2017 Idaho Snowpack and Water Supply Outlook

NRCS - Idaho Snow Survey

Danny Tappa & Ron Abramovich
October Precipitation

1 month Precipitation
Percent of POR Average
October 1, 2016 through October 31, 2016

- ≥ 200%
- 175%
- 150%
- 125%
- 100%
- 75%
- 50%
- 25%
- ≤ 0%

Sites with less than 10 years of data or low variability excluded

Natural Resources Conservation Service
Created 3-08-2017, 11:37 AM MST
October Precipitation
Dec-Jan Precipitation
February Precipitation

[Map showing precipitation data for February 2017 in different regions of Idaho, with color-coded legend indicating percent of average precipitation.]
February SWE Change

Snow Water Equivalent Delta
March 1, 2017 minus February 1, 2017, first of day

- ≥ 18 in.
- 13.5 in.
- 9 in.
- 4.5 in.
- 0 in.
- -4.5 in.
- -9 in.
- -13.5 in.
- ≤ -18 in.

NRCS Natural Resources Conservation Service
Created 3-08-2017, 12:09 PM MST
March 1 Snowpack – 2017
March 1 Snowpack - 1986
### Idaho Snow Index Summary

#### As of March 1, 2017

<table>
<thead>
<tr>
<th>Number of SNOTEL Sites</th>
<th>Region or Basin</th>
<th>Snow Water Equivalent % of Median</th>
<th>Rank Since Complete Record Starts in 1961</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Boise</td>
<td>153</td>
<td>9th highest</td>
</tr>
<tr>
<td>4</td>
<td>Big Lost</td>
<td>180</td>
<td>4th highest behind 1965, 1969, 1997</td>
</tr>
<tr>
<td>5</td>
<td>Snake above Jackson</td>
<td>140</td>
<td>11th highest</td>
</tr>
<tr>
<td></td>
<td>Snake above Palisades Reservoir</td>
<td>201</td>
<td>8th highest</td>
</tr>
<tr>
<td>17</td>
<td>Oakley</td>
<td>137</td>
<td>9th highest</td>
</tr>
<tr>
<td>15</td>
<td>Bear River</td>
<td>173</td>
<td>3rd highest behind 1986, 1997</td>
</tr>
</tbody>
</table>
Spring and Summer Streamflow Forecasts as of March 1, 2017

Percent of 1981-2010 Average

- > 180%
- 150 - 179%
- 130 - 149%
- 110 - 129%
- 90 - 109%
- 70 - 89%
- 50 - 69%
- 25 - 49%
- < 25%

For forecasts at other exceedance probabilities, see individual state reports.

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

Water Supply Forecast
March 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%

Average Forecast
- 0 - 24%

Below Average
- 0 - 24%

No Data
- No Data

This map is prepared by the USDA-NRCS Idaho Snow Survey Office.
http://www.nrcs.usda.gov/wps/portal/ncc/mf/id/id assim/
## Idaho Surface Water Supply Index Ag Shortage & Surplus Thresholds

<table>
<thead>
<tr>
<th>Basin</th>
<th>Ag Shortage Threshold</th>
<th>Surplus Threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big Wood</td>
<td>275 KAF</td>
<td>350 KAF with 1,500 cfs release from the dam.</td>
</tr>
<tr>
<td>Boise Basin</td>
<td>1,500 KAF</td>
<td>2,200 KAF with a flow &gt; 6,000 cfs passing the Glenwood gage for more than 5 days and approaching 25 days is considered the surplus threshold.</td>
</tr>
<tr>
<td>Little Wood</td>
<td>50-60 KAF</td>
<td>70 KAF was determined as the surplus volume based on the reservoir capacity of 30.0 KAF and potential to fill the reservoir.</td>
</tr>
<tr>
<td>Owyhee</td>
<td>575 KAF</td>
<td>950 KAF with a flow greater than 1,800 cfs for 8 or more days meets the surplus threshold.</td>
</tr>
<tr>
<td>(updated value)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oakley</td>
<td>50 KAF</td>
<td>60 KAF was determined as the surplus volume based primarily on the reservoir capacity of 76.6 KAF and the ability to rent water when volumes are above 60 KAF.</td>
</tr>
<tr>
<td>Salmon Falls</td>
<td>110 KAF</td>
<td>180 KAF was determined as the surplus volume based primarily on reservoir capacity of 182.65 KAF and potential to fill the reservoir.</td>
</tr>
<tr>
<td>Payette</td>
<td>Shortages not common</td>
<td>1,400 KAF based primarily on 2015 total water supply.</td>
</tr>
</tbody>
</table>

