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# 2021 Colorado River Annual Operating Plan

Colorado River Management Work Group

Final Consultation

September 3, 2020

# Upper Colorado Basin

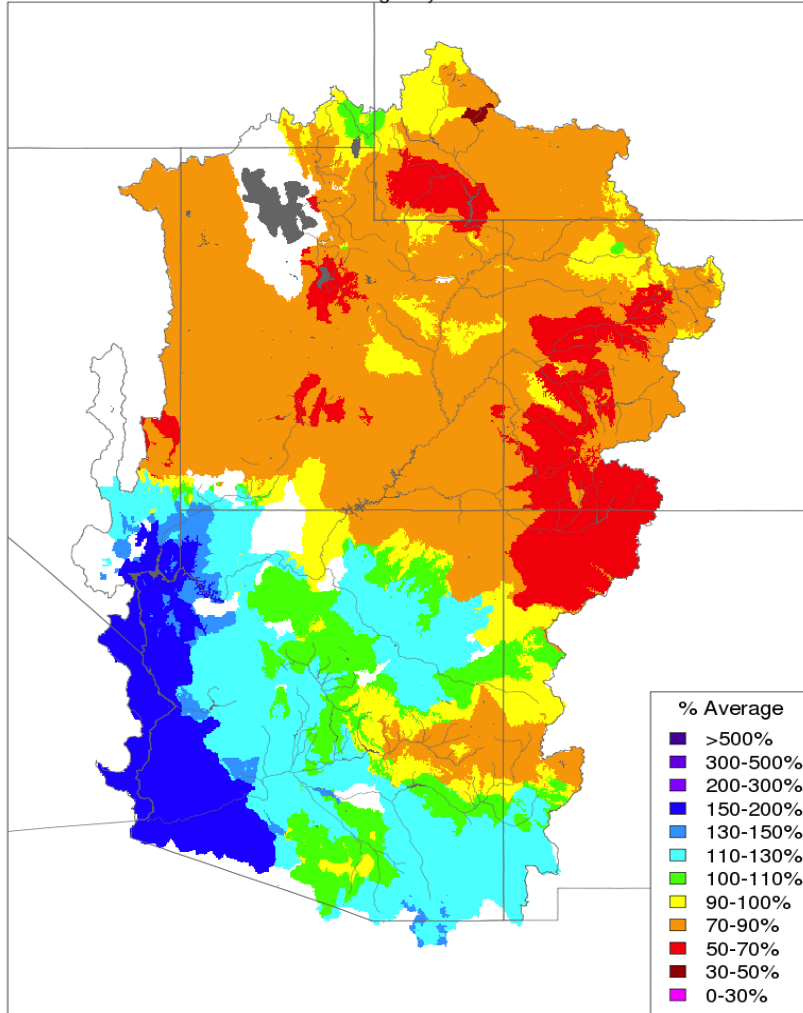
## Water Year 2020 Hydrology



# Basin Precipitation

Seasonal to Date Precipitation - July 22 2020

