2017 Idaho Snowpack and Water Supply Outlook

NRCS - Idaho Snow Survey

Danny Tappa & Ron Abramovich
April 1 vs. March 1 Snowpack

Percent of Median Snowpack
March 1, 2017

- Median Snowpack
- Above: >= 150%
- 130-149%
- 110-129%
- 90-109%
- 70-89%
- 50-59%
- 0-49%
- No Data

Percent of Median Snowpack
April 1, 2017

- Median Snowpack
- Above: >= 150%
- 130-149%
- 110-129%
- 90-109%
- 70-89%
- 50-69%
- 0-49%
- No Data

This map is prepared by the USDA-NRCS Idaho Snow Survey Office. http://www.nfs.usda.gov/wps/portal/nrcs/main/idaho
Monthly & Water Year Precipitation

Monthly Precipitation March 2017

Monthly Precipitation as a Percentage of the 1981 to 2010 Average

Above >= 150%
130 - 149%
110 - 129%
90 - 109%
70 - 89%
60 - 69%
0 - 49%
No Data

Water Year to Date Precipitation April 1, 2017

Basin-wide Water Year Precipitation as a Percentage of the 1981 to 2010 Average

Above >= 150%
130 - 149%
110 - 129%
90 - 109%
70 - 89%
60 - 69%
0 - 49%
No Data

This map is prepared by the USDA-NRCS Idaho Snow Survey Office. http://www.nrcs.usda.gov/wps/portal/nrcs/main/snow/
Precipitation Records

Water Year to Date Precipitation Records (POR)
October 1, 2016 through April 9, 2017

- Highest
- 2nd Highest
- 2nd Lowest
- Lowest

Sites with less than 20 years of data or low variability excluded

NRCS
Natural Resources Conservation Service
Created 4-12-2017, 03:53 PM MST
Boise WY Precipitation

Boise Basin 2017 Precipitation Comparison Graph (8 sites)

Based on Provisional SNOTEL data as of Apr 10, 2017

Current as Pct of Avg: 164%
Current as Pct of Avg Ann Total: 124%
Boise WY Precipitation
Boise Basin Snowpack

Boise Basin 2017 Snowpack Comparison Graph (10 sites)

Based on Provisional SNOTEL data as of Apr 11, 2017

- Normal
- WY1983
- WY1997
- WY2011
- WY2017

Current as Pct of Normal: 143%
Current as Pct of Peak: 142%
Normal Peak Date: Apr 03

2016 is a strong El Nino, as were 1992 & 1998.
2015 was a weak El Nino.
March SWE Change

Salmon & Central Mts March SWE Change

- Elevation (ft)
- SWE change (inches)
Wood Basin Snowpack

Big Wood Basin 2017 Snowpack Comparison Graph (9 sites)

Based on Provisional SNOTEL data as of Apr 11, 2017

Current as Pct of Normal: 178%
Current as Pct of Peak: 173%
Water Supply Forecasts

Spring and Summer Streamflow Forecasts as of April 1, 2017

Percent of 1981-2010 Average

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

50% exceedance probability forecasts shown. For forecasts at other exceedance probabilities, see individual state reports.

Prepared by USDA Natural Resources Conservation Service
National Water and Climate Center
Portland, Oregon
https://www.nwc.sc.egov.usda.gov
Created: 7 Apr 2017 08:53

Water Supply Forecast
April 1, 2017

Forecasted April to July flow as a percentage of the 1981 to 2010 average

Above Average
- > 180%
- 150 - 179%
- 130 - 149%
- 110 - 129%
- 90 - 109%
- 70 - 89%

Average Forecast
- 50 - 69%
- 25 - 49%

Below Average
- 0 - 24%

No Data

This map is prepared by the USDA/ARS, Idaho Snake River basin, Idaho Falls, Idaho.
http://nrcs-id.usda.gov/portal/index веселанов
Spring and Summer Streamflow Forecasts as of April 1, 2017

Percent of 1981-2010 Average
- > 180%
- 150 - 179%
- 130 - 149%
- 110 - 129%
- 90 - 109%
- 70 - 89%
- 50 - 69%
- 25 - 49%
- < 25%

50% exceedance probability forecasts shown in individual state reports.

