Upper Colorado River Basin
Climate And Drought Update

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Wendy Ryan
Let’s take a look at Current Conditions and their evolution since 2011
2011 Runoff

June 26, 2011

- Colorado River near CO-UT State Line
  - 91st Percentile
  - 205% of Normal

- Green River at Green River, UT
  - 95th Percentile
  - 240% of Normal

- San Juan River near Bluff, UT
  - 37th Percentile
  - 55% of Normal
2012 Drought

U.S. Drought Monitor
West

August 28, 2012
(Released Thursday, Aug. 30, 2012)
Valid 7 a.m. EST

Drought Conditions (Percent Area)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>D0-D1</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current</td>
<td>15.07</td>
<td>84.93</td>
<td>74.27</td>
<td>44.37</td>
<td>15.89</td>
<td>1.15</td>
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<tr>
<td>Last Week</td>
<td>15.32</td>
<td>84.68</td>
<td>74.24</td>
<td>48.34</td>
<td>14.66</td>
<td>0.85</td>
</tr>
<tr>
<td>3 Months Ago</td>
<td>29.34</td>
<td>70.65</td>
<td>53.34</td>
<td>31.06</td>
<td>4.86</td>
<td>0.00</td>
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<tr>
<td>Start of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Calendar Year</td>
<td>50.20</td>
<td>49.80</td>
<td>28.05</td>
<td>11.84</td>
<td>2.67</td>
<td>0.78</td>
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<td>Start of</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Year</td>
<td>66.72</td>
<td>33.28</td>
<td>19.04</td>
<td>14.99</td>
<td>9.30</td>
<td>3.81</td>
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<tr>
<td>One Year Ago</td>
<td>52.33</td>
<td>47.67</td>
<td>18.10</td>
<td>4.84</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

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

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

Author:
Brian Fuchs
National Drought Mitigation Center

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

**D2** – Widespread expansion of D2 is recommended to cover more of the Four Corners region, but leaving out much of the San Juan mountains and the Rio Grande headwaters region (Fig. 7, orange line). The line is drawn to include the lower SNOTEL precipitation percentiles and standardized precipitation indices (SPIs) that are less than -1.5 on the 120-day timescale.

**D3** – It is recommended that D3 be expanded to cover more of the Gunnison River basin and extending into the Uncompahgres (Fig. 7, black line). This D3 will better represent the much below normal streamflows and the low SPIs on short and long timescales. Based on SPIs, VegDRI, and on-the-ground reports of extreme dryness in the lower elevations, D3 could cross into eastern UT into Grand County. However, since this is normally their dry season, status quo for UT is currently recommended.

**D4** – no D4 this week, though northwest CO will be closely monitored for possible future degradations.
2012 for the Colorado Basin

- Spring (March, April, May) precipitation was the driest since 1895.
- Summer Temperatures were 2\textsuperscript{nd} warmest (2002 was warmest) since 1895.
- Drought remained in the basin until the rains in September 2013 started slowly chipping away at the drought and moisture continued falling through WY2014.
Colorado Basin River Forecast Center
Upper Colorado Mainstem Group

Percent Median To Date: 25% (0.2 / 0.9)
Percent Seasonal Median: 1% (0.2 / 16.4)

Accumulation rate 0.0 in/day
averaged over last 3 days.

Date
10-01 10-31 11-30 12-31 01-30 04-01 05-01 05-31 06-30 09-30

Snow Water Equivalent (in)
0 2 3 5 6 8 11 14 15 28

Percent Seasonal Median
0 10 20 30 40 50 60 70 80 90

Most Recent Conditions
Colorado, Utah and Wyoming Water Year 2014 Precipitation as a Percentage of Normal

awy_sep14_pn
% of Normal

- 0
- 1 - 10
- 11 - 20
- 21 - 30
- 31 - 50
- 51 - 70
- 71 - 90
- 91 - 110
- 111 - 130
- 131 - 150
- 151 - 170
- 171 - 200
- 201 - 250
- 251 - 300
- 300+
Grand Junction Walker Field WY 2014 Precipitation Accumulation

<table>
<thead>
<tr>
<th>Water Year</th>
<th>Precipitation (in)</th>
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<tbody>
<tr>
<td>1929</td>
<td>15.01</td>
</tr>
<tr>
<td>1941</td>
<td>14.59</td>
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<tr>
<td>1927</td>
<td>14.49</td>
</tr>
<tr>
<td>1997</td>
<td>14.15</td>
</tr>
<tr>
<td>2014</td>
<td>13.3</td>
</tr>
<tr>
<td>1957</td>
<td>13.06</td>
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</tbody>
</table>

Only 5 of 114 years >=13.3”
~4% chance
Colorado, Utah and Wyoming October 2014 Precipitation as a Percentage of Normal
Snotel Water Year 2015 Precipitation Percentile Ranking for 3 November 2014 (Stations with 15+ years of data only)
Temperatures

Departure from Normal Temperature (F)
10/1/2014 – 10/31/2014

Generated 11/2/2014 at HPRCC using provisional data.

Regional Climate Centers
Streamflow

2 November 2014

A. Colorado River near CO-UT State Line
   57th Percentile
   105% of Average

B. Green River at Green River, UT
   46th Percentile
   92% of Average

C. San Juan near Bluff
   7th Percentile
   37% of Average
Tracking growing season water demand using CoAgMet:
www.coagmet.colostate.edu
eMODIS VegDri
10/26/2014
Longer Term Climate

• Temperatures
• Precipitation
• Streamflow
Growing Season Length: Palisade, CO

Still counting @ 183!
Dillon Winter (DJF) Coldest Minimum Temperature
CO Drainage Fall (SON) Temperatures

2013: 41st warmest 1895-2013
CO Drainage Winter (DJF) Temperatures

2014: 34th warmest 1895-2014
CO Drainage Spring (MAM) Temperatures

2014: 31\textsuperscript{st} warmest 1895-2014
CO Drainage Summer (JJA) Temperatures

Colorado, Climate Division 2, Average Temperature, June-August

1901-2000
Avg: 60.9°F

2014: 31st warmest 1895-2014
CO Drainage WY Temperatures

Colorado, Climate Division 2, Average Temperature, October-September

1901-2000 Avg: 41.4°F

2014: 26th warmest 1895-2014
CO Drainage WY Precipitation

2014: 31st wettest 1895-2014
NIDIS UCRB Weekly Climate and Drought Assessments!

• Assessments done weekly on Tuesdays
• Webinars are held at critical times of year.
• Local input is needed to assess current conditions!
Sign up by giving us your business card!