California Water Supply Outlook Report  
April 1, 2021

Rubicon #1 Snow Course (Elevation 8,100 ft)

March 26, 2020  
Measured Snow Depth: 103 inches  
Snow Water Equivalent: 29.7 inches  

Photo Courtesy Evan T. Smith

March 29, 2021  
Measured Snow Depth: 92 inches  
Snow Water Equivalent: 31.5 inches  

From left to right: Valerie Bullard, Caleb Griffin and Cody Mortell  
Photo Courtesy Jeff Anderson

Visit the USDA-NRCS National Water and Climate Center page at https://www.wcc.nrcs.usda.gov/ for climate monitoring data, water supply forecasts, and more.

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State of California General Outlook  
April 1, 2021

SUMMARY
Statewide, snowpack snow water content in March increased by 1.4 inches to 16.5 inches or 59 percent of the April 1st average. Cold storms that have impacted the state have resulted in a comparatively heavy snowpack at lower elevations (California-Nevada Climate Applications Program in DWR Bulletin 120). Precipitation totals for the Northern Sierra-, San Joaquin-, and Tulare Basin regions were all below average in March, particularly in the south where the season-to-date (Oct-Mar) total ranks as the second driest in the historical record. Total reservoir storage continues to be lower overall at the end of March compared to one year ago.

SNOWPACK
In March, the daily average snowpack in the Northern Sierras/Trinity Mountains region peaked during the fourth week at 72 percent, dropping to 66 percent by April 1st. Snowpack in the Central Sierras hit a peak of 69 percent of its daily average a few days earlier, and then plateaued for about a week before declining to finish out the month with 63 percent of the April 1st average. Around the same time, snowpack in the Southern Sierras peaked and then plateaued at 46 percent of the daily average, before finishing the month with 42 percent of its April 1st average.

More information is available online at http://cdec.water.ca.gov/snow/current/snow/index2.html.

PRECIPITATION
The Northern Sierra Index Stations and the San Joaquin Index Stations both received 56-57 percent of their average precipitation in March, bringing the seasonal (October through March) totals for both regions to just over 50 percent of normal. March- and seasonal precipitation totals for the Tulare Basin Index Stations were 36- and 39 percent of normal, respectively.

More information is available online at http://cdec.water.ca.gov/snow_rain.html

RESERVOIRS
Total reservoir storage (excluding Lake Powell and Lake Mead) on March 31st was 73 percent of average, compared to 77 percent at the end of last month, and 97 percent of average at the end of March 2020. Storage at Shasta Reservoir was 65 percent of average at the end March, compared to 98 percent of average at the end of March 2020.

More information is available online at http://cdec.water.ca.gov/snow/reservoir_ss.html

STREAMFLOW
Forecasts for all regions anticipate below average streamflows in the coming months, with most of the estimates revised downward from last month’s forecasts. National Weather Service (NWS)- and DWR forecasts in the Sacramento, San Joaquin, and Tulare basins range between 14- and 70 percent of average between April and July, with particularly low forecasts in the Tulare Basin. NRCS forecasts in the Tahoe, Truckee, Carson, and Walker River basins range between 17- and 54 percent of average between April and July (or August). NRCS forecasts for stations in the Klamath Basin (April through September) and NWS and DWR forecasts for sites in the North Coast region (April through July) range between 17- and 58 percent of average. Summaries are provided below.
Sacramento River Basin

Most of the 13 National Weather Service’s (NWS) streamflow forecasts in the Sacramento River Basin were revised downward from the March 1 forecasts, to between 34- and 60 percent of average between April and July (APR-JUL). All but two of the 14 California Department of Water Resources’ (DWR) APR-JUL streamflow forecasts remained unchanged or were revised slightly downward, to between 59- and 70 percent of average.