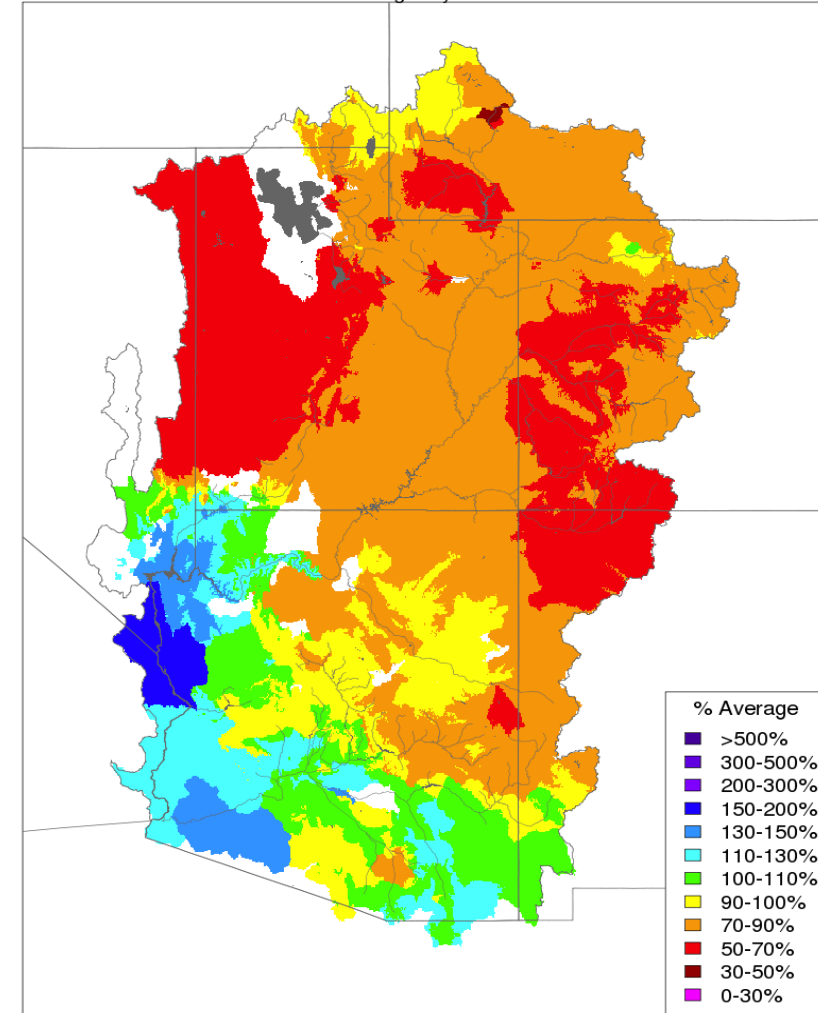
Averaged by Basin



Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)

Seasonal to Date Precipitation - August 31 2020

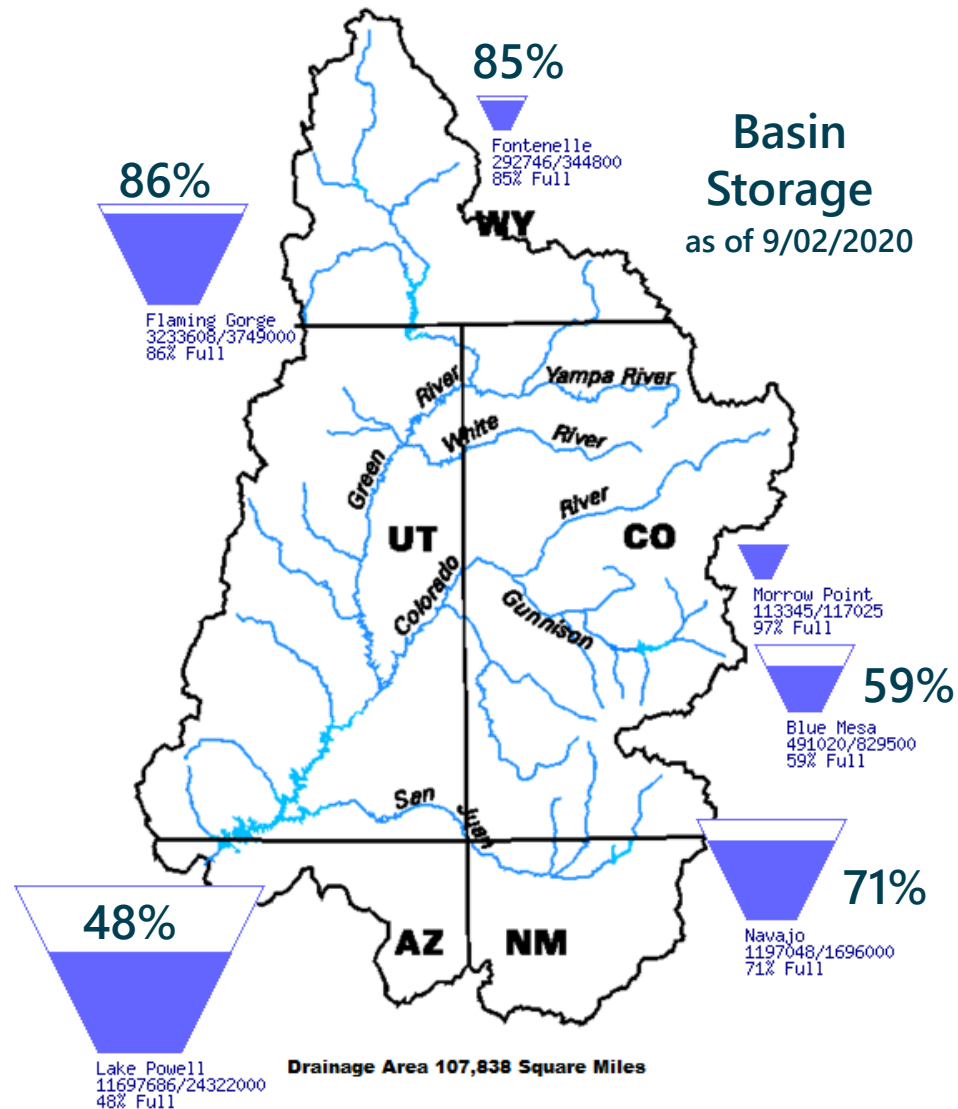
Averaged by Basin



Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)



