Winter Returns to Idaho February 25, 2018

Winter Returns to Idaho February 25, 2018
Photo courtesy of Ron Abramovich (NRCS-Idaho Snow Survey)
Don’t let the snow depths lead you to believe the snowpack is as healthy as the snow depths looks, we still need more snow…

The cold temperatures allowed the light, dry snow to fall with densities of 4%!

Lost Lake SNOTEL site in the Clearwater basin has the deepest snow in Idaho at 160 inches – that’s more than 13 feet deep.

Many other sites from the Idaho Panhandle to Deadwood Summit in Lewis Lake Divide in Yellowstone National Park are reporting snow depths of more than 100 inches.
Schweitzer Basin SNOTEL Site near Sandpoint, ID 6,090 ft
March 5, 2018

47.7” SWE  123% of Median
143 ” Snow Depth
Westwide SNOTEL Current Snow Water Equivalent (SWE) % of Normal

Mar 08, 2018

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

- unavailable *
- >50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- 150 - 180%
- >180%

* 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

Mountain Snowpack as of March 1, 2018

Percent of 1981-2010 Median (US) 1981-2010 Average (Canada)

- > 180
- 150 - 180
- 130 - 149
- 110 - 129
- 90 - 109
- 70 - 89
- 50 - 69
- 25 - 49
- < 25

Prepared by: USDA Natural Resources Conservation Service National Water and Climate Center Portland, Oregon
http://www.wcc.nrcs.usda.gov
Created 5 Mar 2018 10:12

NOTICE: This map will be discontinued after May 2018 due to staffing constraints.
Alternate maps: go.usa.gov/xnzxk
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).

Mar 09, 2018
Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

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

Provisional Data Subject to Revision

Mar 08, 2018
Current Snow Water Equivalent (SWE) Basin-wide Percent of 1981-2010 Median

- unavailable
- <50%
- 50 - 69%
- 70 - 89%
- 90 - 109%
- 110 - 129%
- 130 - 149%
- >=150%

Provisional Data Subject to Revision
February Monthly Precipitation:

- Is key to how streamflow forecast volumes changed from March 1 forecasts.

- Note: March precipitation is NOT included in these forecasts.
March 1 – 8/9 Precipitation - some basins have already received 55 - 70% of March normal precipitation

### Idaho SNOTEL Precipitation Summary Report as of Mar 9, 2018

<table>
<thead>
<tr>
<th>Basin or Region</th>
<th>Mar 1 - 9 Precipitation</th>
<th>Oct 1 to Mar 9 Precipitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>NORTHERN PANHANDLE</td>
<td>28</td>
<td>69</td>
</tr>
<tr>
<td>SPOKANE</td>
<td>29</td>
<td>73</td>
</tr>
<tr>
<td>CLEARWATER</td>
<td>26</td>
<td>76</td>
</tr>
<tr>
<td>SALMON</td>
<td>40</td>
<td>54</td>
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<tr>
<td>WEISER</td>
<td>49</td>
<td>52</td>
</tr>
<tr>
<td>PAYETTE</td>
<td>32</td>
<td>55</td>
</tr>
<tr>
<td>BOISE</td>
<td>42</td>
<td>58</td>
</tr>
<tr>
<td>BIG WOOD</td>
<td>69</td>
<td>52</td>
</tr>
<tr>
<td>LITTLE WOOD</td>
<td>70</td>
<td>47</td>
</tr>
<tr>
<td>BIG LOST</td>
<td>65</td>
<td>47</td>
</tr>
<tr>
<td>LITTLE LOST, BIRCH</td>
<td>60</td>
<td>42</td>
</tr>
<tr>
<td>MEDICINE LODGE, BEAVER, CAMAS</td>
<td>54</td>
<td>38</td>
</tr>
<tr>
<td>HENRYS FORK, TETON</td>
<td>41</td>
<td>57</td>
</tr>
<tr>
<td>SNAKE BASIN ABOVE PALISADES</td>
<td>39</td>
<td>57</td>
</tr>
<tr>
<td>WILLOW, BLACKFOOT, PORTNEUF</td>
<td>56</td>
<td>48</td>
</tr>
<tr>
<td>SNAKE BASIN ABOVE AMERICAN FALLS</td>
<td>43</td>
<td>55</td>
</tr>
<tr>
<td>GOOSE CREEK</td>
<td>29</td>
<td>45</td>
</tr>
<tr>
<td>SALMON FALLS</td>
<td>31</td>
<td>44</td>
</tr>
<tr>
<td>BRUNEAU</td>
<td>30</td>
<td>43</td>
</tr>
<tr>
<td>Owyhee</td>
<td>25</td>
<td>46</td>
</tr>
<tr>
<td>BEAR RIVER</td>
<td>28</td>
<td>43</td>
</tr>
</tbody>
</table>
March 1 Streamflow Forecasts