Prepared by USDA-Natural Resources Conservation Service National Water and Climate Center
Portland, Oregon
https://www.wcc.nrcs.usda.gov
Created: 7 Apr 2017 00:23

This map is prepared by USDA-NRCS, Idaho Snow Survey Office.

Copyright © USDA-NRCS 2017. All rights reserved.

Water Supply Forecast April 1, 2017 Forecasted April to July flow as a Percentage of the 1981 to 2010 Average
Above Average
- > 180%
- 150 - 179%
- 130 - 149%
- 110 - 129%
- 90 - 109%
- 70 - 89%
- 50 - 69%
- 25 - 49%
- < 25%

Average Forecast
- 50% exceedance probability forecast shown in individual state reports.

Prepared by USDA-Natural Resources Conservation Service National Water and Climate Center
Portland, Oregon
https://www.wcc.nrcs.usda.gov
Created: 7 Apr 2017 00:23

This map is prepared by USDA-NRCS, Idaho Snow Survey Office.

Copyright © USDA-NRCS 2017. All rights reserved.
IDAHO SURFACE WATER SUPPLY INDEX (SWSI) April 1, 2017

<table>
<thead>
<tr>
<th>BASIN or REGION</th>
<th>SWSI Value</th>
<th>Most Recent Year With Similar SWSI Value</th>
<th>Agricultural Water Supply Shortage May Occur When SWSI is Less Than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spokane</td>
<td>1.4</td>
<td>1996</td>
<td>NA</td>
</tr>
<tr>
<td>Clearwater</td>
<td>1.8</td>
<td>2009</td>
<td>NA</td>
</tr>
<tr>
<td>Salmon</td>
<td>3.0</td>
<td>1999</td>
<td>NA</td>
</tr>
<tr>
<td>Weiser</td>
<td>1.8</td>
<td>1995</td>
<td>NA</td>
</tr>
<tr>
<td>Payette</td>
<td>3.8</td>
<td>1996</td>
<td>NA</td>
</tr>
<tr>
<td>Boise</td>
<td>4.0</td>
<td>1983</td>
<td>-2.0</td>
</tr>
<tr>
<td>Big Wood</td>
<td>4.0</td>
<td>1983</td>
<td>0.3</td>
</tr>
<tr>
<td>Little Wood</td>
<td>3.9</td>
<td>1983</td>
<td>-1.5</td>
</tr>
<tr>
<td>Big Lost</td>
<td>3.2</td>
<td>1995</td>
<td>0.8</td>
</tr>
<tr>
<td>Little Lost</td>
<td>3.6</td>
<td>1995</td>
<td>1.5</td>
</tr>
<tr>
<td>Teton</td>
<td>2.7</td>
<td>1986</td>
<td>-3.9</td>
</tr>
<tr>
<td>Henrys Fork</td>
<td>2.7</td>
<td>1999</td>
<td>-1.7</td>
</tr>
<tr>
<td>Snake (Heise)</td>
<td>3.6</td>
<td>2011</td>
<td>-1.7</td>
</tr>
<tr>
<td>Oakley</td>
<td>3.2</td>
<td>2006</td>
<td>0.1</td>
</tr>
<tr>
<td>Salmon Falls</td>
<td>3.6</td>
<td>2011</td>
<td>-0.8</td>
</tr>
<tr>
<td>Bruneau</td>
<td>3.2</td>
<td>2006</td>
<td>NA</td>
</tr>
<tr>
<td>Owyhee</td>
<td>3.1</td>
<td>1998</td>
<td>-2.6</td>
</tr>
<tr>
<td>Bear River</td>
<td>2.4</td>
<td>2011</td>
<td>-3.9</td>
</tr>
</tbody>
</table>
Boise Basin Surplus = 2,200 KAF with a flow > 6,000 cfs passing the Glenwood gage for more than 5 days and approaching 25 days.