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>% AVG.</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg² (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sacramento R at Shasta (DWR)</td>
<td>APR-JUL</td>
<td>190</td>
<td>64%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>295</td>
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<tr>
<td>Sacramento R at Shasta (NWS)</td>
<td>APR-JUL</td>
<td>87</td>
<td>97</td>
<td>105</td>
<td>34%</td>
<td>176</td>
<td>193</td>
<td>312</td>
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<tr>
<td>McCloud R at Shasta (DWR)</td>
<td>APR-JUL</td>
<td>270</td>
<td>70%</td>
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<td></td>
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<td>385</td>
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<tr>
<td>McCloud R at Shasta (NWS)</td>
<td>APR-JUL</td>
<td>189</td>
<td>192</td>
<td>198</td>
<td>52%</td>
<td>239</td>
<td>255</td>
<td>379</td>
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<tr>
<td>Pit R at Shasta Lk (DWR)</td>
<td>APR-JUL</td>
<td>700</td>
<td>69%</td>
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<td>Pit R at Shasta Lk (NWS)</td>
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<td>478</td>
<td>486</td>
<td>501</td>
<td>49%</td>
<td>531</td>
<td>609</td>
<td>1013</td>
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<tr>
<td>Inflow to Shasta Lk (DWR)</td>
<td>OCT-SEP</td>
<td>1210</td>
<td>1520</td>
<td>60%</td>
<td>241</td>
<td>1930</td>
<td>5831</td>
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<tr>
<td>Inflow to Shasta Lk (NWS)</td>
<td>APR-JUL</td>
<td>990</td>
<td>1190</td>
<td>68%</td>
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<td>1460</td>
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<td>Sacramento R nr Red Bluff (DWR)</td>
<td>OCT-SEP</td>
<td>3575</td>
<td>3970</td>
<td>46%</td>
<td></td>
<td>4490</td>
<td>1930</td>
<td>8544</td>
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<tr>
<td>Sacramento R nr Red Bluff (NWS)</td>
<td>APR-JUL</td>
<td>1210</td>
<td>1520</td>
<td>63%</td>
<td></td>
<td>1930</td>
<td>2421</td>
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<tr>
<td>Feather R at Lk Almanor (DWR)</td>
<td>APR-JUL</td>
<td>1115</td>
<td>1155</td>
<td>1192</td>
<td>48%</td>
<td>1502</td>
<td>1716</td>
<td>2479</td>
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<tr>
<td>NF Feather R at Pulga (DWR)</td>
<td>APR-JUL</td>
<td>145</td>
<td>60%</td>
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<td>241</td>
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<tr>
<td>NF Feather R nr Prattville (NWS)</td>
<td>APR-JUL</td>
<td>500</td>
<td>59%</td>
<td></td>
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</table>

1) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
2) Averages reported by NWS- and DWR are based on 1981-2010 and 1981-2015 reference periods, respectively
3) KAF = Thousand acre-feet
## Sacramento River Basin cont’d

### SACRAMENTO RIVER BASIN Streamflow Forecasts – April 1, 2021

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF) (% AVG.)</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg2 (KAF)</th>
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<tbody>
<tr>
<td>Inflow to Oroville Res (DWR)</td>
<td>OCT-SEP</td>
<td>1565</td>
<td>1980</td>
<td>45%</td>
<td>2395</td>
<td>4407</td>
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<tr>
<td></td>
<td>APR-JUL</td>
<td>660</td>
<td>1020</td>
<td>60%</td>
<td>1380</td>
<td>1704</td>
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<tr>
<td>Inflow to Oroville Res (NWS)</td>
<td>APR-JUL</td>
<td>558</td>
<td>587</td>
<td>641</td>
<td>38%</td>
<td>844</td>
<td>1052</td>
</tr>
<tr>
<td>N Yuba R bl Goodyears Bar (DWR)</td>
<td>APR-JUL</td>
<td>170</td>
<td>63%</td>
<td>271</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N Yuba R bl Goodyears Bar (NWS)</td>
<td>APR-JUL</td>
<td>89</td>
<td>94</td>
<td>106</td>
<td>39%</td>
<td>154</td>
<td>186</td>
</tr>
<tr>
<td>Canyon Creek below Bowman Lake (DWR)</td>
<td>APR-JUL</td>
<td>63</td>
<td>61%</td>
<td>103</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S Yuba R nr Langs Crossing (DWR)</td>
<td>APR-JUL</td>
<td>145</td>
<td>61%</td>
<td>237</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yuba R at Smartville (DWR)</td>
<td>OCT-SEP</td>
<td>685</td>
<td>935</td>
<td>41%</td>
<td>1185</td>
<td>2268</td>
<td></td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>360</td>
<td>600</td>
<td>62%</td>
<td>840</td>
<td>968</td>
<td></td>
</tr>
<tr>
<td>Yuba R at Smartville (NWS)</td>
<td>APR-JUL</td>
<td>353</td>
<td>388</td>
<td>418</td>
<td>43%</td>
<td>567</td>
<td>665</td>
</tr>
<tr>
<td>NF American R at N FK Dam (DWR)</td>
<td>APR-JUL</td>
<td>150</td>
<td>63%</td>
<td>240</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MF American R nr Auburn (NWS)</td>
<td>APR-JUL</td>
<td>228</td>
<td>251</td>
<td>274</td>
<td>56%</td>
<td>326</td>
<td>391</td>
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<tr>
<td>Inflow to Union Valley Res (NWS)</td>
<td>APR-JUL</td>
<td>42</td>
<td>47</td>
<td>52</td>
<td>53%</td>
<td>65</td>
<td>73</td>
</tr>
<tr>
<td>Silver Ck bl Camino Div. Dam (DWR)</td>
<td>APR-JUL</td>
<td>95</td>
<td>61%</td>
<td>157</td>
<td></td>
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</tr>
<tr>
<td>Silver Ck bl Camino Div. Dam (NWS)</td>
<td>APR-JUL</td>
<td>77</td>
<td>84</td>
<td>94</td>
<td>60%</td>
<td>117</td>
<td>130</td>
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<tr>
<td>Inflow to Folsom Res (DWR)</td>
<td>OCT-SEP</td>
<td>885</td>
<td>1100</td>
<td>42%</td>
<td>1405</td>
<td>2626</td>
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</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>530</td>
<td>740</td>
<td>62%</td>
<td>1040</td>
<td>1199</td>
<td></td>
</tr>
<tr>
<td>Inflow to Folsom Res (NWS)</td>
<td>APR-JUL</td>
<td>453</td>
<td>503</td>
<td>549</td>
<td>45%</td>
<td>669</td>
<td>844</td>
</tr>
</tbody>
</table>

1) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
2) Averages reported by NWS- and DWR are based on 1981-2010 and 1981-2015 reference periods, respectively
3) KAF = Thousand acre-feet
National Weather Service (NWS) streamflow forecasts at all eight sites in the San Joaquin River Basin were revised downward from the March 1 forecasts, to between 28- and 58 percent of average between April and July (APR-JUL). California Department of Water Resources (DWR) APR-JUL streamflow forecasts at all 13 sites in the basin were also revised downward, to between 38- and 57 percent of average.

### SAN JOAQUIN RIVER BASIN Streamflow Forecasts¹ - April 1, 2021

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF³)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg² (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cosumnes R at Michigan Bar (DWR)</td>
<td>OCT-SEP</td>
<td>85</td>
<td>108</td>
<td>28%</td>
<td>145</td>
<td>379</td>
<td></td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>35</td>
<td>55</td>
<td>44%</td>
<td>90</td>
<td>125</td>
<td></td>
</tr>
<tr>
<td>Cosumnes R at Michigan Bar (NWS)</td>
<td>APR-JUL</td>
<td>27</td>
<td>30</td>
<td>36</td>
<td>48</td>
<td>64</td>
<td>128</td>
</tr>
<tr>
<td>South Fork near West Point (DWR)</td>
<td>APR-JUL</td>
<td>23</td>
<td>57%</td>
<td>40</td>
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<td></td>
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<tr>
<td>Inflow to Pardee Res (DWR)</td>
<td>OCT-SEP</td>
<td>230</td>
<td>325</td>
<td>43%</td>
<td>430</td>
<td>748</td>
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</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>170</td>
<td>260</td>
<td>57%</td>
<td>360</td>
<td>457</td>
<td></td>
</tr>
<tr>
<td>Inflow to Pardee Res (NWS)</td>
<td>APR-JUL</td>
<td>133</td>
<td>160</td>
<td>174</td>
<td>216</td>
<td>263</td>
<td>467</td>
</tr>
<tr>
<td>MF Stanislaus R bl Beardsley (DWR)</td>
<td>APR-JUL</td>
<td>160</td>
<td>54%</td>
<td>297</td>
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<td></td>
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<tr>
<td>Inflow to New Melones Res (DWR)</td>
<td>OCT-SEP</td>
<td>355</td>
<td>485</td>
<td>42%</td>
<td>680</td>
<td>1149</td>
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</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>230</td>
<td>360</td>
<td>53%</td>
<td>550</td>
<td>682</td>
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<tr>
<td>Inflow to New Melones Res (NWS)</td>
<td>APR-JUL</td>
<td>254</td>
<td>273</td>
<td>305</td>
<td>382</td>
<td>419</td>
<td>690</td>
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<tr>
<td>Cherry Creek below Dion Power Plant (DWR)</td>
<td>APR-JUL</td>
<td>170</td>
<td>54%</td>
<td>317</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Tuolumne R nr Hetch Hetchy (DWR)</td>
<td>APR-JUL</td>
<td>320</td>
<td>55%</td>
<td>587</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuolumne R nr Hetch Hetchy (NWS)</td>
<td>APR-JUL</td>
<td>295</td>
<td>312</td>
<td>347</td>
<td>58%</td>
<td>392</td>
<td>432</td>
</tr>
</tbody>
</table>

¹) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
²) Averages reported by NWS- and DWR are based on 1981-2010 and 1981-2015 reference periods, respectively
³) KAF = Thousand acre-feet
### SAN JOAQUIN RIVER BASIN
Streamflow Forecasts - April 1, 2021