Columbia River and Pacific Coastal Basins
Spring and Summer Streamflow Forecasts as of March 1, 2018

NOTICE: This map will be discontinued after May 2018 due to staffing constraints.
Alternate maps: go.usa.gov/xnzxK

Water Supply Forecast
March 1, 2018
Forecasted April-July Flow as a Percentage of the 1981 to 2010 Average

Prepared by: USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
https://www.wcc.nrcs.usda.gov
Created: 6 Mar 2018 14:02
As of October 30, 2017 -- Updated March 9, 2018 with end of month storage levels
Projected change in reservoir storage from Fall 2017 to start of runoff season in Spring 2018.

<table>
<thead>
<tr>
<th>Reservoir System</th>
<th>Sep 30 storage KAF</th>
<th>Observed Oct 31 storage KAF</th>
<th>Observed Nov 30 storage KAF</th>
<th>Observed Dec 31 storage KAF</th>
<th>Actual / Projected Jan 31 Storage KAF</th>
<th>Actual / Projected Feb 28 storage KAF</th>
<th>Projected Mar 31 storage KAF</th>
<th>Estimated change in storage KAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boise Reservoir System</td>
<td>603.3</td>
<td>584.9</td>
<td>663.5</td>
<td>719.5</td>
<td>775.7</td>
<td>828.6</td>
<td>800</td>
<td>197</td>
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<tr>
<td>Magic Reservoir</td>
<td>107.8</td>
<td>123.8</td>
<td>138.9</td>
<td>150.4</td>
<td>160.0</td>
<td>171.6</td>
<td>160</td>
<td>52</td>
</tr>
<tr>
<td>Little Wood Reservoir</td>
<td>12.7</td>
<td>12.4</td>
<td>17.5</td>
<td>21.4</td>
<td>25.1</td>
<td>28 / 22</td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Mackay Reservoir</td>
<td>38.1</td>
<td>38.1</td>
<td>37.6</td>
<td>33.6</td>
<td>34.0</td>
<td>37.5</td>
<td>20</td>
<td>-18</td>
</tr>
<tr>
<td>Jackson &amp; Palisades Reservoir System</td>
<td>1909.8</td>
<td>1929.9</td>
<td>2016.0</td>
<td>2009.9</td>
<td>2010.0</td>
<td>1991.4</td>
<td>1900</td>
<td>-10</td>
</tr>
<tr>
<td>Oakley Reservoir</td>
<td>28.5</td>
<td>29.7</td>
<td>31.7</td>
<td>33.4</td>
<td>35.3</td>
<td>36.7 / 38</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>Salmon Falls Reservoir</td>
<td>92.8</td>
<td>92.1</td>
<td>92.7</td>
<td>93.1</td>
<td>94.1</td>
<td>97</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Lake Owyhee</td>
<td>432.2</td>
<td>422.0</td>
<td>441.5</td>
<td>461.4</td>
<td>490 / 480</td>
<td>513.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bear Lake</td>
<td>1114.5</td>
<td>1090.7</td>
<td>1058.6</td>
<td>1035.5</td>
<td>1011.7</td>
<td>991.5</td>
<td>1000</td>
<td>-115</td>
</tr>
</tbody>
</table>

Other basins, Spokane, Clearwater, Salmon, Weiser, Payette and Bruneau basins, the surface agricultural irrigation demand is not known or relevant. For the Henrys Fork basin, recent diversion data has not been loaded in our AWDB streamflow database.
Map of monthly-average streamflow for the month of February 2018

Explanation - Percentile classes

<table>
<thead>
<tr>
<th>Low</th>
<th>10-25</th>
<th>25-75</th>
<th>75-90</th>
<th>&gt;90</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much below normal</td>
<td>Below normal</td>
<td>Normal</td>
<td>Above normal</td>
<td>Much above normal</td>
<td>No Data</td>
</tr>
</tbody>
</table>