Adequate Irrigation Supply Above 1,500 KAF
Boise River Basin SWSI

Adequate Water Supply Greater than -2.1 SWSI or 1,500 KAF

<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name</th>
<th>Period</th>
<th>Data Type</th>
<th>Years</th>
<th># of Years</th>
<th>Units KAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>13202000</td>
<td>BOISE RIVER NEAR BOISE, ID</td>
<td>Apr-Sep</td>
<td>strm</td>
<td>1981-2016</td>
<td>36</td>
<td>Units KAF</td>
</tr>
<tr>
<td>13201500</td>
<td>LUCKY PEAK</td>
<td>31-Mar</td>
<td>resv</td>
<td>1981-2016</td>
<td>36</td>
<td>Units KAF</td>
</tr>
<tr>
<td>13194000</td>
<td>ARROWROCK</td>
<td>31-Mar</td>
<td>resv</td>
<td>1981-2016</td>
<td>36</td>
<td>Units KAF</td>
</tr>
<tr>
<td>13190000</td>
<td>ANDERSON RANCH</td>
<td>31-Mar</td>
<td>resv</td>
<td>1981-2016</td>
<td>36</td>
<td>Units KAF</td>
</tr>
</tbody>
</table>

**ENSO Classification**
- SE Strong El Nino
- EN Mild El Nino
- N Neutral
- LN Mild La Nina
- SL Strong La Nina

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Enso</th>
<th>Stream Flow Apr-Sep</th>
<th>Reservoir 31-Mar</th>
<th>Streamflow + Reservoir Sum</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1983</td>
<td>SE</td>
<td>2495</td>
<td>656</td>
<td>3150</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>1982</td>
<td>N</td>
<td>2460</td>
<td>516</td>
<td>2976</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td>3</td>
<td>1997</td>
<td>N</td>
<td>2491</td>
<td>347</td>
<td>2837</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>1984</td>
<td>N</td>
<td>2161</td>
<td>630</td>
<td>2791</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>2011</td>
<td>SL</td>
<td>1965</td>
<td>785</td>
<td>2750</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>1986</td>
<td>N</td>
<td>1881</td>
<td>831</td>
<td>2712</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>1996</td>
<td>N</td>
<td>2066</td>
<td>574</td>
<td>2640</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>8</td>
<td>2006</td>
<td>N</td>
<td>2162</td>
<td>404</td>
<td>2566</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>1998</td>
<td>SE</td>
<td>1701</td>
<td>837</td>
<td>2538</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>1995</td>
<td>SE</td>
<td>1887</td>
<td>536</td>
<td>2423</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>2012</td>
<td>LN</td>
<td>1611</td>
<td>801</td>
<td>2412</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>1999</td>
<td>SL</td>
<td>1838</td>
<td>538</td>
<td>2376</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>1993</td>
<td>EN</td>
<td>1656</td>
<td>422</td>
<td>2078</td>
<td>65%</td>
<td>1.2</td>
</tr>
</tbody>
</table>
Surplus above 350 KAF

Big Wood 350 KAF with 1,500 cfs release from the dam.
Big Wood River Basin SWSI

<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name</th>
<th>Period</th>
<th>Data Type</th>
<th>Years</th>
<th># of Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>13142500</td>
<td>Big Wood R blw Magic Reservoir</td>
<td>Apr-Sep</td>
<td>strm</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
</tr>
<tr>
<td>13142000</td>
<td>Magic Reservoir</td>
<td>31-Mar</td>
<td>resv</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
</tr>
</tbody>
</table>

