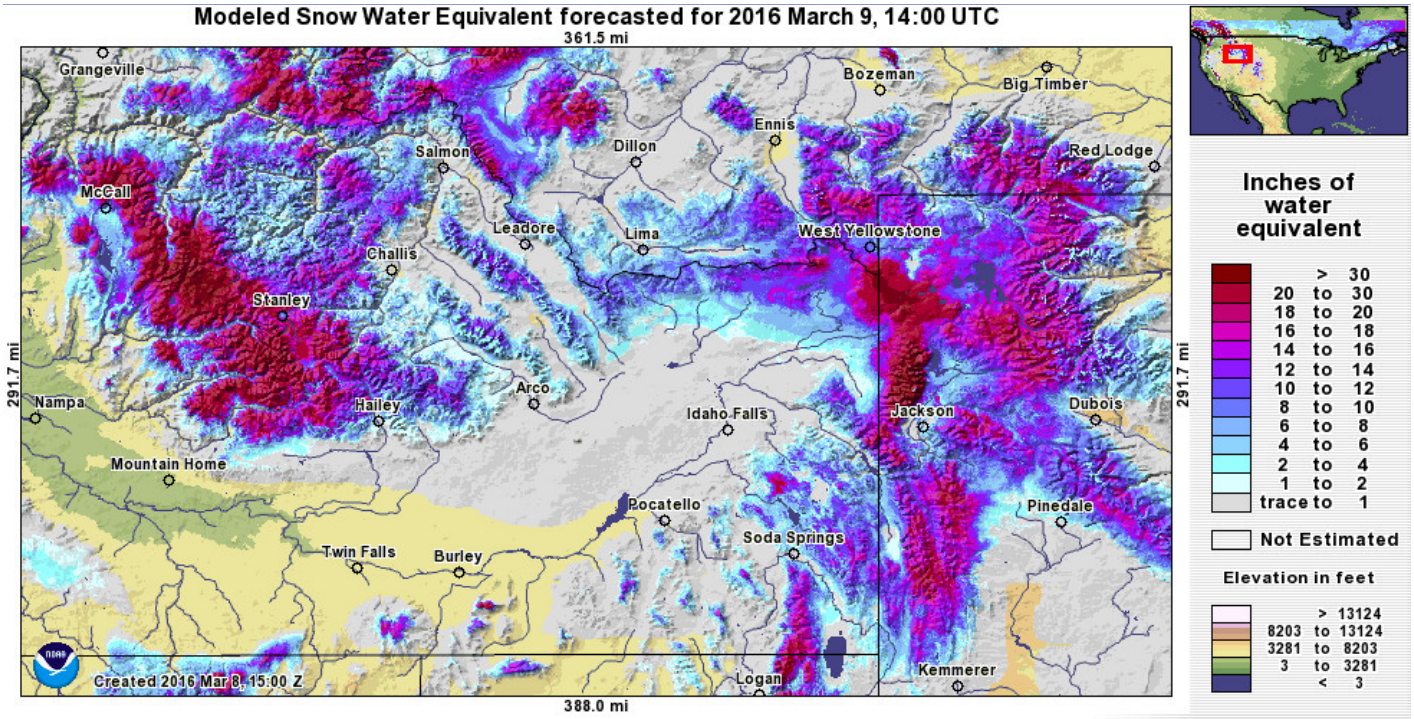



wrcc.dri.edu/snotelanom/basinswe.html

**Current SWE Conditions: % of Avg (3/9/16) (SNOTEL): (NWRFC)**



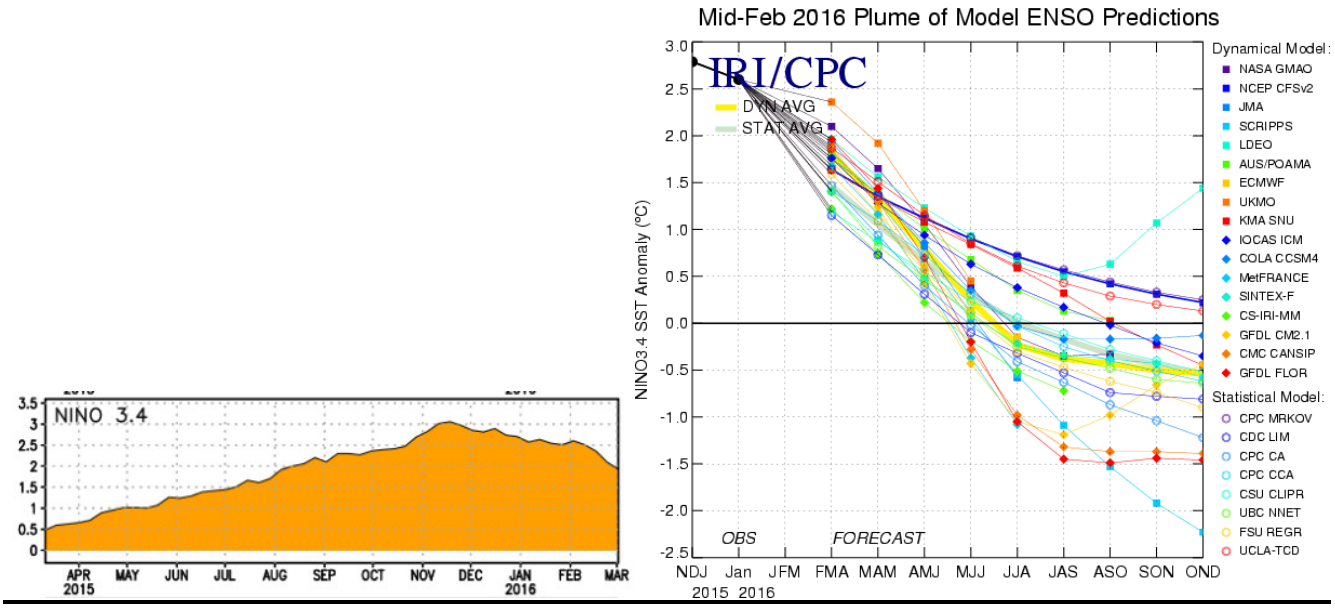

nwrfc.noaa.gov/snow




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

## ENSO Update:

**Latest Observed SST Departure:** Niño 3.4 ~ 1.9 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 