# Upper Basin Storage



Available online at: [www.usbr.gov/uc/water/basin/index.html](http://www.usbr.gov/uc/water/basin/index.html)

## Observed 2020 April – July Unregulated Inflow as of September 1, 2020

Reservoir	Unregulated Inflow (kaf)	Percent of Average <sup>1</sup>
Fontenelle	677	93
Flaming Gorge	833	85
Blue Mesa	388	57
Navajo	347	47
Powell	3,758	52

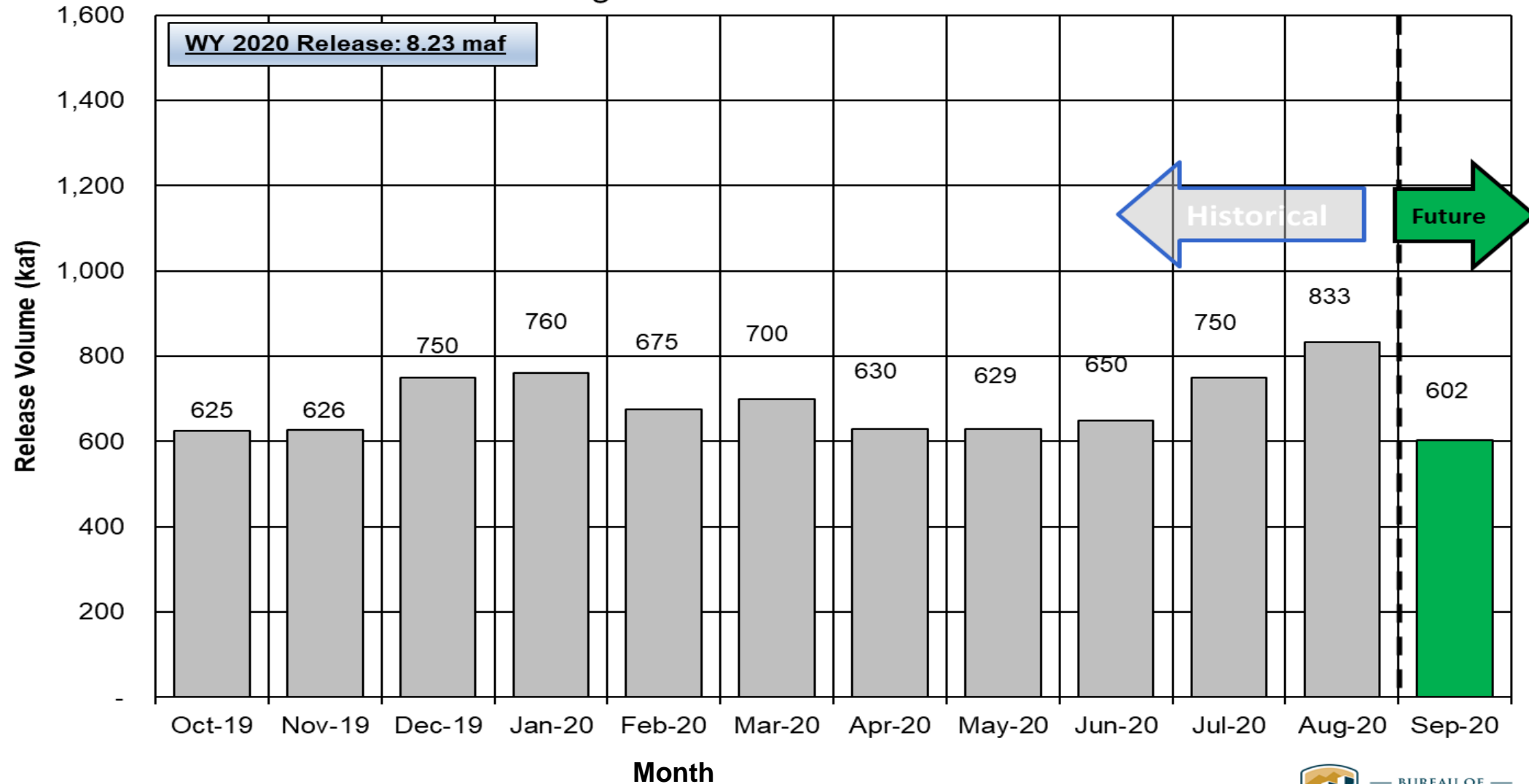
<sup>1</sup> Percent of average based on the period of record from 1981-2010.



