Colorado River Commission of Nevada

Hydrology Report - July 2021

- **Upper Basin precipitation and Temperature**

The Upper Basin continues to have drought conditions with low precipitation and abnormally high temperatures. Precipitation in June was 78% of average bringing the cumulative precipitation total to 74% of average for the year. The first half of this year had above average temperatures which contributed to reducing the runoff from snowpack. Temperatures in June were 3 to 7 degrees above average in the Upper Basin.

- **Upper Basin Snowpack**

Snowpack in the Upper Basin peaked at the end of March with 83% of the seasonal average. The typical runoff period when snow melts is from April through July. This year's snowpack has already melted. The snowpack this year was reduced from below average precipitation, above average temperatures, and dry soil conditions. The Colorado River Basin Forecast Center has estimated that runoff this year from snowpack will be 30% of average.

- **Current reservoir status**

Due to the lack of runoff this year, both major reservoirs have decreased in elevation. As of July 12, 2021, Lake Mead is at an elevation of 1,068.1 feet and has about 9 million-acre feet in storage (35% capacity). As of July 12, 2021, Lake Powell is at an elevation of 3,558.0 feet and has about 8.1 million-acre feet in storage (34% capacity). Since this time last year, Lake Mead has decreased about 18 feet and Lake Powell has decreased about 51 feet. Total system storage for the Upper and Lower Basin is around 24.5 million-acre feet (41% capacity).

- **Reclamation's Lake Mead Projection**

Reclamation uses computer models to forecast reservoir elevations based on planned water use and anticipated runoff. The most current model (June) is forecasting that Lake Mead will be at an elevation of 1065.2 feet at the end of the year, which is a 3-foot decrease from the current elevation. Reclamation models indicate that in August when the operations are determined for the upcoming year that a Tier 1 Shortage will be declared under the 2007 Interim Guidelines for the Lower Basin and there will be a required Drought Contingency Plan contribution for Nevada and Arizona in 2022. Accordingly, Nevada would be required to reduce consumptive use by 13,000-acre feet under the 2007 Interim Guidelines and have a Drought Contingency Plan contribution of 8,000-acre feet in 2022.

- **Water Use in Southern Nevada**

Southern Nevada's consumptive use from January through May of 2021 was 84,300-acre feet, which is an increase of 4.2% over last year. In 2020, Southern Nevada used 44,432 (15%) acre

feet less than our 300,000-acre feet water rights. The unused water was stored in Lake Mead to help maintain water levels and can be used in the future as Southern Nevada requires additional water resources. The Southern Nevada Water Authority has aggressively reduced consumptive uses through turf removal and conservation programs allowing over 2.1 million-acre feet in total to be stored for future use.

Colorado River Commission of Nevada

Hydrology and Water Use Update

Warren Turkett

July 13, 2021

Summary

Lake Powell

- Water Year 2021[1] is one of the driest in recorded history.
- Unregulated inflow for water year 2021 is forecasted at 30% of average.
- Upper Basin cumulative precipitation is 74% of the seasonal average.

Lake Mead

- Lake Mead is forecasted to decrease about 3 feet in elevation by the end of calendar year 2021.
- Reclamation models are indicating that in August there will be a federally declared shortage under the 2007 Guidelines for the Lower Basin.

Nevada Water Supply

- Southern Nevada has about 9 years of water supply banked. [2]
- **In 2020, Southern Nevada used 44,432 af less than our annual allocation.**

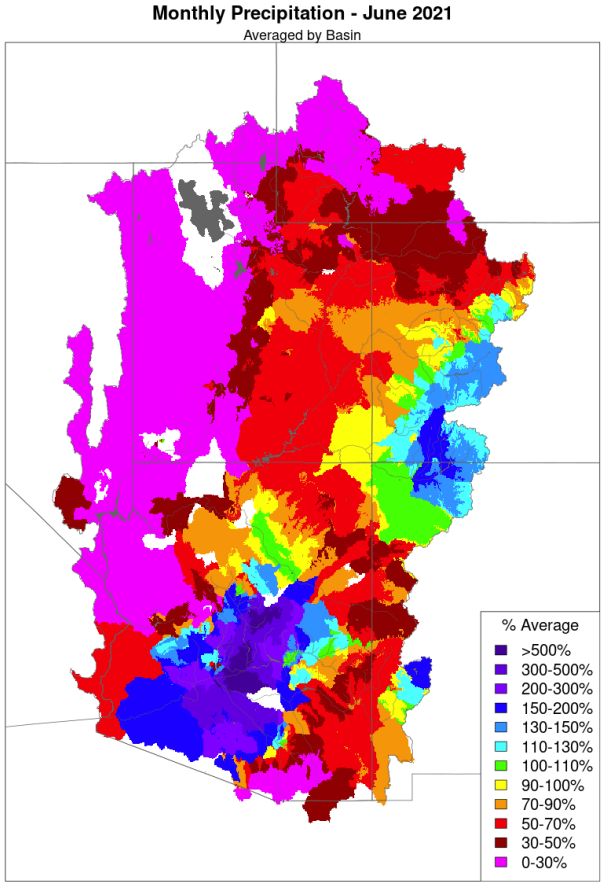
Storage	Elevation (f)	% Capacity	Change since last year
Lake Mead	1,068.1	35%	-17.9 ft
Lake Powell	3,558.0	34%	-51.1 ft