**Not completed:** Snake at Heise, Teton, Big Lost, Little Lost, Bear
## Boise River Basin SWSI

**Adequate Water Supply Greater than -1.7 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>
</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 Units KAF</td>
</tr>
<tr>
<td>13201500</td>
<td>LUCKY PEAK</td>
<td>28-Feb</td>
<td>resv</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
</tr>
<tr>
<td>13194000</td>
<td>ARROWROCK</td>
<td>28-Feb</td>
<td>resv</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
</tr>
<tr>
<td>13190000</td>
<td>ANDERSON RANCH</td>
<td>28-Feb</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 28-Feb</th>
<th>Streamflow + Reservoir Sum</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017 10% Chance Exceedance Forecast</td>
<td>LA</td>
<td>2650</td>
<td>619</td>
<td>3269</td>
<td>98%</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1982</td>
<td>N</td>
<td>2460</td>
<td>663</td>
<td>3124</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>1983</td>
<td>SE</td>
<td>2495</td>
<td>617</td>
<td>3112</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td>2017 30% Chance Exceedance Forecast</td>
<td>LA</td>
<td>2460</td>
<td>619</td>
<td>3079</td>
<td>98%</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1997</td>
<td>N</td>
<td>2491</td>
<td>512</td>
<td>3003</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>2017 50% Chance Exceedance Forecast</td>
<td>LA</td>
<td>2340</td>
<td>619</td>
<td>2959</td>
<td>91%</td>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1996</td>
<td>N</td>
<td>2066</td>
<td>704</td>
<td>2770</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>1984</td>
<td>N</td>
<td>2161</td>
<td>526</td>
<td>2687</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>2011</td>
<td>SL</td>
<td>1965</td>
<td>691</td>
<td>2657</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>1986</td>
<td>N</td>
<td>1881</td>
<td>770</td>
<td>2651</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>2017 90% Chance Exceedance Forecast</td>
<td>LA</td>
<td>2020</td>
<td>619</td>
<td>2639</td>
<td>80%</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>2006</td>
<td>N</td>
<td>2162</td>
<td>433</td>
<td>2595</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>1999</td>
<td>SL</td>
<td>1838</td>
<td>721</td>
<td>2559</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>1998</td>
<td>SE</td>
<td>1701</td>
<td>798</td>
<td>2498</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>2012</td>
<td>LN</td>
<td>1611</td>
<td>755</td>
<td>2366</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>1995</td>
<td>SE</td>
<td>1887</td>
<td>365</td>
<td>2253</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>2009</td>
<td>N</td>
<td>1323</td>
<td>615</td>
<td>1938</td>
<td>65%</td>
<td>1.2</td>
</tr>
<tr>
<td>14</td>
<td>2000</td>
<td>N</td>
<td>1155</td>
<td>744</td>
<td>1898</td>
<td>62%</td>
<td>1.0</td>
</tr>
<tr>
<td>15</td>
<td>1993</td>
<td>EN</td>
<td>1656</td>
<td>232</td>
<td>1889</td>
<td>59%</td>
<td>0.8</td>
</tr>
<tr>
<td>16</td>
<td>2008</td>
<td>N</td>
<td>1382</td>
<td>491</td>
<td>1873</td>
<td>57%</td>
<td>0.6</td>
</tr>
</tbody>
</table>
Surplus Above 2,200 KAF

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.