**ENSO Classification**
- SE Strong El Nino
- EN Mild El Nino
- N Neutral
- LN Mild La Nina
- SL Strong La Nina

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Enso</th>
<th>Stream Flow Apr-Sep</th>
<th>Reservoir 31-Mar</th>
<th>Streamflow + Reservoir Sum</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1983</td>
<td>SE</td>
<td>747</td>
<td>114</td>
<td>861</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>1982</td>
<td>N</td>
<td>622</td>
<td>108</td>
<td>729</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td>3</td>
<td>1997</td>
<td>N</td>
<td>605</td>
<td>118</td>
<td>724</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>2006</td>
<td>N</td>
<td>636</td>
<td>78</td>
<td>714</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>1984</td>
<td>N</td>
<td>545</td>
<td>149</td>
<td>694</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>1986</td>
<td>N</td>
<td>432</td>
<td>186</td>
<td>618</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>1998</td>
<td>SE</td>
<td>427</td>
<td>170</td>
<td>597</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>8</td>
<td>1995</td>
<td>SE</td>
<td>518</td>
<td>77</td>
<td>595</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>1999</td>
<td>SL</td>
<td>420</td>
<td>102</td>
<td>522</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>1996</td>
<td>N</td>
<td>351</td>
<td>161</td>
<td>512</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>2011</td>
<td>SL</td>
<td>322</td>
<td>111</td>
<td>433</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>2012</td>
<td>LN</td>
<td>238</td>
<td>185</td>
<td>423</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>1993</td>
<td>EN</td>
<td>355</td>
<td>38</td>
<td>393</td>
<td>65%</td>
<td>1.2</td>
</tr>
<tr>
<td>14</td>
<td>1985</td>
<td>N</td>
<td>242</td>
<td>144</td>
<td>386</td>
<td>62%</td>
<td>1.0</td>
</tr>
<tr>
<td>15</td>
<td>1981</td>
<td>N</td>
<td>153</td>
<td>146</td>
<td>299</td>
<td>59%</td>
<td>0.8</td>
</tr>
<tr>
<td>16</td>
<td>2000</td>
<td>N</td>
<td>165</td>
<td>132</td>
<td>298</td>
<td>57%</td>
<td>0.6</td>
</tr>
</tbody>
</table>

**Surplus above 350 KAF**
- 1981: 59% 
- 2000: 57%

Adequate Water Supply Greater than 0.1 SWSI or 275 KAF
Big Lost Basin

USGS 13126000 MACKAY RES NR MACKAY ID

- Reservoir storage
- Period of approved data
- Period of provisional data

USGS 13127000 BIG LOST RIVER BL MACKAY RES NR MACKAY ID

- Median daily statistic (183 years)
- Period of provisional data
- Discharge
- Measured discharge
- Period of approved data

Provisional Data Subject to Revision

USGS 13132500 BIG LOST RIVER NR ARCO ID

- Median daily statistic (63 years)
- Measured discharge
- Discharge
## Big Lost River Basin SWSI

Adequate Water Supply Greater than 0.8 SWSI or 180 KAF

<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name</th>
<th>Period</th>
<th>Data Type</th>
<th>Years</th>
<th># of Years</th>
<th>Units KAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>13127000</td>
<td>Big Lost R blw Mackay Reservoir</td>
<td>Apr-Sep</td>
<td>strm</td>
<td>1981-2016</td>
<td>36</td>
<td>Units KAF</td>
</tr>
<tr>
<td>13126000</td>
<td>Mackay Reservoir</td>
<td>31-Mar</td>
<td>resv</td>
<td>1981-2016</td>
<td>36</td>
<td>Units KAF</td>
</tr>
</tbody>
</table>

### ENSO Classification

- **SE** Strong El Nino  
- **EN** Mild El Nino  
- **N** Neutral  
- **LN** Mild La Nina  
- **SL** Strong La Nina

