January 19, 2023 Water Supply Forecast Discussion

The <u>Colorado Basin River Forecast Center (CBRFC)</u> geographic forecast area includes the Upper Colorado River Basin (UCRB), Lower Colorado River Basin (LCRB), and Eastern Great Basin (GB).

Water Supply Forecast Summary

Following above average December precipitation, weather remained active across the region during the first half of January, with UT and AZ continuing to receive more precipitation than WY and CO. January 1-17 precipitation was greater than 200% of normal across many areas, and water year precipitation is above normal over the majority of the CRB and GB.

Mid-January snow water equivalent (SWE) conditions are above to much above normal across the UCRB, LCRB, and GB, with SWE conditions as a percent of normal improving in most areas during the first half of January. SWE conditions are most favorable across UT, with GB conditions generally ranging between 175-250% of normal. Mid-January SWE conditions across the UCRB are more variable (110-230% of normal), with snow conditions during the first half of January remaining relatively steady across the northern Green River Basin and northwest CO, while southwest CO and the southern Green River Basin have seen SWE improvements since January 1. LCRB mid-January SWE conditions generally range between 150%-350% of normal.

Another upper low will move into the area from the northwest beginning today (January 19) and dig towards the southeast through Saturday (January 21) bringing precipitation to all but extreme southern AZ. Precipitation amounts will generally remain below an inch, with most of the precipitation expected to fall as snow. An active weather pattern is expected to continue, with another storm possible early next week.

Seasonal Water Supply Forecasts

April-July Water Supply Forecast Guidance Ranges Percent of 1991-2020 Average				
UPPER COLORADO RIVER BASIN				
<u>Basin</u>	Forecast Range			
Lake Powell	117			
Green River Basin				
Upper Green	90-105			
Duchesne	115-190			
Yampa/White	115-160			
Price/San Rafael/Dirty Devil	125-210			
Colorado River Headwaters				
Above Kremmling	90-135			
Kremmling to Cameo	95-110			
Southwest Colorado				
Gunnison	90-155			
Dolores	105-125			
San Juan	90-125			
GREAT BASIN				
Bear	100- <mark>1</mark> 60			
Weber	115-175			
Six Creeks	135-205			
Provo/Utah Lake	140-215			
Sevier	125-195			

January 17 water supply guidance (% of normal) by basin:



Trend in the April-July runoff volume forecast guidance from January 1 to January 17, 2023 (Change in April-July percent of average)



April-July runoff volume guidance as of January 17, 2023 (percent of 1991-2020 average)

For specific site water supply forecasts click <u>here</u>.

Water Supply Discussion

Water Year 2023 Weather/Precipitation

Following above average December precipitation, weather remained active across the region during the first half of January, with UT and AZ continuing to receive more precipitation than WY and CO. January 1-17 precipitation (figure and table below) was greater than 200% of normal across many areas, with most SNOTEL stations across UT, AZ, and the far northwest and southwest corners of CO receiving precipitation amounts ranking in wettest five on record and above the 95th percentile during this period. Water year precipitation is above normal over the majority of the CRB and GB, and is summarized in the figures and table below.



Prepared by NOAA, Colorado Basin River Forecast Center Salt Lake City, Utah, www.cbrfc.noaa.gov

Prepared by NOAA, Colorado Basin River Forecast Center Salt Lake City, Utah, www.cbrfc.noaa.gov

October-December (left) and January 1-17 (right) percent of average precipitation.

For CBRFC seasonal precipitation maps click here. For CBRFC monthly precipitation maps click here.

Water Year 2023 CBRFC Precipitation (Significant Runoff Areas) Percent of 1991-2020 Average						
UPPER COLORADO RIVER BASIN						
	Oct-Dec	Jan1-Jan17				
Above Lake Powell	107	229				
Green River Basin						
Above Fontenelle	98	115				
Above Flaming Gorge	105	153				
Yampa/White	124	199				
Duchesne	103	352				
Price/San Rafael/Dirty Devil	118	392				
Colorado River Headwaters						
Above Kremmling	101	117				
Eagle	111	101				
Roaring Fork	108	156				
Above Cameo	107	145				
Southwest Colorado						
Gunnison	103	219				
Dolores	109	291				
San Juan	92	270				
LOWER COLORADO RIVER BASIN						
Virgin	121	433				
Little Colorado	123	254				
Verde	115	357				
Salt	109	256				
Upper Gila	130	254				
GREAT	BASIN					
Bear	114	181				
Weber	121	259				
Six Creeks	125	321				
Provo/Utah Lake	124	371				
Sevier	116	338				

Snowpack

Mid-January snow water equivalent (SWE) conditions are above to much above normal across the UCRB, LCRB, and GB, with SWE conditions as a percent of normal improving in most areas during the first half of January. SWE conditions are most favorable across UT, with GB conditions generally ranging between 175-250% of normal. Most SNOTEL stations in UT are reporting SWE conditions ranking in the top five wettest on record and above the 95th percentile, with around a dozen stations reporting record mid-January SWE amounts.