are present. El Niño expected to transition to ENSO-neutral late spring/early summer 2016.

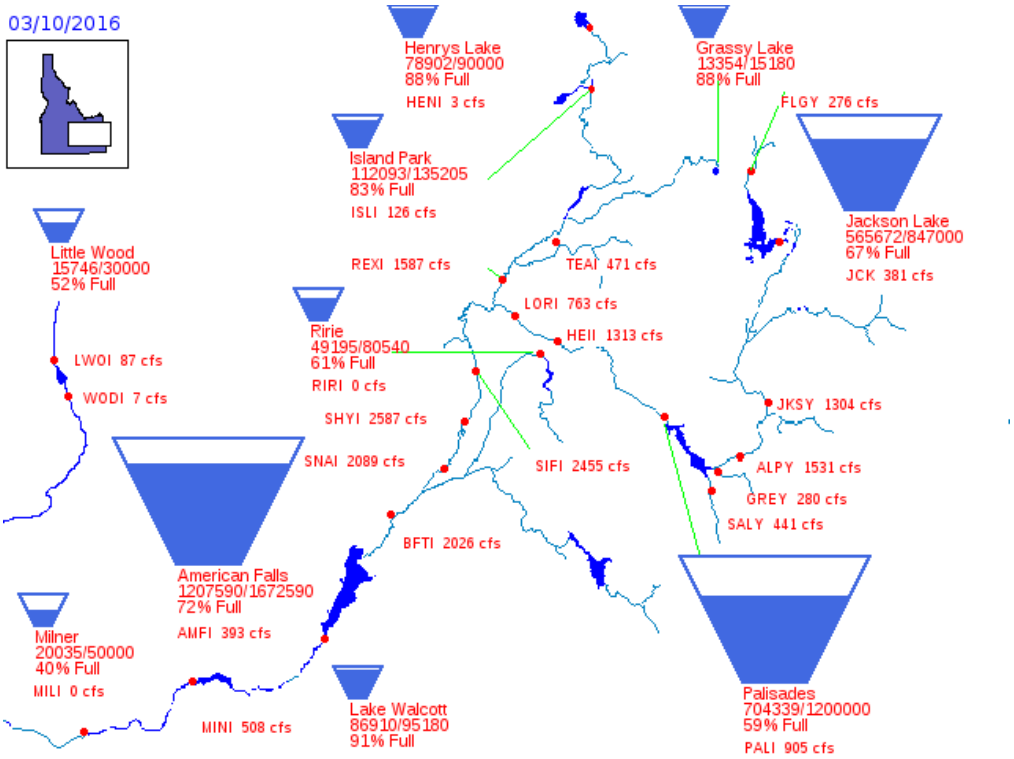
**Note:** Positive equatorial sea surface temperature (SSTs) anomalies continue across most of the Pacific Ocean. MJO has been active recently. The Pacific Decadal Oscillation (PDO) is currently positive.