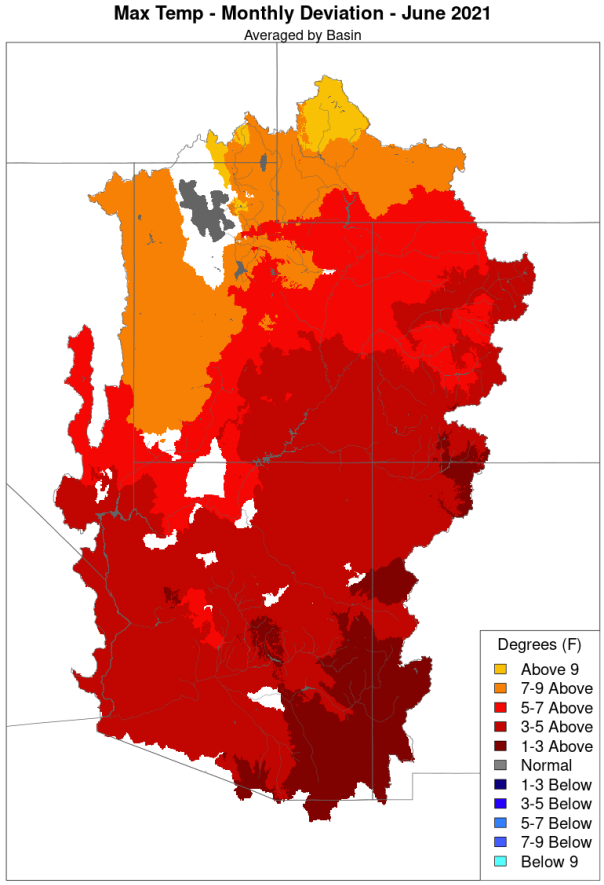
Data retrieved July 13, 2021

[1] Water year is defined as October through September.

[2] Based on 2020 consumptive use and storage volumes through 2020.