#### Forecast Exceedance Probabilities for Risk Assessment

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF) (% AVG.)</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg&lt;sup&gt;2&lt;/sup&gt; (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflow to New Don Pedro Res (DWR)</td>
<td>OCT-SEP</td>
<td>620</td>
<td>805</td>
<td>42%</td>
<td>1105</td>
<td>1909</td>
<td></td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>470</td>
<td>650</td>
<td>54%</td>
<td>940</td>
<td>1193</td>
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<tr>
<td>Inflow to New Don Pedro Res (NWS)</td>
<td>APR-JUL</td>
<td>515</td>
<td>553</td>
<td>618</td>
<td>728</td>
<td>801</td>
<td>1228</td>
</tr>
<tr>
<td>Merced R, Pohono Bridge Yosemite (DWR)</td>
<td>APR-JUL</td>
<td>175</td>
<td>223</td>
<td>58%</td>
<td>250</td>
<td>281</td>
<td>384</td>
</tr>
<tr>
<td>Merced R, Pohono Bridge Yosemite (NWS)</td>
<td>APR-JUL</td>
<td>193</td>
<td>205</td>
<td>618</td>
<td>728</td>
<td>801</td>
<td>1228</td>
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<tr>
<td>Inflow to Lake McClure (NWS)</td>
<td>APR-JUL</td>
<td>252</td>
<td>267</td>
<td>296</td>
<td>328</td>
<td>380</td>
<td>642</td>
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<td>Merced River below Merced Falls (DWR)</td>
<td>OCT-SEP</td>
<td>255</td>
<td>370</td>
<td>37%</td>
<td>535</td>
<td>992</td>
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<tr>
<td></td>
<td>APR-JUL</td>
<td>190</td>
<td>300</td>
<td>48%</td>
<td>460</td>
<td>623</td>
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<tr>
<td>Big Ck bl Huntingon Lk (DWR)</td>
<td>APR-JUL</td>
<td>38</td>
<td>39%</td>
<td>97</td>
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<tr>
<td>SF San Joaquin R nr Florence Lk (DWR)</td>
<td>APR-JUL</td>
<td>72</td>
<td>38%</td>
<td>188</td>
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<td>Inflow to Millerton Lk (DWR)</td>
<td>OCT-SEP</td>
<td>430</td>
<td>640</td>
<td>36%</td>
<td>880</td>
<td>1793</td>
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<tr>
<td></td>
<td>APR-JUL</td>
<td>270</td>
<td>470</td>
<td>38%</td>
<td>700</td>
<td>1228</td>
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<tr>
<td>Inflow to Millerton Lk (NWS)</td>
<td>APR-JUL</td>
<td>383</td>
<td>417</td>
<td>478</td>
<td>574</td>
<td>679</td>
<td>1258</td>
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</table>

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2) Averages reported by NWS- and DWR are based on 1981-2010 and 1981-2015 reference periods, respectively
3) KAF = Thousand acre-feet
National Weather Service (NWS) streamflow forecasts at all four sites in the Tulare Lake Basin were revised downward from the March 1 forecasts, to between 14- and 33 percent of average between April and July (APR-JUL). California Department of Water Resources’ (DWR) APR-JUL streamflow forecasts at all six sites in the basin were also revised downward, to between 14- and 33 percent of average.

### Tulare Lake Basin Streamflow Forecasts - April 1, 2021

**Forecast Exceedance Probabilities for Risk Assessment**

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>% AVG.</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg² (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kings River below Dinkey Creek (DWR)</td>
<td>APR-JUL</td>
<td>130</td>
<td></td>
<td>33%</td>
<td></td>
<td>705</td>
<td></td>
<td>1702</td>
</tr>
<tr>
<td>Inflow to Pine Flat Res (DWR)</td>
<td>OCT-SEP</td>
<td>335</td>
<td>513</td>
<td>30%</td>
<td>705</td>
<td></td>
<td></td>
<td>1702</td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>230</td>
<td>400</td>
<td>33%</td>
<td>580</td>
<td></td>
<td></td>
<td>1210</td>
</tr>
<tr>
<td>Inflow to Pine Flat Res (NWS)</td>
<td>APR-JUL</td>
<td>339</td>
<td>364</td>
<td>409</td>
<td>457</td>
<td>540</td>
<td></td>
<td>1231</td>
</tr>
<tr>
<td>Kaweah R at Terminus Res (DWR)</td>
<td>OCT-SEP</td>
<td>60</td>
<td>110</td>
<td>24%</td>
<td>165</td>
<td></td>
<td></td>
<td>451</td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>35</td>
<td>80</td>
<td>28%</td>
<td>130</td>
<td></td>
<td></td>
<td>285</td>
</tr>
<tr>
<td>Kaweah R at Terminus Res (NWS)</td>
<td>APR-JUL</td>
<td>38</td>
<td>40</td>
<td>47</td>
<td>61</td>
<td>76</td>
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<td>288</td>
</tr>
<tr>
<td>Tule R at Success Res (DWR)</td>
<td>OCT-SEP</td>
<td>15</td>
<td>25</td>
<td>17%</td>
<td>45</td>
<td></td>
<td></td>
<td>147</td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>3</td>
<td>9</td>
<td>14%</td>
<td>25</td>
<td></td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>Tule R at Success Res (NWS)</td>
<td>APR-JUL</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>11</td>
<td>15</td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>Kern R nr Kernville (DWR)</td>
<td>APR-JUL</td>
<td></td>
<td></td>
<td></td>
<td>90</td>
<td>24%</td>
<td></td>
<td>379</td>
</tr>
<tr>
<td>Inflow to Isabella Res (DWR)</td>
<td>OCT-SEP</td>
<td>145</td>
<td>205</td>
<td>28%</td>
<td>290</td>
<td></td>
<td></td>
<td>728</td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>60</td>
<td>110</td>
<td>24%</td>
<td>180</td>
<td></td>
<td></td>
<td>458</td>
</tr>
<tr>
<td>Inflow to Isabella Res (NWS)</td>
<td>APR-JUL</td>
<td>65</td>
<td>71</td>
<td>83</td>
<td>105</td>
<td>125</td>
<td></td>
<td>454</td>
</tr>
</tbody>
</table>

1) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
2) Averages reported by NWS- and DWR are based on 1981-2010 and 1966-2015 reference periods, respectively
3) KAF = Thousand acre-feet
North Coastal Area Basin

National Weather Service (NWS) streamflow forecasts at both sites in the North Coast Basin were revised downward from the March 1 forecasts, to 17- and 24 percent of average between April and July (APR-JUL). The California Department of Water Resources’ (DWR) APR-JUL streamflow forecast on the Trinity River was increased slightly, from 53- to 55 percent of the 30-year average.

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trinity R at Lewiston (DWR)</td>
<td>OCT-SEP</td>
<td>415</td>
<td>530</td>
<td>39%</td>
<td>685</td>
<td>1348</td>
<td></td>
</tr>
<tr>
<td></td>
<td>APR-JUL</td>
<td>240</td>
<td>350</td>
<td>55%</td>
<td>500</td>
<td>639</td>
<td></td>
</tr>
<tr>
<td>Inflow to Clair Engle Lk (NWS)</td>
<td>APR-JUL</td>
<td>124</td>
<td>142</td>
<td>157</td>
<td>241</td>
<td>328</td>
<td>666</td>
</tr>
<tr>
<td>Scott R nr Fort Jones (NWS)</td>
<td>APR-JUL</td>
<td>19</td>
<td>25</td>
<td>29</td>
<td>46</td>
<td>70</td>
<td>173</td>
</tr>
</tbody>
</table>

1) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
2) Averages reported by NWS- and DWR are based on 1981-2010 and 1966-2015 reference periods, respectively
3) KAF = Thousand acre-feet
As of April 1, the basin snowpack was 89 percent of normal. This is similar to last month when the basin snowpack was 84 percent of normal.

March precipitation was 44 percent of average. Precipitation since the beginning of the water year (October 1 - April 1) has been 70 percent of average.

Reservoir storage across the basin is currently well below average. As of April 1, storage at major reservoirs in the basin ranges from 46 percent of average at Gerber Reservoir to 80 percent of average at Upper Klamath Lake.

The April through September streamflow forecasts in the basin have been revised downward, to between 21- to 58 percent of average.
### Klamath Basin (cont’d)

#### KLAMATH BASIN Streamflow Forecasts¹ - April 1, 2021

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF³)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg² (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gerber Resv Inflow</td>
<td>APR-JUL</td>
<td>10.6</td>
<td>-2.5</td>
<td>3</td>
<td>21%</td>
<td>8.5</td>
<td>16.6</td>
</tr>
<tr>
<td></td>
<td>APR-SEP</td>
<td>10.6</td>
<td>-2.5</td>
<td>3</td>
<td>21%</td>
<td>8.6</td>
<td>16.7</td>
</tr>
<tr>
<td>Sprague R nr Chiloquin</td>
<td>APR-JUL</td>
<td>23</td>
<td>51</td>
<td>70</td>
<td>37%</td>
<td>89</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td>APR-SEP</td>
<td>38</td>
<td>66</td>
<td>86</td>
<td>41%</td>
<td>105</td>
<td>134</td>
</tr>
<tr>
<td>Williamson R bl Sprague R nr Chiloquin</td>
<td>APR-JUL</td>
<td>96</td>
<td>129</td>
<td>152</td>
<td>52%</td>
<td>175</td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>APR-SEP</td>
<td>143</td>
<td>179</td>
<td>205</td>
<td>58%</td>
<td>225</td>
<td>265</td>
</tr>
<tr>
<td>Upper Klamath Lake Inflow⁴</td>
<td>APR-SEP</td>
<td>125</td>
<td>205</td>
<td>240</td>
<td>52%</td>
<td>275</td>
<td>355</td>
</tr>
</tbody>
</table>

1) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
2) Averages are based on 1981-2010 reference period.
3) KAF = Thousand acre-feet
4) 90% and 10% exceedance probabilities are actually 95% and 5%
Lake Tahoe Basin