Mar 1 Historic and Forecasted Surface Water Supply
Boise River Basin

StreamFlow Apr-Sep
Reservoir 28-Feb

Adequate Irrigation Supply Above 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>
</tr>
</thead>
<tbody>
<tr>
<td>13142500</td>
<td>Big Wood River below 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>28-Feb</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</th>
<th>Reservoir</th>
<th>Streamflow + Reservoir</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2017 10% Chance Exceedance Forecast</td>
<td>LA</td>
<td>865</td>
<td>99</td>
<td>964</td>
<td>98%</td>
<td>4.0</td>
</tr>
<tr>
<td>1</td>
<td>1983</td>
<td>SE</td>
<td>747</td>
<td>160</td>
<td>906</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>2017 30% Chance Exceedance Forecast</td>
<td>LA</td>
<td>775</td>
<td>99</td>
<td>874</td>
<td>96%</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>2017 50% Chance Exceedance Forecast</td>
<td>LA</td>
<td>715</td>
<td>99</td>
<td>814</td>
<td>96%</td>
<td>3.8</td>
</tr>
<tr>
<td></td>
<td>2017 70% Chance Exceedance Forecast</td>
<td>LA</td>
<td>650</td>
<td>99</td>
<td>749</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>N</td>
<td>636</td>
<td>62</td>
<td>699</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td></td>
<td>1982</td>
<td>N</td>
<td>621</td>
<td>74</td>
<td>696</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td>1997</td>
<td>N</td>
<td>605</td>
<td>78</td>
<td>683</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td>2017 90% Chance Exceedance Forecast</td>
<td>LA</td>
<td>565</td>
<td>99</td>
<td>664</td>
<td>88%</td>
<td>3.2</td>
</tr>
<tr>
<td>5</td>
<td>1984</td>
<td>N</td>
<td>545</td>
<td>119</td>
<td>664</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>1988</td>
<td>SE</td>
<td>427</td>
<td>163</td>
<td>590</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>1986</td>
<td>N</td>
<td>432</td>
<td>131</td>
<td>563</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>8</td>
<td>1999</td>
<td>SL</td>
<td>420</td>
<td>120</td>
<td>540</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>1995</td>
<td>SE</td>
<td>518</td>
<td>16</td>
<td>534</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>1996</td>
<td>N</td>
<td>351</td>
<td>127</td>
<td>478</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>2011</td>
<td>SL</td>
<td>322</td>
<td>91</td>
<td>412</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>1985</td>
<td>N</td>
<td>242</td>
<td>149</td>
<td>391</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>1993</td>
<td>EN</td>
<td>355</td>
<td>14</td>
<td>369</td>
<td>65%</td>
<td>1.2</td>
</tr>
<tr>
<td>14</td>
<td>2012</td>
<td>LN</td>
<td>238</td>
<td>128</td>
<td>365</td>
<td>62%</td>
<td>1.0</td>
</tr>
<tr>
<td>15</td>
<td>1981</td>
<td>N</td>
<td>153</td>
<td>126</td>
<td>279</td>
<td>59%</td>
<td>0.8</td>
</tr>
<tr>
<td>16</td>
<td>2000</td>
<td>N</td>
<td>165</td>
<td>111</td>
<td>277</td>
<td>57%</td>
<td>0.6</td>
</tr>
<tr>
<td>17</td>
<td>2010</td>
<td>EN</td>
<td>167</td>
<td>83</td>
<td>250</td>
<td>54%</td>
<td>0.3</td>
</tr>
</tbody>
</table>

**Surplus above 350 KAF**
Big Wood
350 KAF with 1,500 cfs release from the dam.
Magic Reservoir Operating Guide
Blaine County, Idaho

Table 2A. April–July Forecast Status Level Determination

This flow chart shows the relationship between the percent of average for the April–July streamflow forecasts and forecast status level. Use this chart with the Big Wood River below Magic Dam and Camas Creek (April–July) streamflow forecasts.

