Utah Water Supply Briefing

January 8th, 2021

Colorado Basin River Forecast Center

Presenter: Patrick Kormos - Hydrologist

Utah Forecasters: Brent Bernard, Zach Finch, Patrick Kormos

Questions: Type questions into the ‘Questions’ Box or Raise Hand
Utah Water Supply Briefing

1. Weather Review (Precipitation)
2. Soil Moisture Conditions
3. Current Snowpack
4. 2021 Water Supply Forecasts
5. Early Season Forecast Error
6. Upcoming Weather
7. Contacts & Questions
Utah Weather Review - Precipitation up to Jan. 1, 2021

Below normal precipitation
○ All Basins
○ All Months

<table>
<thead>
<tr>
<th>Forecast Group</th>
<th>Percent of WY normal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bear</td>
<td>65</td>
</tr>
<tr>
<td>Weber</td>
<td>50</td>
</tr>
<tr>
<td>Six Creeks</td>
<td>50</td>
</tr>
<tr>
<td>Provo</td>
<td>50</td>
</tr>
<tr>
<td>Sevier</td>
<td>50</td>
</tr>
<tr>
<td>Duchesne</td>
<td>60</td>
</tr>
<tr>
<td>Virgin</td>
<td>45</td>
</tr>
</tbody>
</table>
Most stations rank in bottom 10.
Utah Weather Review - Water Year Precipitation - %Avg.

Oct-Dec 2020 Precip.

- % Average
  - >500%
  - 300-500%
  - 200-300%
  - 150-200%
  - 130-150%
  - 110-130%
  - 100-110%
  - 90-100%
  - 70-90%
  - 50-70%
  - 30-50%
  - 0-30%

Oct-Dec 2021 Precip.

- % Average
  - >500%
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  - 110-130%
  - 100-110%
  - 90-100%
  - 70-90%
  - 50-70%
  - 30-50%
  - 0-30%

- WY2021 has seen less precipitation than WY2020 so far
Most stations rank in as lowest on record for April - December 2020.
WY2021 is starting out with much drier conditions that last year.

Model soil moisture was generally between 40-80% of normal.
Utah Current Snowpack - January 6th

SNOTEL (Observed)

As of January 1, 2021
CBRFC Snow Groups (SNOTEL Stations)

- Bear: 70% of WY normal
- Weber: 60% of WY normal
- Six Cr: 70% of WY normal
- Provo: 65% of WY normal
- Duchesne: 70% of WY normal
- Sevier: 50% of WY normal
- Virgin: 50% of WY normal
Utah Current Snowpack

SNOTEL (Observed)

There is still a long way to go until peak SWE.
We are starting the year with a smaller snowpack than last year.
Utah Water Supply Forecasts - Overview

- January 1 Forecast for April-July Volume in 1000’s acre feet (KAF)
- April-July Forecast Streamflow Volumes are in percent of 1981-2010 average

Median value of the...
...individual forecasts (in % of average)
...by Forecast Group.

<table>
<thead>
<tr>
<th>Forecast Group</th>
<th>Median Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bear</td>
<td>55</td>
</tr>
<tr>
<td>Weber</td>
<td>45</td>
</tr>
<tr>
<td>Six Creeks</td>
<td>40</td>
</tr>
<tr>
<td>Provo / Utah Lake</td>
<td>50</td>
</tr>
<tr>
<td>Sevier</td>
<td>40</td>
</tr>
<tr>
<td>Duchesne</td>
<td>50</td>
</tr>
<tr>
<td>Virgin</td>
<td>35</td>
</tr>
</tbody>
</table>
Utah Water Supply Forecasts - Bear

Bear River Basin Forecasts

January: **55%** of Normal
- Forecasts range from 40-80% of normal
Utah Water Supply Forecasts - Weber

Weber River Basin Forecasts

January: **45%** of Normal
- Forecasts range from 40-57% of normal
Utah Water Supply Forecasts - Weber

Echo Reservoir

Weber - Echo Reservoir, Echo, At (ECBU1)
Period: Apr-Jul, Official 50% Forecast (2021-01-01): 72 kaf (42% Average, 43% Median)
ESP is Unregulated and No Precipitation Forecast Included

Historical Maximum volume
Historical Minimum volume
Average Volume
Median volume
Forecast Volume
Utah Water Supply Forecasts - Six Creeks

Percent of Average

- Below 25%
- 25% - 35%
- 35% - 45%
- 45% - 55%
- 55% - 65%
- 65% - 75%
- 75% - 85%
- 85% - 95%
- 95% - 105%
- 105% - 115%
- 115% - 125%
- 125% - 135%
- 135% - 145%
- 145% - 155%
- 155% - 165%
- 165% - 175%
- 175% - 185%
- 185% - 195%
- 195% - 205%
- 205% - 225%
- 225% - 250%
- Above 25%
- NA