### Streamflow + Reservoir Exceedance Probability

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Enso</th>
<th>Stream Flow</th>
<th>Reservoir</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1984</td>
<td>N</td>
<td>321</td>
<td>358</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>1983</td>
<td>SE</td>
<td>296</td>
<td>327</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td>3</td>
<td>1982</td>
<td>N</td>
<td>272</td>
<td>307</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>1995</td>
<td>SE</td>
<td>272</td>
<td>296</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>1986</td>
<td>N</td>
<td>239</td>
<td>277</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>1997</td>
<td>N</td>
<td>244</td>
<td>260</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>2006</td>
<td>N</td>
<td>216</td>
<td>249</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>8</td>
<td>1998</td>
<td>SE</td>
<td>198</td>
<td>236</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>1999</td>
<td>SL</td>
<td>196</td>
<td>226</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>1981</td>
<td>N</td>
<td>176</td>
<td>220</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>1996</td>
<td>N</td>
<td>171</td>
<td>208</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>2011</td>
<td>SL</td>
<td>160</td>
<td>199</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>1993</td>
<td>EN</td>
<td>169</td>
<td>196</td>
<td>65%</td>
<td>1.2</td>
</tr>
<tr>
<td>14</td>
<td>2009</td>
<td>N</td>
<td>166</td>
<td>195</td>
<td>62%</td>
<td>1.0</td>
</tr>
</tbody>
</table>
Big Lost Basin Timing of Snowmelt Runoff

22 of 33 years' peak streamflow occurred after Lost Wood had completely melted out.

On average, peak streamflow for the Big Lost River at Howell Ranch near Chilly, Idaho occurs -1 to 7 days after Lost-Wood SNOTEL is completely melted out.

All year's average, 2 days after Lost-Wood SNOTEL has completely melted.

<table>
<thead>
<tr>
<th>Max SWE Category</th>
<th>Max SWE Magnitude (inches)</th>
<th>Number of Years in Analysis</th>
<th>Average number of days from melt-out peak streamflow occurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below average</td>
<td>&lt;13.9</td>
<td>8</td>
<td>7 DAYS AFTER</td>
</tr>
<tr>
<td>Average</td>
<td>13.9 - 26</td>
<td>17</td>
<td>0 DAYS</td>
</tr>
<tr>
<td>Above average</td>
<td>&gt;26</td>
<td>8</td>
<td>1 DAY BEFORE</td>
</tr>
</tbody>
</table>
### Estimated Surplus above 6,800 KAF based on flow > 21,000 @ Blackfoot

### Snake River nr Heise SWSI

<table>
<thead>
<tr>
<th>Station ID</th>
<th>Station Name</th>
<th>Period</th>
<th>Data Type</th>
<th>Years</th>
<th># of Years</th>
<th>Units KAF</th>
</tr>
</thead>
<tbody>
<tr>
<td>13037500</td>
<td>Snake River near Heise</td>
<td>Apr-Sep</td>
<td>strm</td>
<td>1981-2016</td>
<td>36</td>
<td>36 Units KAF</td>
</tr>
<tr>
<td>13010500</td>
<td>Jackson Lake</td>
<td>31-Mar</td>
<td>resv</td>
<td>1981-2016</td>
<td>36</td>
<td>36 Units KAF</td>
</tr>
<tr>
<td>13032450</td>
<td>Palisades Reservoir</td>
<td>31-Mar</td>
<td>resv</td>
<td>1981-2016</td>
<td>36</td>
<td>36 Units KAF</td>
</tr>
</tbody>
</table>

**ENSO Classification**

- SE Strong El Nino
- EN Mild El Nino
- N Neutral
- LN Mild La Nina
- SL Strong La Nina

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Enso</th>
<th>Streamflow</th>
<th>Reservoir</th>
<th>Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1997</td>
<td>N</td>
<td>7009</td>
<td>949</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>2017</td>
<td>LA</td>
<td>6920</td>
<td>999</td>
<td>96%</td>
<td>3.8</td>
</tr>
<tr>
<td>3</td>
<td>1986</td>
<td>N</td>
<td>6054</td>
<td>962</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>1996</td>
<td>N</td>
<td>5584</td>
<td>1314</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>1982</td>
<td>N</td>
<td>5772</td>
<td>1064</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>1983</td>
<td>SE</td>
<td>5008</td>
<td>1740</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>1984</td>
<td>N</td>
<td>5046</td>
<td>1654</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>8</td>
<td>2009</td>
<td>N</td>
<td>4610</td>
<td>1759</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>1999</td>
<td>SL</td>
<td>4947</td>
<td>1311</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>1998</td>
<td>SE</td>
<td>4495</td>
<td>1632</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>1995</td>
<td>SE</td>
<td>4442</td>
<td>1041</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>2014</td>
<td>N</td>
<td>4594</td>
<td>864</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>2006</td>
<td>N</td>
<td>4076</td>
<td>1764</td>
<td>65%</td>
<td>1.2</td>
</tr>
</tbody>
</table>
Apr 1 Historic and Forecasted Surface Water Supply
Salmon Falls Creek Basin