- Big Wood below Magic Dam forecast >260%?
  - Yes: STATUS LEVEL 1
  - No: 
    - Camas Creek Forecast >260%?
      - Yes: STATUS LEVEL 2
      - No: Status LEVEL 3
    - Camas Creek Forecast 250–260%?
      - Yes: 
        - Big Wood below Magic Dam forecast 160–250%?
          - Yes: Status LEVEL 3
          - No: Status LEVEL 2
        - No: Status LEVEL 3
      - No: Status LEVEL 2
    - No: Status LEVEL 3
### Big Lost 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>13127000</td>
<td>Big Lost R b/w Mackay Reservoir</td>
<td>Apr-Sep</td>
<td>strm</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
</tr>
<tr>
<td>13126000</td>
<td>Mackay Reservoir</td>
<td>28-Feb</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 28-Feb</th>
<th>Streamflow + Reservoir Sum</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>357</td>
<td>688</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>1983</td>
<td>SE</td>
<td>296</td>
<td>351</td>
<td>647</td>
<td>96%</td>
<td>3.8</td>
</tr>
<tr>
<td>3</td>
<td>1982</td>
<td>N</td>
<td>312</td>
<td>303</td>
<td>615</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>1995</td>
<td>SE</td>
<td>351</td>
<td>294</td>
<td>645</td>
<td>89%</td>
<td>3.3</td>
</tr>
</tbody>
</table>

**Adequate Supply above 180 KAF**

- Adequate Water Supply Greater than 0.8 SWSI or 180 KAF.
Mar 1 Historic and Forecasted Surface Water Supply
Big Lost River Basin

Water Supply (1000 Acre-Feet)

- StreamFlow Apr-Sep
- Reservoir 28-Feb

Years

Adequate Irrigation Supply Above 180 KAF
Big Lost 2 station mid-elevation snow index Copper Basin & Dry Fork is the 3rd highest for 1961-2017 period

<table>
<thead>
<tr>
<th>Date</th>
<th>Year</th>
<th>SWE-Sum</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 1st Half</td>
<td>1969</td>
<td>43.8</td>
<td>245%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1965</td>
<td>39.5</td>
<td>221%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>2017</td>
<td>36.9</td>
<td>206%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1983</td>
<td>33.8</td>
<td>189%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1967</td>
<td>33.3</td>
<td>186%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1999</td>
<td>33.0</td>
<td>184%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1997</td>
<td>32.5</td>
<td>182%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1986</td>
<td>30.9</td>
<td>173%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1971</td>
<td>30.1</td>
<td>168%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1978</td>
<td>26.9</td>
<td>150%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1993</td>
<td>26.0</td>
<td>145%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1972</td>
<td>25.5</td>
<td>142%</td>
</tr>
<tr>
<td>Mar 1st Half</td>
<td>1974</td>
<td>24.2</td>
<td>135%</td>
</tr>
</tbody>
</table>
Releases are being made from Mackay Reservoir and will increase as soon as the Big Lost channel reaches Arco.
<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Enso</th>
<th>Stream Flow Apr-Sep</th>
<th>Reservoir 28-Feb</th>
<th>Streamflow + Reservoir Sum</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1997</td>
<td>N</td>
<td>7009</td>
<td>1507</td>
<td>8516</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>2011</td>
<td>SL</td>
<td>6343</td>
<td>1532</td>
<td>7876</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td>3</td>
<td>1996</td>
<td>N</td>
<td>5584</td>
<td>1862</td>
<td>7446</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>1986</td>
<td>N</td>
<td>6054</td>
<td>1317</td>
<td>7371</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>1982</td>
<td>N</td>
<td>5772</td>
<td>1405</td>
<td>7177</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>1983</td>
<td>SE</td>
<td>5008</td>
<td>1772</td>
<td>6780</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>1984</td>
<td>N</td>
<td>5046</td>
<td>1687</td>
<td>6733</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>8</td>
<td>1999</td>
<td>SL</td>
<td>4947</td>
<td>1662</td>
<td>6609</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>1998</td>
<td>SE</td>
<td>4495</td>
<td>1853</td>
<td>6348</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>2009</td>
<td>N</td>
<td>4610</td>
<td>1649</td>
<td>6259</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>1995</td>
<td>SE</td>
<td>4442</td>
<td>918</td>
<td>5360</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>2014</td>
<td>N</td>
<td>4594</td>
<td>760</td>
<td>5354</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>2006</td>
<td>N</td>
<td>4076</td>
<td>1267</td>
<td>5343</td>
<td>65%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**Estimated Surplus above 6,800 KAF based on flow > 21,000 @ Blackfoot**