**Reservoirs:**

| Reservoir | % Capacity January 31[1] | % Capacity February 29[2] | Percent Change | % of Average[2] | % of Average Last Year[2] |
|---|---|---|---|---|---|
| Jackson Lake | 67 | 67 | 0 | 130 | 149 |
| Palisades | 57 | 62 | 5 | 94 | 128 |
| Henrys Lake | 85 | 86 | 1 | 97 | 110 |
| Island Park | 71 | 80 | 9 | 103 | 111 |
| Grassy Lake | 86 | 87 | 1 | 110 | 107 |
| Ririe | 57 | 60 | 3 | 117 | 118 |
| Blackfoot | 52 | 53 | 1 | 99 | 92 |
| American Falls | 55 | 67 | 12 | 87 | 103 |
| Mackay | 61 | 70 | 9 | 107 | 108 |
| Little Wood | 38 | 47 | 9 | 81 | 98 |
| Magic | 17 | 19 | 2 | 49 | 84 |
| Oakley | 18 | 25 | 7 | 75 | 79 |
| Bear Lake | 36 | 38 | 2 | 83 | 96 |
| Lake Walcott | 94[3] | 91[4] | -3 | n/a | n/a |
| Milner | 56[3] | 40[4] | -16 | n/a | n/a |

**Source:** (1) NRCS January 31, 2016; (2) NRCS February 29, 2016.
(3) US Bureau of Reclamation (BOR) February 3, 2016 (4) BOR March 10, 2016

**wcc.nrcs.usda.gov/ftpref/support/water/SummaryReports/ID/BRes_3_2016.pdf**

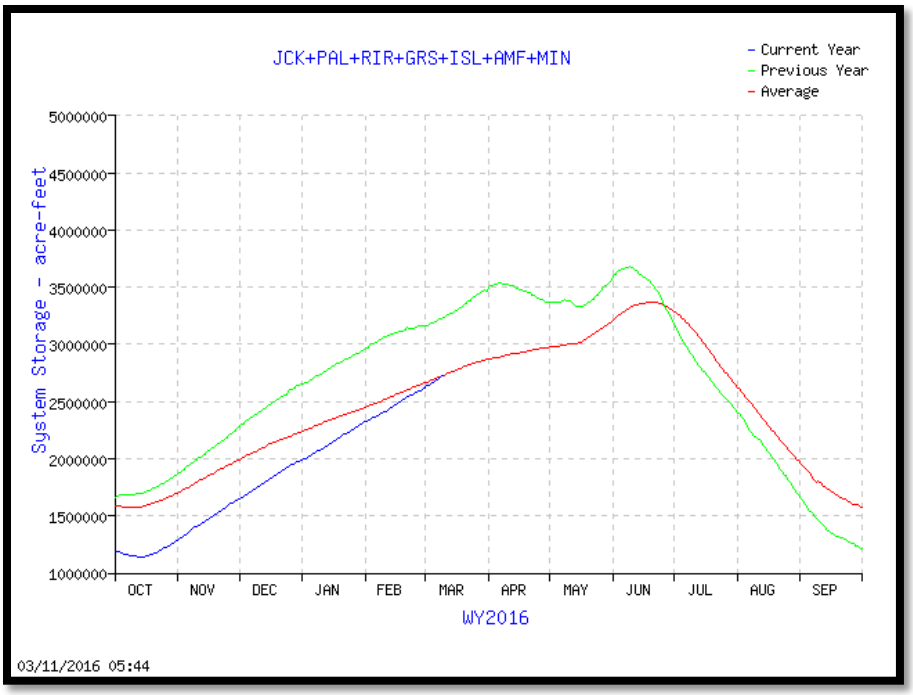



**68% of Capacity in Upper Snake River System**
**(Jackson Lake, Palisades, Grassy Lake, Island Park, Ririe, American Falls & Lake Walcott)**

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

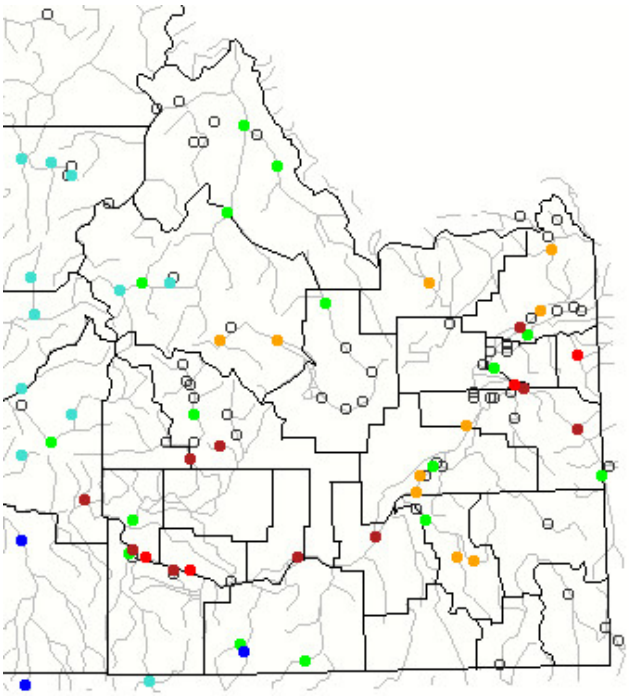
**Upper Snake River:**
**Total Space Available: 1,306,542 AF**
**Total Storage Capacity: 4,045,695 AF**