Snowpack in the Lake Tahoe Basin is much below normal at 67 percent of median, compared to 71 percent last year. Precipitation in March was much below average, which brings the seasonal accumulation (Oct-Mar) to 57 percent of average. Soil moisture is at 58 percent saturation, the same as last year at this time. Lake Tahoe's water elevation is 6225.41 ft, which is 2.41 ft above the lake's natural rim and equals a storage of 292.9 thousand acre-feet. Last year its elevation was 6227.47 ft which equaled a storage of 544.3 thousand acre-feet. Lake Tahoe is forecast to rise 0.5 feet from April 1 to its highest elevation (which only 38 percent of the 30-year average) and is unlikely to completely fill this year.
### Lake Tahoe Basin (cont’d)

**LAKE TAHOE BASIN**

Streamflow Forecasts — April 1, 2021

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Exceedance Probabilities for Risk Assessment</th>
<th>Chance that actual volume will exceed forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>90% (KAF)</td>
<td>70% (KAF)</td>
</tr>
<tr>
<td><strong>Forecast Period</strong></td>
<td><strong>( % AVG.)</strong></td>
<td><strong>( % AVG.)</strong></td>
</tr>
<tr>
<td>Marlette Lk Inflow (Acre-ft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APR-JUL</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>MAY-JUL</td>
<td>-30</td>
<td>20</td>
</tr>
<tr>
<td>Lake Tahoe Rise (Gates Closed)(4,5) (ft)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APR-HIGH</td>
<td>0.22</td>
<td>0.32</td>
</tr>
<tr>
<td>MAY-HIGH</td>
<td>0.01</td>
<td>0.09</td>
</tr>
<tr>
<td>Lake Tahoe Net Inflow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>APR-JUL</td>
<td>0</td>
<td>0.05</td>
</tr>
</tbody>
</table>

1) Streamflow Forecasts have been adjusted: **Lake Tahoe Net Inflow** (externally adjusted by US Water Master*) = Lake Tahoe storage change + Lake Tahoe Release (*Externally adjusted US Water Master data comes from Hydrologic Flow Report which accounts for precipitation and evaporation from each reservoir: http://www.troa.net/reports/wm_hydrologicflow/;

2) Averages are based on 1981-2010 reference period.
3) KAF = Thousand acre-feet 4) 90% and 10% exceedance probabilities are actually 95% and 5%.
5) Hydrologists with the NRCS and National Weather Service California Nevada River Forecast Center (CNRFC) coordinate Lake Tahoe Rise, Truckee River at Farad, and Little Truckee River near Boca using output of their respective hydrology models at the request of the Bureau of Reclamation. The NRCS and CNRFC models may provide different answers because of the nature of the model systems, and from the inclusion of future weather in the CNRFC model. The hydrologists agree on forecast values using guidance from both models to best provide an accurate water supply forecast for these points.
Snowpack in the Truckee River Basin is much below normal at 68 percent of median, compared to 72 percent last year. Precipitation in March was much below average, which brings the seasonal accumulation (Oct-Mar) to 55 percent of average. Soil moisture is at 51 percent saturation, compared to 49 percent last year. Combined reservoir storage is 39 percent of capacity, compared to 73 percent last year. Forecast streamflow volumes for the April-July period have been revised downward, to between 27- to 43 percent of average.
## Forecast Exceedance Probabilities for Risk Assessment

Chance that actual volume will exceed forecast

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>30% AVG. (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donner Lake Inflow</td>
<td>APR-JUL</td>
<td>1.03</td>
<td>3.3</td>
<td>4.9</td>
<td>27%</td>
<td>6.5</td>
<td>8.8</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>0.37</td>
<td>1.3</td>
<td>3</td>
<td>25%</td>
<td>4.8</td>
<td>7.4</td>
</tr>
<tr>
<td>Martis Ck Res Inflow</td>
<td>APR-JUL</td>
<td>0.19</td>
<td>1.03</td>
<td>2.6</td>
<td>28%</td>
<td>4.2</td>
<td>6.6</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>0</td>
<td>0.11</td>
<td>1.09</td>
<td>19%</td>
<td>2.7</td>
<td>5</td>
</tr>
<tr>
<td>Prosser Ck Res Inflow</td>
<td>APR-JUL</td>
<td>7.9</td>
<td>12.7</td>
<td>16</td>
<td>37%</td>
<td>19.3</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>2.4</td>
<td>7.4</td>
<td>10.8</td>
<td>35%</td>
<td>14.2</td>
<td>19.2</td>
</tr>
<tr>
<td>Independence Lk Inflow</td>
<td>APR-JUL</td>
<td>1.56</td>
<td>3.2</td>
<td>4.3</td>
<td>36%</td>
<td>5.5</td>
<td>7.1</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>0.62</td>
<td>2.2</td>
<td>3.3</td>
<td>33%</td>
<td>4.4</td>
<td>6</td>
</tr>
<tr>
<td>Sagehen Ck nr Truckee</td>
<td>APR-JUL</td>
<td>1.34</td>
<td>1.54</td>
<td>1.7</td>
<td>30%</td>
<td>1.87</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>0.71</td>
<td>0.82</td>
<td>0.9</td>
<td>21%</td>
<td>0.98</td>
<td>1.13</td>
</tr>
<tr>
<td>Stampede Res Local Inflow</td>
<td>APR-JUL</td>
<td>7.5</td>
<td>21</td>
<td>29</td>
<td>38%</td>
<td>38</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>1.09</td>
<td>6.1</td>
<td>16.5</td>
<td>30%</td>
<td>27</td>
<td>42</td>
</tr>
<tr>
<td>L Truckee R ab Boca Resv</td>
<td>APR-JUL</td>
<td>9.5</td>
<td>18</td>
<td>25</td>
<td>28%</td>
<td>29</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>1.86</td>
<td>6.8</td>
<td>17.5</td>
<td>28%</td>
<td>29</td>
<td>47</td>
</tr>
<tr>
<td>Truckee R at Farad</td>
<td>APR-JUL</td>
<td>50</td>
<td>86</td>
<td>110</td>
<td>43%</td>
<td>134</td>
<td>170</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>1.37</td>
<td>39</td>
<td>65</td>
<td>36%</td>
<td>91</td>
<td>129</td>
</tr>
</tbody>
</table>