Surplus Supply Above 180 KAF

Adequate Irrigation Supply Above 110 KAF
Salmon Falls Reservoir
End Of Month Storage Projection Based on Average Distribution of the Apr-Jul Forecasts

Full Reservoir 182,650 acre-feet

April 10, 2017

- 90% Forecast
- 70% Forecast
- 50% Forecast
- 30% Forecast
- 10% Forecast
Blue 10% Forecast based on 2011 actual runoff amounts, still assumes average irrigation releases.

<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Apr-Jul</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>36.3</td>
<td>58.6</td>
<td>37.7</td>
<td>10.9</td>
<td>143.5</td>
</tr>
<tr>
<td>1975</td>
<td>11.8</td>
<td>63.7</td>
<td>52.3</td>
<td>14.9</td>
<td>142.6</td>
</tr>
</tbody>
</table>

Avg 20 30
Blue 10% Forecast based on 1975 actual runoff amounts, still assumes average irrigation releases.

April 10, 2017

<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Apr-Jul</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>36.3</td>
<td>58.6</td>
<td>37.7</td>
<td>10.9</td>
<td>143.5</td>
</tr>
<tr>
<td>1975</td>
<td>11.8</td>
<td>63.7</td>
<td>52.3</td>
<td>14.9</td>
<td>142.6</td>
</tr>
</tbody>
</table>

Salmon Falls Reservoir
End Of Month Storage Projection Based on Average Distribution of the Apr-Jul Forecasts

Full Reservoir 182,650 acre-feet

13108000: Salmon Falls Ck near San Jacinto, NV
1975 Apr-Jul volume was 209%, 142.6 KAF, Average is 68.5 KAF

April 10, 2017

90% Forecast
70% Forecast
50% Forecast
30% Forecast
10% Forecast
Oakley Reservoir
End of Month Storage Projection

April 10, 2017

- Forecast to Fill
- 10% Forecast
- 30% Forecast
- 50% Forecast
- 70% Forecast
- 90% Forecast

Note: reservoirs losses are evaporation, seepage and releases, and are an average of all years. In wet years, runoff does not follow average conditions and often flows are much above average for one or two months.
Bostetter RS SNOTEL 7,500 ft
Daily Minimum Temperature
Mar 1 to Apr 12, 2017

32 F
13181000: Owyhee R near Rome, OR
1996 Apr-Jul volume was 106%, 363.5 KAF, Average is 343.5 KAF

2017 & 1996 South Mtn. SNOTEL and Owyhee River nr Rome, OR

- **2017 15% melt = 16.6 inches**

- **Owyhee River has an increase or the snowmelt peak occurs when South Mtn. SNOTEL site is about 15% melted.**

Updated 13-Apr-17

NRCS

Updated
13-Apr-17
Partnerships between NRCS & BSU

BOISE STATE UNIVERSITY

Snow to Flow Relationships that should be Operational in 2017

- Moyie River at Eastport ID
- Lochsa River nr Lowell ID
- Selway River nr Lowell ID
- MF Salmon River at MF Lodge ID
- Boise River nr Twin Springs ID
- SF Boise River nr Featherville ID
- Big Lost River at Howell Ranch ID
- Bruneau River nr Hot Springs ID
- Owyhee River nr Rome ID
- Salmon Falls Creek nr San Jacinto
- Teton River nr Driggs ID
- Snake River at Flagg Ranch WY