**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 February 2016.

USGS

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

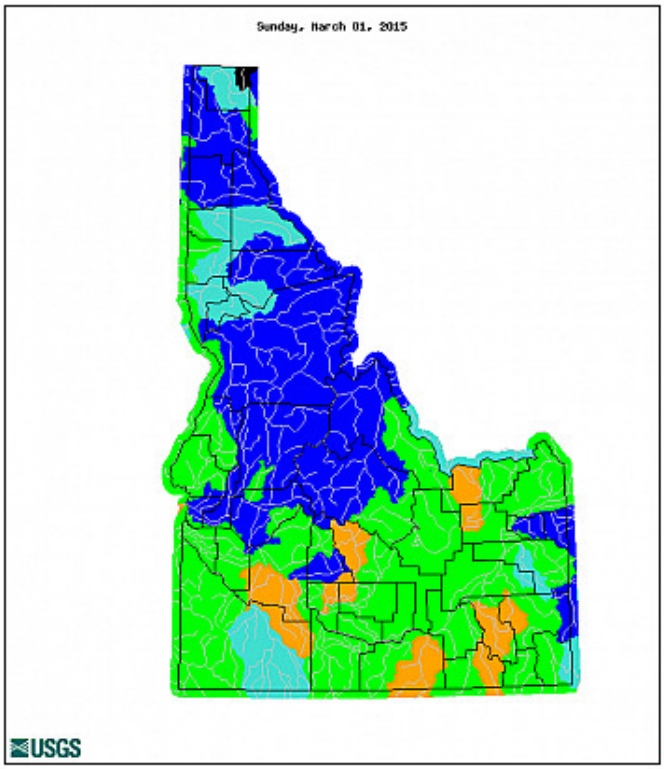
| Explanation - Percentile classes | | | | | | | |
|---|---|---|---|---|---|---|---|
| Low | <10 Much below normal | 10-24 Below normal | 25-75 Normal | 76-90 Above normal | >90 Much above normal | High | Not-ranked |

# Comparison of Streamflow Maps

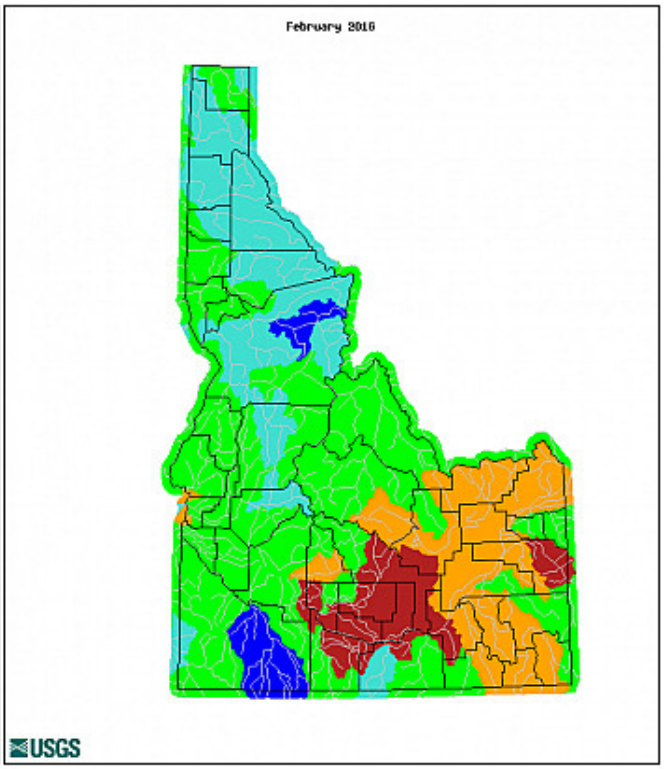
Geographic area: Idaho | Water resource region: | GO