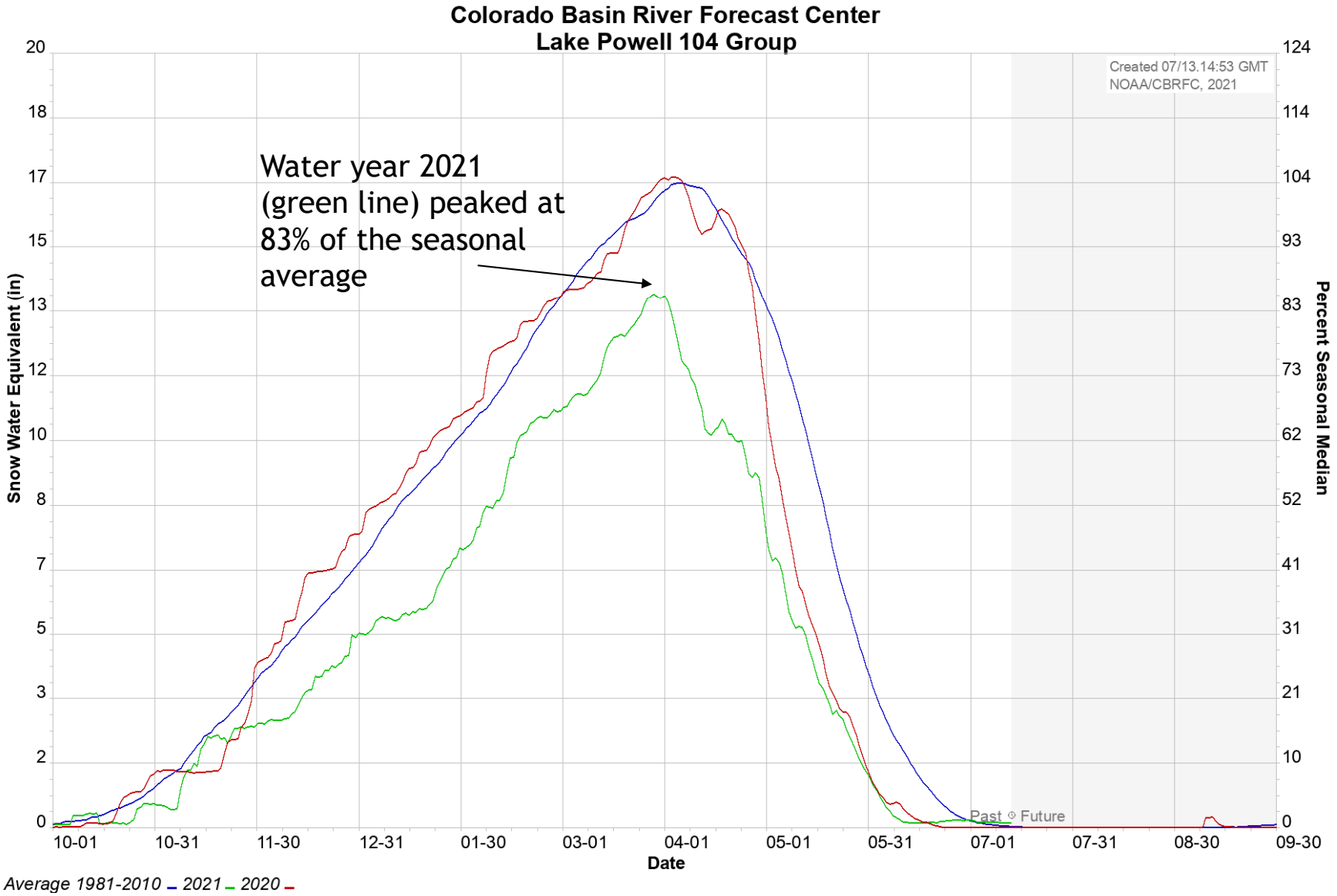
Precipitation and Temperature





Above Lake Powell June precipitation: 78%

Above Lake Powell water year 2021 cumulative precipitation: 74%


Colorado Basin River Forecast Center
Lake Powell 104 Group
Created 07/13.14:53 GMT
NOAA/CBRFC, 2021
Water year 2021 (green line) peaked at 83% of the seasonal average
Snow Water Equivalent (in)
Percent Seasonal Median
Date
Past
Future
20
18
17
15
13
12
10
8
7
5
3
2
0
124
114
104
93
83
73
62
52
41
31
21
10
0
10-01
10-31
11-30
12-31
01-30
03-01
04-01
05-01
05-31
07-01
07-31
08-30
09-30
Average 1981-2010
2021
2020

Unregulated Inflow, Current and Projected Reservoir Status

Projected unregulated inflow to Lake Powell	Acre-Feet	% Average
Water Year 2021	3,227,000	30%
April thru July 2021	1,746,000	24%

Reservoir	Current Elevation	Current Storage Acre-Feet	Current % Capacity	Projected Elevation on 1/1/2022[1]
Lake Mead	1,068.1	9,048,000	35%	1,065.2
Lake Powell	3,558.0	8,170,000	34%	3,534.2

Data retrieved July 13, 2021

[1] Based on Reclamation's June 2020 24 Month Study Most Probable Inflow.

2007 Interim Guidelines, Minute 323, Lower Basin Drought Contingency Plan, and Binational Water Scarcity Contingency Plan

Total Volumes (kaf)

Projected 2022 Reductions + Contributions

Lake Mead Elevation (feet msl)	2007 Interim Guidelines Shortages		Minute 323 Delivery Reductions	Total Combined Reductions	DCP Water Savings Contributions			Binational Water Scarcity Contingency Plan Savings	Combined Volumes by Country *US: (2007 Interim Guidelines Shortages + DCP Contributions)* *Mexico: (Minute 323 Delivery Reductions + Binational Water Scarcity Contingency Plan Savings)*					Total Combined Volumes
	AZ	NV	Mexico	***Lower Basin States + Mexico***	AZ	NV	CA	Mexico	*AZ Total*	*NV Total*	*CA Total*	*Lower Basin States Total*	*Mexico Total*	***Lower Basin States + Mexico***
1,090 - 1,075	0	0	0	***0***	192	8	0	41	192	8	0	*200*	*41*	***241***
1,075 – 1,050	320	13	50	***383***	192	8	0	30	512	21	0	*533*	*80*	***613***
1,050 - 1,045	400	17	70	***487***	192	8	0	34	592	25	0	*617*	*104*	***721***
1,045 - 1,040	400	17	70	***487***	240	10	200	76	640	27	200	*867*	*146*	***1,013***
1,040 - 1,035	400	17	70	***487***	240	10	250	84	640	27	250	*917*	*154*	***1,071***
1,035 - 1,030	400	17	70	***487***	240	10	300	92	640	27	300	*967*	*162*	***1,129***
1,030 - 1,025	400	17	70	***487***	240	10	350	101	640	27	350	*1,017*	*171*	***1,188***
<1,025	480	20	125	***625***	240	10	350	150	720	30	350	*1,100*	*275*	***1,375***

The Secretary of the Interior will take affirmative actions to implement programs designed to create or conserve 100,000 acre-ft per year or more of Colorado River System water to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the lower basin. All actions taken by the United States shall be subject to applicable law, including availability of appropriations.

Water Use In Southern Nevada

Southern Nevada Water Use	2020 Actual Use in Acre-Feet
Nevada Annual Allocation	300,000
Diversion	478,969
Return Flows	223,401
Consumptive Use	255,568
Unused Allocation Available for Banking	44,432 (15%)

Southern Nevada Water Use	Diversions	Return Flows	Consumptive Use
January – May 2021	179,828	95,528	84,300

Banked Water (through end of 2020)	Acre-Feet
Ground Water Recharge in So. Nevada	357,643
Banked in Lake Mead	865,741
Banked in California and Arizona	944,071
Total	2,167,455