**ENSIO Classification**
- SE Strong El Nino
- EN Mild El Nino
- N Neutral
- LN Mild La Nina
- SL Strong La Nina
Mar 1 Historic and Forecasted Surface Water Supply
Snake River Near Heise

Estimated Surplus above 6,800 KAF based on flow > 21,000 @ Blackfoot

Adequate Irrigation Supply Above 4,400 KAF
Mar 1 Historic and Forecasted Surface Water Supply
Bear River Basin

Water Supply (1000 Acre-Feet)

<table>
<thead>
<tr>
<th>Years</th>
<th>StreamFlow Apr-Sep</th>
<th>Reservoir 28-Feb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1981</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1983</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1984</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017 - 10%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017 - 90%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017 - 50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017 - 30%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Adequate Irrigation Supply Above 280 KAF
## Oakley Basin SWSI

Adequate Water Supply Greater than 0.1 SWSI or 50 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>
</tr>
</thead>
<tbody>
<tr>
<td>13083500</td>
<td>Oakley Reservoir Inflow</td>
<td>Mar-Sep</td>
<td>strm</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
</tr>
<tr>
<td>13083500</td>
<td>Oakley Reservoir</td>
<td>28-Feb</td>
<td>reserv</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

### Streamflow and Reservoir Exceedance

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>Enso</th>
<th>Stream Flow</th>
<th>Reservoir</th>
<th>Streamflow + Reservoir</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1984</td>
<td>N</td>
<td>102</td>
<td>45</td>
<td>148</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td>2</td>
<td>1986</td>
<td>N</td>
<td>55</td>
<td>44</td>
<td>99</td>
<td>95%</td>
<td>3.7</td>
</tr>
<tr>
<td>3</td>
<td>1998</td>
<td>SE</td>
<td>46</td>
<td>44</td>
<td>90</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td>4</td>
<td>2006</td>
<td>N</td>
<td>54</td>
<td>34</td>
<td>88</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td>5</td>
<td>1983</td>
<td>SE</td>
<td>53</td>
<td>31</td>
<td>84</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td>6</td>
<td>1999</td>
<td>SL</td>
<td>39</td>
<td>45</td>
<td>84</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td>7</td>
<td>1985</td>
<td>N</td>
<td>35</td>
<td>44</td>
<td>79</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td>8</td>
<td>1997</td>
<td>N</td>
<td>46</td>
<td>33</td>
<td>79</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td>9</td>
<td>2011</td>
<td>SL</td>
<td>52</td>
<td>22</td>
<td>74</td>
<td>76%</td>
<td>2.1</td>
</tr>
<tr>
<td>10</td>
<td>1996</td>
<td>N</td>
<td>37</td>
<td>27</td>
<td>64</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td>11</td>
<td>2007</td>
<td>EN</td>
<td>18</td>
<td>43</td>
<td>61</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td>12</td>
<td>1982</td>
<td>N</td>
<td>43</td>
<td>17</td>
<td>60</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td>13</td>
<td>2000</td>
<td>N</td>
<td>18</td>
<td>40</td>
<td>57</td>
<td>65%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### SWSI Values