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

Date (YYYYMM): 201502




Date (YYYYMM): 201602



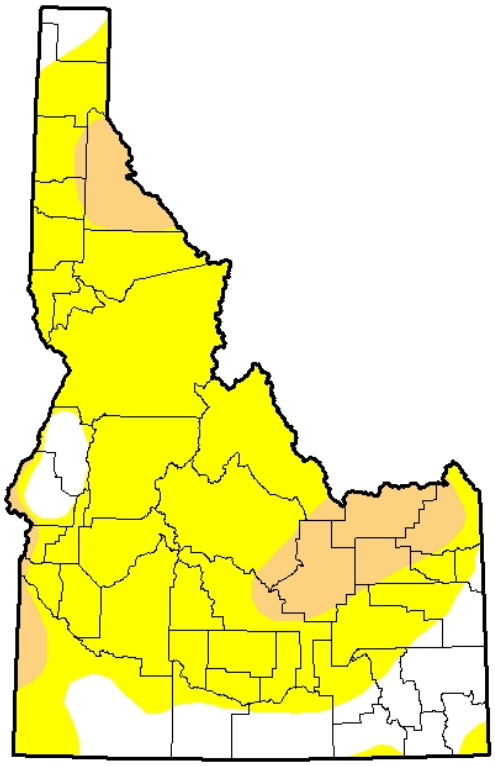

Explanation - Percentile classes

| 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



**March 8, 2016**
*(Released Thursday, Mar. 10, 2016)*
**Valid 7 a.m. EST**

*Drought Conditions (Percent Area)*

| | None | D0-D4 | D1-D4 | D2-D4 | D3-D4 | D4 |
|---|---|---|---|---|---|---|
| **Current** | 19.06 | 80.94 | 13.79 | 0.00 | 0.00 | 0.00 |
| **Last Week** 3/1/2016 | 11.58 | 88.42 | 52.72 | 3.90 | 0.00 | 0.00 |
| **3 Months Ago** 12/8/2015 | 8.63 | 91.37 | 66.76 | 42.06 | 7.68 | 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** 3/10/2015 | 35.11 | 64.89 | 35.12 | 15.42 | 2.41 | 0.00 |

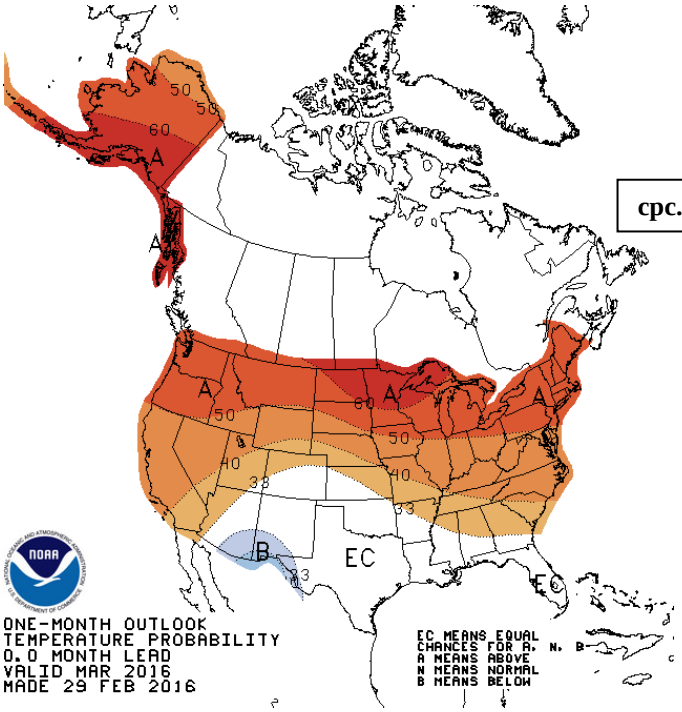
*Intensity:*

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

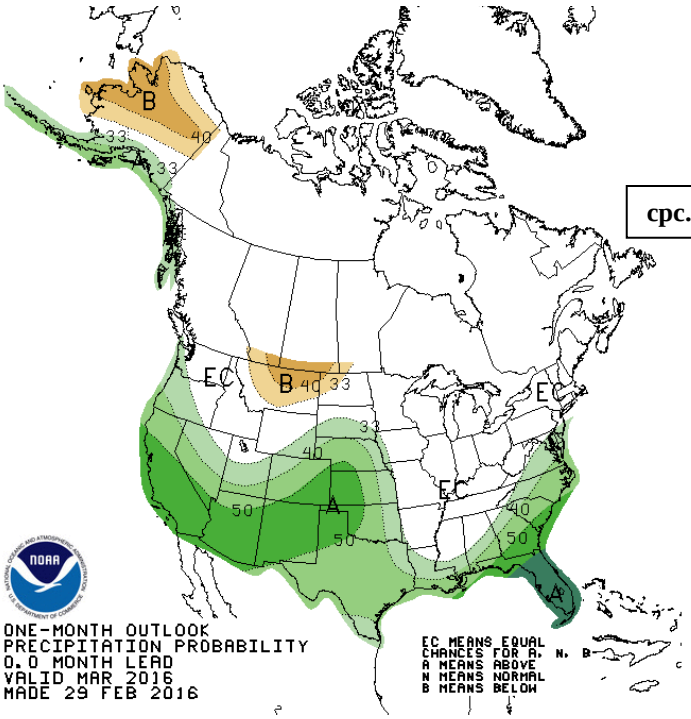
*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