Six Creeks Basin Forecasts

January: 40% of Normal
- Forecasts range from 34-61% of normal
Utah Water Supply Forecasts - Provo - Utah Lake

Provo River Basin Forecasts

January: 50% of Normal
- Forecasts range from 42-67% of normal
Utah Water Supply Forecasts - Provo

Provo near Woodland

Provo - Woodland, Nr (WOOU1)
Period: Apr-Jul, Official 50% Forecast (2021-01-01): 67 kaf (67% Average, 66% Median)
ESP is Unregulated and No Precipitation Forecast Included

2021/01/01:
Max 2011: 205.03
Min 1977: 26.99
Average: 100
Median: 101
ESP: 67.6
Official 10: 101
Official 30: 82
Official 50: 67
Official 70: 49
Official 90: 33
Jordan - Utah Lake, Provo, Nr (UTLU1)
Period: Apr-Jul, Official 50% Forecast (2021-01-01): 147 kaf (45% Average, 58% Median)
ESP is Unregulated and No Precipitation Forecast Included

2021/01/01:
Max 1984: 859.97
Min 1961: 68.03
Average: 325
Median: 255
ESP: 149
Official 10: 300
Official 30: 225
Official 50: 147
Official 70: 104
Official 90: 71
Utah Water Supply Forecasts - Duchesne

Duchesne River Basin

January: 50% of Normal
  - Forecasts range from 39-61% of normal

Price River Basin

January: 50% of Normal
  - Forecasts range from 49-52% of normal
Utah Water Supply Forecasts - Duchesne

Upper Stillwater Reservoir

Rock Ck - Upper Stillwater Reservoir (USTU1)
Period: Apr-Jul, Official 50% Forecast (2021-01-01): 45 kaf (61% Average, 63% Median)
ESP is Unregulated and No Precipitation Forecast Included

2021/01/01:
Max 2011: 145.68
Min 1977: 29.9
Average: 74
Median: 71
ESP: 43.6
Official 10: 77
Official 30: 57
Official 50: 45
Official 70: 35
Official 90: 25
Utah Water Supply Forecasts - Sevier and Virgin

Sevier River Basin Forecasts (regulated)

January: 40% of Normal
- Forecasts range from 34-74% of normal

Virgin River Basin Forecasts

January: 35% of Normal
- Forecasts range from 33-45% of normal
Utah Water Supply Forecasts - Evolution Plots

Evolution Plots allow one to:

- Follow daily changes to Water Supply Forecast Guidance
- Follow daily changes to exceedance values
- Review previous years
- Compare current values to Min., Max., Avg. Median values
- Follow observed and Avg. volume (accumulation)
Utah Water Supply Forecasts - Evolution Plots

Evolution Plots allow one to:

- Follow daily changes to Water Supply Forecast Guidance
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- Compare current values to Min., Max., Avg. Median values
- Follow observed and Avg. volume (accumulation)
Historical (1981-2010) Forecast Verification

January Forecast Error: April-July Volume

<table>
<thead>
<tr>
<th>Location</th>
<th>January Forecast Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>BEAR - UTAH-WYOMING STATE</td>
<td>21%</td>
</tr>
<tr>
<td>BEAR - WOODRUFF NARROWS</td>
<td>40%</td>
</tr>
<tr>
<td>LOGAN - LOGAN- NR</td>
<td>27%</td>
</tr>
<tr>
<td>WEBER - OAKLEY- NR</td>
<td>23%</td>
</tr>
<tr>
<td>WEBER - ROCKPORT RES</td>
<td>30%</td>
</tr>
<tr>
<td>BIG COTTONWOOD CK</td>
<td>21%</td>
</tr>
<tr>
<td>PARLEYS CK</td>
<td>39%</td>
</tr>
<tr>
<td>PROVO - WOODLAND- NR</td>
<td>25%</td>
</tr>
<tr>
<td>PROVO - DEER CK RES</td>
<td>33%</td>
</tr>
<tr>
<td>VIRGIN - VIRGIN</td>
<td>44%</td>
</tr>
</tbody>
</table>

Forecasts are better than just going with average
Error tends to decrease each month into the spring

Where Forecasts are Better:
- Headwaters
- Primarily snow melt basins
- Known diversions / demands

Where Forecasts are Worse:
- Lower elevations (rain or early melt)
- Downstream of diversions / irrigation
- Little is known about diversions / demands
Upcoming Weather: WPC January 8th-14th Precipitation Outlook

- Short wave moves through Utah and Colorado later today and tomorrow
- Less than a half inch is forecast in the upper most elevations
- Otherwise, ridging will dominate the weather pattern.
Upcoming Weather: 7-10 days: Persistent Western Ridge