Mid-January SWE conditions across the UCRB are more variable (110-230% of normal), with snow conditions during the first half of January remaining relatively steady across the northern Green River Basin and northwest CO, while southwest CO and the southern Green River Basin have seen SWE improvements since January 1. A number of SNOTEL stations in the Yampa/White basin are reporting SWE values ranking in the top three wettest on record and above the 95th percentile.

LCRB mid-January SWE conditions range from around 150% (Salt, Upper Gila basins) to 350% (Verde) of normal and are largely a result of the type of precipitation (rain vs. snow) that has occurred. January SWE conditions are summarized in the table and figure below.

Water Year 2023 CBRFC Model SWE (Significant Runoff Areas) Percent of 1991-2020 Median					
UPPER COLORADO RIVER BASIN					
	<u>Jan1</u>	<u>Jan17</u>	<u>Change</u>		
Above Lake Powell	126	150	24		
Green River Basin					
Above Fontenelle	112	113	1		
Above Flaming Gorge	127	135	8		
Yampa/White	160	166	6		
Duchesne	146	201	55		
Price/San Rafael/Dirty Devil	164	232	68		
Colorado River Headwaters					
Above Kremmling	122	121	-1		
Eagle	118	109	-9		
Roaring Fork	114	123	9		
Above Cameo	122	125	3		
Southwest Colorado					
Gunnison	117	139	22		
Dolores	122	172	50		
San Juan	87	130	43		
LOWER COLORADO RIVER BASIN					
Virgin	121	196	75		
Little Colorado	49	188	139		
Verde	108	348	240		
Salt	52	143	91		
Upper Gila	28	152	124		
GREAT BASIN					
Bear	165	173	8		
Weber	180	210	30		
Six Creeks	188	223	35		
Provo/Utah Lake	187	247	60		
Sevier	159	205	46		



January 17, 2023 percent median SWE - NRCS SNOTEL observed (squares) and CBRFC hydrologic model significant runoff areas.

For updated SNOTEL information refer to click <u>here</u>. For CBRFC hydrologic model snow click <u>here</u>.

Upcoming Weather

Another upper low will move into the area from the northwest beginning today (January 19) and dig towards the southeast through Saturday (January 21) bringing precipitation to all but extreme southern AZ. Precipitation amounts will generally remain below an inch. This is a cold system and most of the precipitation will fall as snow, with temperatures 5-10 degrees below normal across the area. An active weather pattern is expected to continue, with another storm possible early next week. There is disagreement among weather models as to the exact track of the storm, but agreement is generally good that another upper low will move through the region next week. In the 8-14 day period, the Climate Prediction Center is indicating that below temperatures are expected across the region through the end of the month accompanied by near-normal precipitation.



Weather Prediction Center precipitation forecast for January 19-26, 2023.



NWS Climate Prediction Center precipitation probability forecast for Jan 25- Jan 31, 2023.

For CBRFC's beginning of the month online publication that contains basin conditions, summary graphics, and end of month reservoir content tables, refer to the following links.

Basin Conditions and Summary Graphics

Green River Basin Upper Colorado River Basin San Juan River Basin Great Salt Lake Basin Sevier River Basin Virgin River Basin

End Of Month Reservoir Content Tables

Green River Basin Upper Colorado River Basin San Juan River Basin Great Salt Lake Basin Sevier Basin

Acronyms & Abbreviations

- CBRFC Colorado Basin River Forecast Center
- **CPC Climate Prediction Center**
- CRB Colorado River Basin
- ESP Ensemble Streamflow Prediction
- GB Great Basin
- KAF Thousand Acre-Feet
- LCRB Lower Colorado River Basin
- MAF Million Acre-Feet
- **QPF** Quantitative Precipitation Forecast
- SNOTEL Snow Telemetry
- SWE Snow Water Equivalent
- UCRB Upper Colorado River Basin
- WPC Weather Prediction Center