**Author:**
*David Miskus*
*NOAA/NWS/NCEP/CPC*

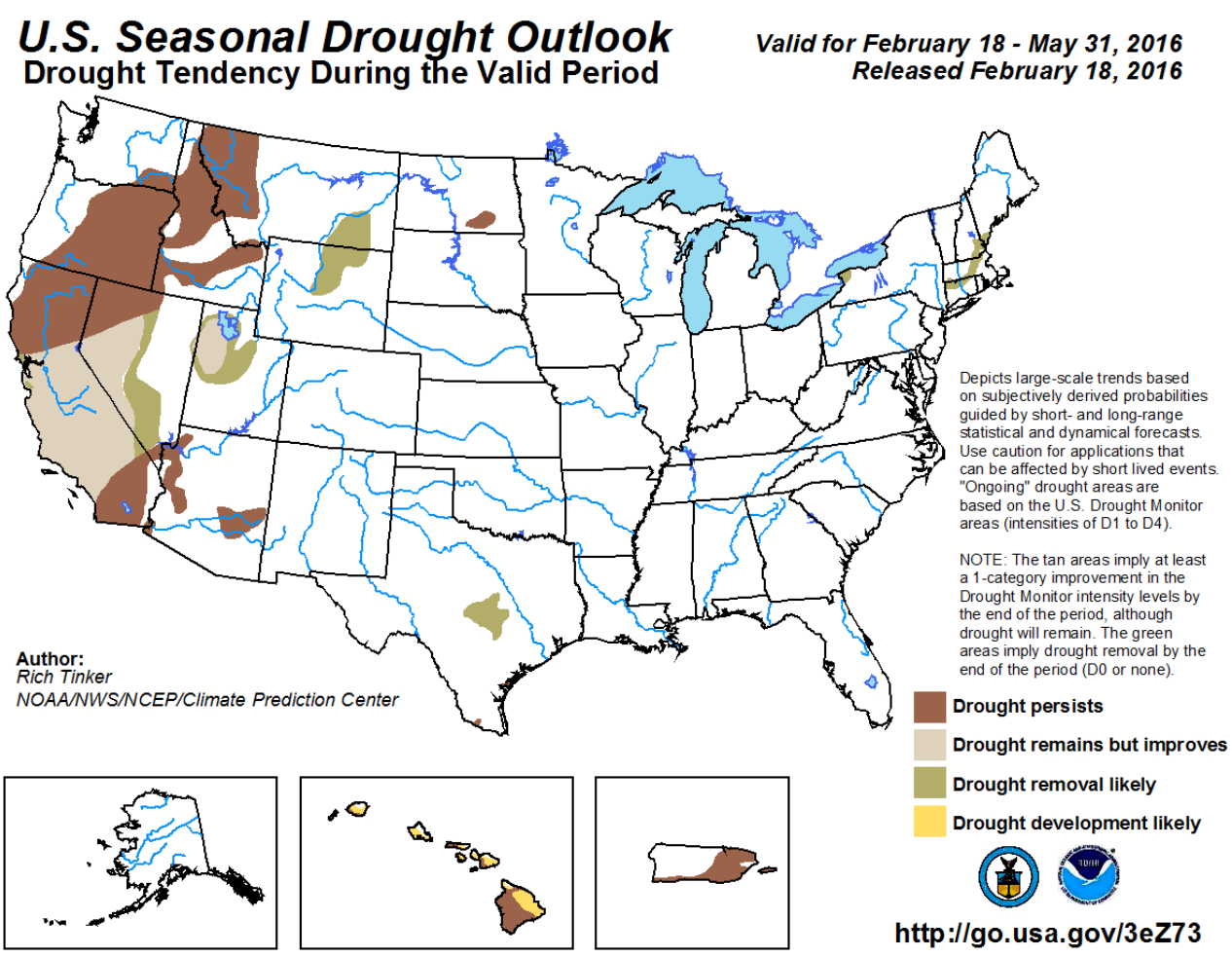
**http://droughtmonitor.unl.edu/**




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

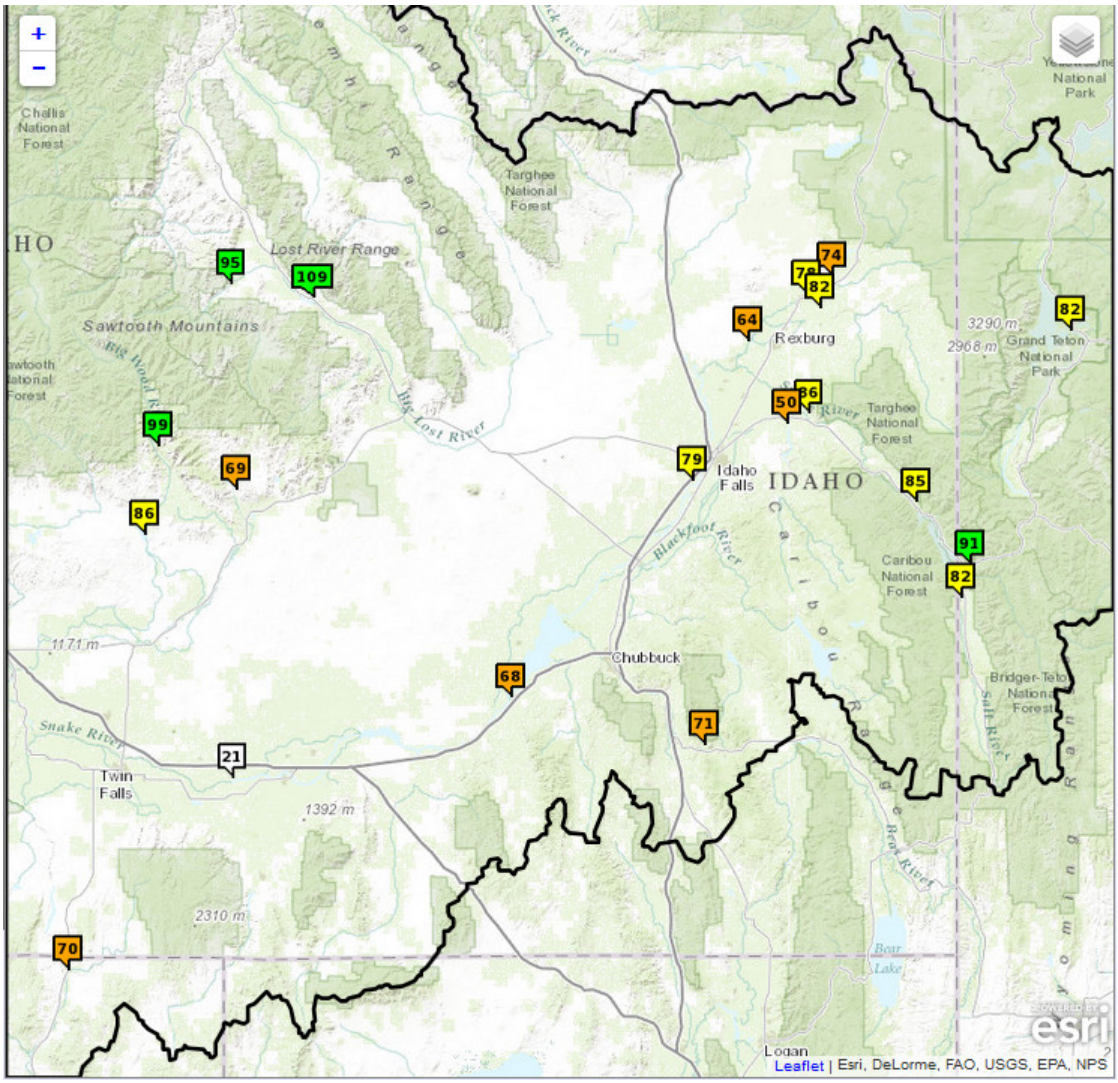



**cpc.ncep.noaa.gov/products/predictions/30day/off15_prcp.gif**




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