Updated: 8-Mar-18

Similar Year 2006

Provisional Data Subject to Revision

Discharge, cubic feet per second

Median daily statistic (63 years) • Flow at station affected by ice
Discharge • Measured discharge
Soil Moisture 2018 Upper Snake in Wyoming
Upper Snake
- 2012 Soil Moisture
- 2018 & 2012 SWE
- 2017 Henrys Fork Temps

Major colds front Sep 2017 with record low SNOTEL temps, but cold spell did not happen in Sep – Nov 2011

Henry's Fork Watershed Mean Temperature through Mar 07 2018
Snake Basin March 1 SWSI with Adequate Irrigation Supply & Surplus Threshold

As of Mar 1, 2018
10% Chance of Surplus Volumes
90% Chance of Adequate Supplies

Snake River Near Heise

Mar 1 Historic and Forecasted Surface Water Supply

As of Mar 1, 2018
10% Chance of Surplus Volumes
90% Chance of Adequate Supplies

Est Surplus Above 6,300 to 6,800 KAF

Adequate Irrigation Supply Above 4,400 KAF
Big Lost March 1 SWSI with Adequate Irrigation Supply Threshold

Mar 1 Historic and Forecasted Surface Water Supply
Big Lost River Basin

Mackay Reservoir Storage
Full 44,400 AF

USGS 13126000 MACKAY RES NR MACKAY ID

Mackay Reservoir Storage
Full 44,400 AF

2018 Big Lost River below Mackay Resv: Apr-Jul Percent of Normal
NRCS Monthly Forecasts are Squares

2017 April - July Runoff, 222% of Normal 270 KAF

Updated
March 8, 2018

2018 -- based on irrigation demand of 180 KAF and Mar. 31 reservoir storage projection of 30 KAF
107% of the average Apr-Sep runoff (160 KAF) is needed for marginally adequate surface irrigation supply

2018 Big Lost River below Mackay Resv: Apr-Jul Volume
NRCS Monthly / mid-month Forecasts are Squares

2017 April - July Runoff, 222% of Normal 270 KAF

Updated
March 8, 2018

Changes in grey: 10, 30, 70 & 90th percentiles for historical period of record
Big Wood Basin 2018 Snowpack Comparison Graph (9 sites)
Based on Provisional SNOTEL data as of Mar 08, 2018

- Normal - WY2015 - WY2016 - WY2017 - WY2018

Current as Pct of Normal: 87%
Current as Pct of Last Year: 49%
Current as Pct of Peak: 80%
Normal as Pct of Peak: 93%
Pct of Normal Needed to Reach Peak: 270%
Normal Peak Date: Apr 01

Big Wood Basin 2018 Snow Water with Non-Exceedence Projections (9 sites)
Based on Provisional SNOTEL data as of Mar 08, 2018

- Normal - WY2018 - Minimum - 10% - 30% - 50% - 70% - 90% - Maximum

Snow Water Equivalent (inches)

Date: 1-Oct 1-Nov 1-Dec 1-Jan 1-Feb 1-Mar 1-Apr 1-May 1-Jun 1-Jul 1-Aug 1-Sep

0 5 10 15 20 25 30 35
As of Mar 1, 2018
20% Chance of Surplus Supplies
50% Chance of Adequate Supplies
March 1 Owyhee Snow Index is 4th lowest since 1976

Lower years 1977, 2015, 1981

2014 is 5th lowest
March 1 Streamflow Forecast
24% of average

1981 Runoff 29% of average
2018 Feb. peak over 5,100 cfs

2015 Mar-Jul volume was 44%, 96.6 KAF, Average is 220.0 KAF

March 1 Streamflow Forecast
March – July 53% of average

March 1 Bruneau Snow Index
5th lowest since 1961


2014 was 7th lowest

2014 Runoff 47% of average
March 1 Clearwater Basin Snow Index
Using March 9 SWE Data

Show the SWE has already exceeded Apr 1 SWE normal

12th highest since 1961

Interesting to note: the other high years are 2008 and before 1999
2018

March 1 Streamflow Forecast
129% of average

1996

2016 Runoff 138% of average

Expect multiple peaks like in 1996 because of current variable weather pattern.

1996 Apr-Jul volume was 129%, 2644.9 KAF, Average is 2055.7 KAF

13336500: Selway R near Lowell, ID

Updated
7-Mar-18

Similar Year
1996

Updated
7-Mar-18

1996
March 7, 2018
Cool Creek SNOTEL Clearwater Basin 6,280 ft is back on line today with:

49.3” SWE  131% of Median
150  ” Snow Depth