1) All streamflow forecasts except Sagehen Ck nr Truckee have been adjusted; refer to the back page of the Water Supply Outlook Report for Nevada for a list of streamflow adjustments.
2) Averages are based on 1981-2010 reference period.
3) KAF = Thousand acre-feet
4) Hydrologists with the NRCS and National Weather Service California Nevada River Forecast Center (CNRFC) coordinate Lake Tahoe Rise, Truckee River at Farad, and Little Truckee River near Boca using output of their respective hydrology models at the request of the Bureau of Reclamation. The NRCS and CNRFC models may provide different answers because of the nature of the model systems, and from the inclusion of future weather in the CNRFC model. The hydrologists agree on forecast values using guidance from both models to best provide an accurate water supply forecast for these points.
Snowpack in the Carson River Basin is below normal at 73 percent of median, compared to 76 percent last year. Precipitation in March was much below average, which brings the seasonal accumulation (Oct-Mar) to 62 percent of average. Soil moisture is at 40 percent saturation, compared to 49 percent last year. Storage in Lahontan Reservoir is 41 percent of capacity, compared to 63 percent last year. Forecast streamflow volumes for the East- and West Forks of the Carson River have been revised downward, to 49- and 54 percent of average for the April through July period, respectively.
## Carson River Basin (cont’d)

### CARSON RIVER BASIN

#### Streamflow Forecasts - April 1, 2021

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF Carson R nr Gardnerville</td>
<td>APR-JUL</td>
<td>42</td>
<td>71</td>
<td>91</td>
<td>49%</td>
<td>112</td>
<td>141</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>29</td>
<td>57</td>
<td>76</td>
<td>50%</td>
<td>96</td>
<td>124</td>
</tr>
<tr>
<td>Date of 200 cfs flow</td>
<td>07 Jun</td>
<td>17 Jun</td>
<td>24 Jun</td>
<td>01 Jul</td>
<td>11 Jul</td>
<td>25 Jul</td>
<td></td>
</tr>
<tr>
<td>Date of 500 cfs flow</td>
<td>21 May</td>
<td>31 May</td>
<td>06 Jun</td>
<td>12 Jun</td>
<td>22 Jun</td>
<td>01 Jul</td>
<td></td>
</tr>
<tr>
<td>WF Carson R at Woodfords</td>
<td>APR-JUL</td>
<td>11.6</td>
<td>22</td>
<td>29</td>
<td>54%</td>
<td>35</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>1.26</td>
<td>6.7</td>
<td>15</td>
<td>36%</td>
<td>23</td>
<td>36</td>
</tr>
</tbody>
</table>

1) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
2) Averages are based on 1981-2010 reference period.
3) KAF = Thousand acre-feet
4) Julian day
Walker River Basin


Snowpack in the Walker River Basin is below normal at 70 percent of median, compared to 51 percent last year. Precipitation in March was much below average, which brings the seasonal accumulation (Oct-Mar) to 63 percent of average. Soil moisture is at 20 percent saturation, compared to 24 percent last year. Combined reservoir storage is 31 percent of capacity, compared to 64 percent last year. The April through July (or August) forecast streamflow volumes have been revised downward, to 32- and 48 percent of average for the East- and West branches, respectively.
Walker River Basin (cont’d)