**Water Supply:** **NWRFC Water Supply Volume Forecast Map (3/10/16):**




**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 (March 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

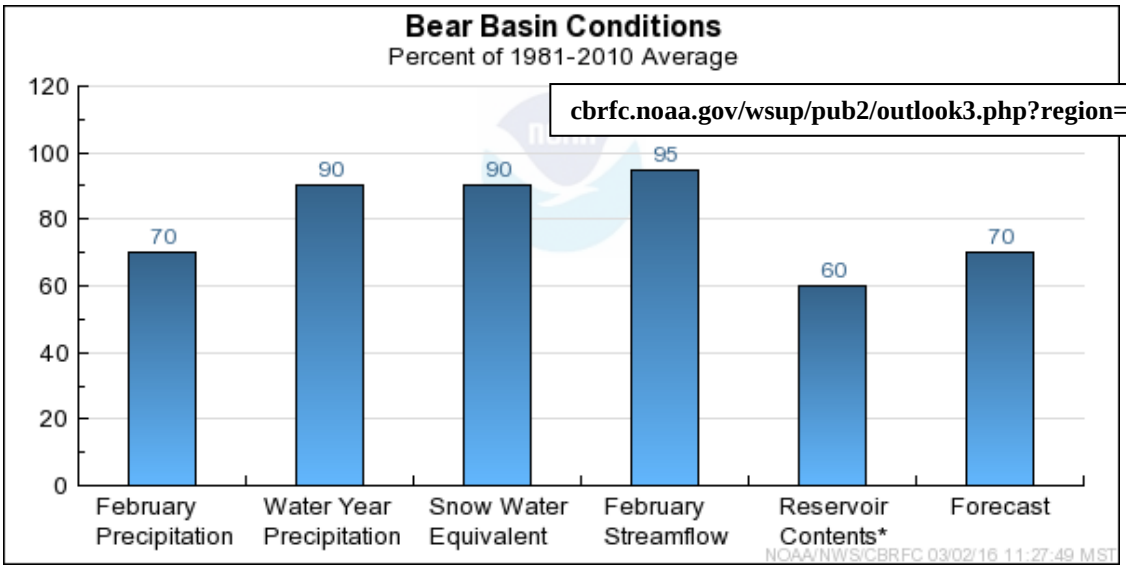
**Columns (on/off):** Area Sub Area NWS ID DS River Location Forecast Date Avg Cond Med Cond Forecast Period Min 90 P 70 MP 50 P 30 Max 10 Avg Med