- Ridge to persist through the third week of January
- Northwest flow could allow weak storm systems to clip the northern areas by late next week.
Upcoming Weather: 8-14 Day Outlook

Elevated odds of below average precipitation & above average temperature

Precipitation Outlook

Temperature Outlook
Summary

- We have low precipitation, low soil moisture, low snowpack start to WY2021.
- The current dry weather pattern shows no signs of changing for the next 3 weeks. (forecasts from daily model guidance will likely drop)
- Water Supply Forecasts reflect the dry start to the season and dry weather pattern.
  - All water supply forecasts are below normal
- It is still early in the water year.
# 2021 Water Supply Webinar Schedule

*All Times Mountain Time (MT)*

<table>
<thead>
<tr>
<th>Colorado River Basin</th>
<th></th>
<th></th>
<th>Utah</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Friday</strong></td>
<td>Jan 8(^{th})</td>
<td>10 am</td>
<td><strong>Friday</strong></td>
<td>Jan 8(^{th})</td>
<td>11:30 am</td>
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<tr>
<td><strong>Friday</strong></td>
<td>Feb 5(^{th})</td>
<td>10 am</td>
<td><strong>Friday</strong></td>
<td>Feb 5(^{th})</td>
<td>11:30 am</td>
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<tr>
<td><strong>Friday</strong></td>
<td>Mar 5(^{th})</td>
<td>10 am</td>
<td><strong>Friday</strong></td>
<td>Mar 5(^{th})</td>
<td>11:30 am</td>
</tr>
<tr>
<td><strong>Wednesday</strong></td>
<td>Apr 7(^{th})</td>
<td>10 am</td>
<td><strong>Wednesday</strong></td>
<td>Apr 7(^{th})</td>
<td>11:30 am</td>
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<tr>
<td><strong>Friday</strong></td>
<td>May 7(^{th})</td>
<td>10 am</td>
<td><strong>Friday</strong></td>
<td>May 7(^{th})</td>
<td>11:30 am</td>
</tr>
</tbody>
</table>

Peak flow forecast webinar Thursday, March 18\(^{th}\), 10 am MT

Additional briefings scheduled as needed

Webinar schedule & registration information has been posted to the CBRFC web page
CBRFC Water Supply Forecast Webinar Schedule & Registration - Water Year 2021

The Colorado Basin River Forecast Center (CBRFC) produces water supply forecasts for the Colorado River Basin and the eastern United States. CBRFC conducts December through May webinars explaining the forecasts and current conditions.

Follow the links below to register for a webinar.

Early Season Water Supply Outlook Webinar
Thursday Dec 17 @ 1 pm MT

Colorado River Basin Water Supply Webinars
- Friday January 8th @ 10 am MT
- Friday February 5th @ 10 am MT
- Friday March 5th @ 10 am MT
- Wednesday April 7th @ 10 am MT
- Friday May 7th @ 10 am MT

Utah Water Supply Webinars
- Friday January 8th @ 11:30 am MT
- Friday February 5th @ 11:30 am MT
- Friday March 5th @ 11:30 am MT
- Wednesday April 7th @ 11:30 am MT
- Friday May 7th @ 11:30 am MT

Peak Flow Webinar
Thursday March 18th @ 10 am MT

A notice email will be sent if a date or time change occurs. Additional webinars are scheduled as needed. The webinar slides will be available from the CBRFC presentations page soon after each briefing.

email cbrfc.webmasters@noaa.gov
subject line: email notification list

This list is used to provide notification when webinars are scheduled, water supply forecasts are updated, and for other news of interest to our stakeholders regarding CBRFC operations.
CBRFC Contacts & WY21 Basin Focal Points

Michelle Stokes  
Hydrologist In Charge

John Lhotak  
Development and Operations Hydrologist

Paul Miller  
Service Coordination Hydrologist

Cass Goodman  
Computer Systems Analyst

Valerie Offutt  
Administrative Assistant

Ashley Nielson  
Upper Green, Yampa  
San Juan, Dolores, Powell

Patrick Kormos  
Lower Green, Duchesne  
Weber, Provo

Cody Moser  
Upper CO Mainstem, Gunnison

Brent Bernard  
Bear, Sevier, Six Creeks

Zach Finch  
Lower Colorado River Basin

Brenda Alcorn  
Senior Hydrologist

Craig Peterson  
Senior Hydrometeorologist

Tracy Cox  
Hydrometeorologist

CBRFC Webpage  
https://www.cbrfc.noaa.gov/

CBRFC Operations  
cbrfc.operations@noaa.gov  
801-524-4004

CBRFC Water Supply Presentations  
https://www.cbrfc.noaa.gov/present/present.php