WALKER RIVER BASIN
Streamflow Forecasts1 - April 1, 2021

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>50% AVG.</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg2 (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E Walker R nr Bridgeport</td>
<td>APR-AUG</td>
<td>1.36</td>
<td>6.5</td>
<td>22</td>
<td>32%</td>
<td>38</td>
<td>60</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>MAY-AUG</td>
<td>0.55</td>
<td>5.6</td>
<td>18</td>
<td>33%</td>
<td>30</td>
<td>49</td>
<td>55</td>
</tr>
<tr>
<td>W Walker R bl L Walker R nr Coleville</td>
<td>APR-JUL</td>
<td>22</td>
<td>55</td>
<td>78</td>
<td>48%</td>
<td>101</td>
<td>134</td>
<td>162</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>17.1</td>
<td>49</td>
<td>70</td>
<td>49%</td>
<td>91</td>
<td>123</td>
<td>142</td>
</tr>
<tr>
<td>W Walker R nr Coleville</td>
<td>APR-JUL</td>
<td>27</td>
<td>58</td>
<td>78</td>
<td>48%</td>
<td>98</td>
<td>129</td>
<td>163</td>
</tr>
<tr>
<td></td>
<td>MAY-JUL</td>
<td>19.7</td>
<td>49</td>
<td>69</td>
<td>48%</td>
<td>89</td>
<td>118</td>
<td>143</td>
</tr>
</tbody>
</table>

1) Forecasts for West Water River locations are for unimpaired flows. The streamflow forecasts for the East Walker river have been adjusted: actual flow East Walker River near Bridgeport = East Walker River near Bridgeport, observed + Bridgeport Reservoir storage change
2) Averages are based on 1981-2010 reference period.
3) KAF = Thousand acre-feet
Owens River Basin

The streamflow forecast for the Owen’s River from April through July has been revised downward to 112 thousand acre-feet, which is 48 percent of average.

### Owens River Basin Streamflow Forecasts – April 1, 2021

<table>
<thead>
<tr>
<th>Forecast Point</th>
<th>Forecast Period</th>
<th>90% (KAF)</th>
<th>70% (KAF)</th>
<th>50% (KAF)</th>
<th>30% (KAF)</th>
<th>10% (KAF)</th>
<th>30 Yr Avg (KAF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owens R</td>
<td>APR-JUL</td>
<td>112</td>
<td>48%</td>
<td></td>
<td></td>
<td></td>
<td>231</td>
</tr>
</tbody>
</table>

1) Forecasts are for unimpaired flows; actual flow will be dependent on management of upstream reservoirs and diversions
2) Averages are based on 1981-2010 reference period (\(^2\)).
3) KAF = Thousand acre-feet
Surprise Valley - Warner Mountains
April 1, 2021

Provided by Jeff Anderson, Hydrologist, NRCS Nevada Snow Survey:

Snowpack in the Surprise Valley - Warner Mtns is below normal at 83 percent of median, compared to 116 percent last year. Precipitation in March was much below average, which brings the seasonal accumulation (Oct-Mar) to 72 percent of average. Streamflow forecasts for Davis Creek, Bidwell Creek and Eagle Creek remain discontinued until stream gaging can be re-established.
Reservoir storage in Lake Mead at the end of March was at 40 percent of capacity, down 1,222 thousand acre-feet (KAF) from this time last year when it was at 44 percent capacity. Snowpack in the Colorado River Basin above Glen Canyon Dam is 87 percent of the April 1 median, compared to 108 percent last year. Compared to last month’s projection, the forecast streamflow volume for Lake Powell Inflow remains unchanged at 45 percent of average for April through July.
How Forecasts are Made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists can estimate the runoff that will occur when it melts. Measurements of snow water equivalent (SWE) at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation, are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists with the Natural Resources Conservation Service (NRCS) and the National Weather Service (NWS). In California, the state Department of Water Resources (DWR) compiles and analyzes data from an overlapping set of locations, the results of which are also included in this report.

Streamflow forecasts are reported as the total volume of water- expressed as thousands of acre-feet (KAF), expected to flow past a location during a specified period, such as April 1 to July 31 (APR-JUL). Unless otherwise specified, reported forecasts are for flows that would occur naturally, without any upstream influences such as reservoir operations and diversions.

As predictions of future conditions, forecasts of any kind are not exact. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions; (2) uncertainty in the forecasting procedure; and (3) errors in the data. Streamflow forecasts for each location are, therefore, appropriately interpreted probabilistically; results are reported as a series of streamflow volumes that range from the lowest reported value with a 90 percent chance of being exceeded, to the highest reported streamflow volume with only a 10 percent chance of being exceeded. The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate and the range of streamflow volumes reported for each location narrows.

The 50 percent exceedance forecast is the median value, where there is a 50 percent chance that the total streamflow volume for the reported time period will be above-, and a 50 percent chance that it will be below, the reported streamflow volume. The median value is compared to the 30-year (1981-2000) average, which is reported as “% AVG” in the center of the tables.

Users should take the probabilistic nature of streamflow forecasting into consideration when making operational decisions, by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. From a water supply perspective, more conservative estimates may be based on the 70- or 90 percent forecast exceedences or an intermediate value below the median. If, on the other hand, users are using the tables to assess local flood risk, they may want to base their decisions on the 30- or 10 percent exceedance probability forecasts or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water.
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