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 | 2016-3-1 | △ | △ | Apr 01-Jul 31 | 68 | 84 | **92** | 106 | 119 | 112 | 106 | *82* | *87* |
| 2 | Great | Bear | BEAW4 | Bear | Woodruff Narrows Rsvr | 2016-3-1 | ▲ | △ | Apr 01-Jul 31 | 54 | 69 | **84** | 101 | 138 | 121 | 110 | *69* | *76* |
| 3 | Great | Bear | BORW4 | Smiths Fork | Border | 2016-3-1 | △ | △ | Apr 01-Jul 31 | 50 | 56 | **68** | 73 | 84 | 89 | 80 | *76* | *85* |
| 4 | Great | Bear | STDI1 | Bear | Montpelier | 2016-3-1 | ▲ | ▲ | Apr 01-Jul 31 | 53 | 67 | **80** | 103 | 138 | 182 | 117 | *44* | *68* |
| 5 | Great | Bear | LGNU1 | Logan | Logan | 2016-3-1 | △ | △ | Apr 01-Jul 31 | 62 | 68 | **79** | 90 | 106 | 111 | 97 | *71* | *81* |
| 6 | Great | Bear | HRMU1 | Blacksmith Fork | Hyrum | 2016-3-1 | ▲ | ▲ | Apr 01-Jul 31 | 20 | 25 | **29** | 36 | 43 | 43 | 29 | *67* | *100* |
| 7 | Great | Bear | PRZU1 | Little Bear | Paradise | 2016-3-1 | ▲ | ▲ | Apr 01-Jul 31 | 15 | 19.5 | **26** | 32 | 43 | 47 | 51 | *55* | *51* |

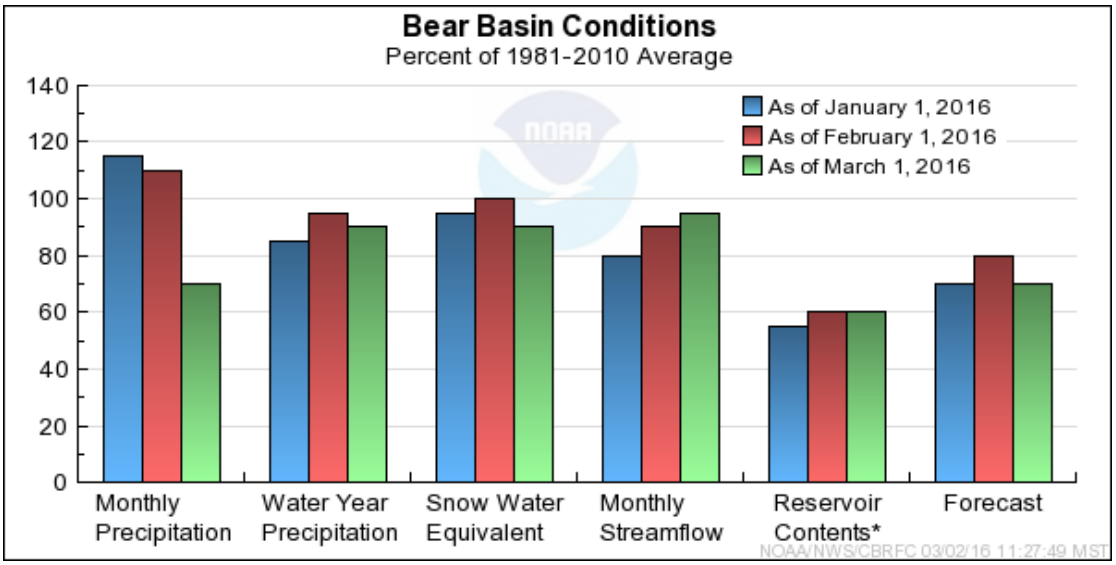
**cbrfc.noaa.gov/rmap/wsup/wsuplist.php**

## Bear River Basin Conditions:




**cbrfc.noaa.gov/wsup/pub2/outlook3.php?region=sl&month=3&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.2016.3.png**

**NRCS-NWCC Water Supply Forecast Report for the upper Snake River and Bear River basins (March 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
Kurt Buffalo, 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