- SE: Strong El Nino
- EN: Moderate El Nino
- N: Neutral
- LN: Moderate La Nina
- SL: Strong La Nina
Oakley Reservoir
End of Month Storage Projection

Note: reservoir 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.
### Salmon Falls Creek Basin SWSI

**Adequate Water Supply Greater than -0.8 SWSI or 110 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>ENSO Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>13105000</td>
<td>Salmon Falls Creek nr San Jacinto</td>
<td>Mar-Sep</td>
<td>strm</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
<td>Strong El Nino - EN Mild El Nino - N Neutral - LN Mild La Nina - SL Strong La Nina</td>
</tr>
<tr>
<td>13106500</td>
<td>Salmon Falls Reservoir</td>
<td>28-Feb</td>
<td>resv</td>
<td>1981-2016</td>
<td>36 Units KAF</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rank</th>
<th>Year</th>
<th>ENSO</th>
<th>Allotment (per share)</th>
<th>Streamflow Mar-Sep</th>
<th>Reservoir 28-Feb</th>
<th>Streamflow + Reservoir Sum</th>
<th>Non-Exceedance Probability</th>
<th>SWSI</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1984</td>
<td>N</td>
<td>1.167</td>
<td>288</td>
<td>82</td>
<td>370</td>
<td>97%</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>270</td>
<td>96%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1985</td>
<td>N</td>
<td>1.167</td>
<td>143</td>
<td>81</td>
<td>242</td>
<td>96%</td>
<td>3.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>234</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1986</td>
<td>N</td>
<td>1.167</td>
<td>116</td>
<td>108</td>
<td>224</td>
<td>92%</td>
<td>3.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>224</td>
<td>92%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2011</td>
<td>SL</td>
<td>1.167</td>
<td>164</td>
<td>49</td>
<td>214</td>
<td>89%</td>
<td>3.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>214</td>
<td>89%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1997</td>
<td>N</td>
<td>1.167</td>
<td>132</td>
<td>60</td>
<td>192</td>
<td>86%</td>
<td>3.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>192</td>
<td>86%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2006</td>
<td>N</td>
<td>1.167</td>
<td>143</td>
<td>46</td>
<td>190</td>
<td>84%</td>
<td>2.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>190</td>
<td>84%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1998</td>
<td>SE</td>
<td>1.167</td>
<td>113</td>
<td>76</td>
<td>189</td>
<td>81%</td>
<td>2.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>189</td>
<td>81%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1999</td>
<td>SE</td>
<td>1.167</td>
<td>102</td>
<td>81</td>
<td>183</td>
<td>80%</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>183</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>2006</td>
<td>N</td>
<td>1.167</td>
<td>135</td>
<td>47</td>
<td>182</td>
<td>78%</td>
<td>2.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>182</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1996</td>
<td>N</td>
<td>1.167</td>
<td>107</td>
<td>59</td>
<td>165</td>
<td>73%</td>
<td>1.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>165</td>
<td>73%</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1982</td>
<td>N</td>
<td>1.167</td>
<td>117</td>
<td>24</td>
<td>140</td>
<td>70%</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>140</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1995</td>
<td>SE</td>
<td>1.000</td>
<td>115</td>
<td>25</td>
<td>140</td>
<td>68%</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>140</td>
<td>68%</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>2016</td>
<td>SE</td>
<td>1.000</td>
<td>109</td>
<td>26</td>
<td>135</td>
<td>65%</td>
<td>1.2</td>
</tr>
</tbody>
</table>

**Surplus above 180 KAF**
Owyhee River has an increase or the snowmelt peak occurs when Mud Flat SNOTEL site is about 30% melted.