# Potential Lake Powell Monthly Release Volume Distribution

Release Scenarios for Water Year 2020

Based on August Observed Release Volumes





# Upper Colorado Basin

## Projected Operations for Water Year 2021





## CBRFC Unregulated Inflow Forecast Issued August 3, 2020

### Water Year 2021 Inflow Forecast

Reservoir	Unregulated Inflow (kaf)	Percent of Average <sup>1</sup>
Fontenelle	970	90
Flaming Gorge	1,275	88
Blue Mesa	820	89
Navajo	850	81
Powell	8,700	80

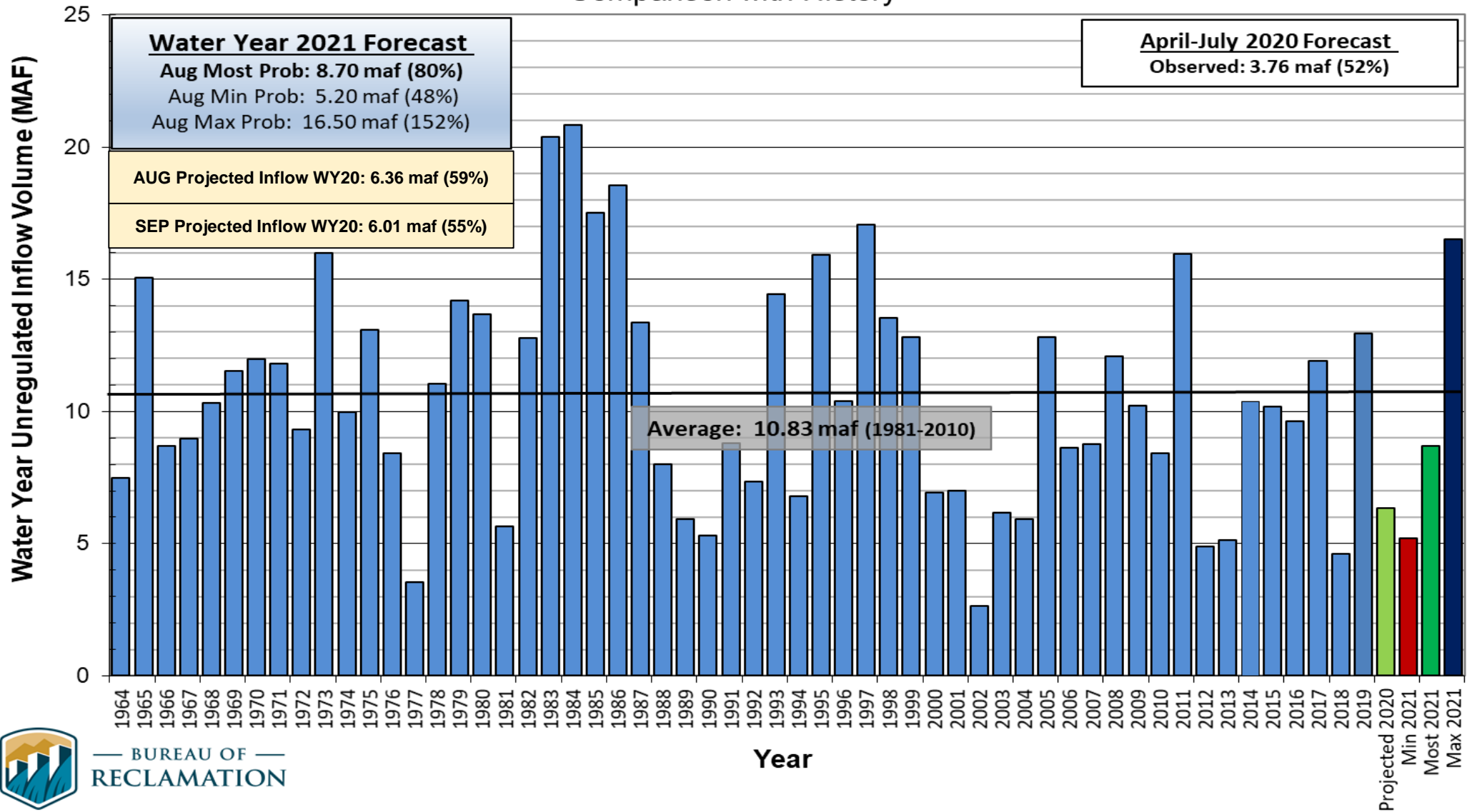
<sup>1</sup> Percent of average based on the period of record from 1981-2010.



# Lake Powell Unregulated Inflow

## Water Year 2021 Forecast (issued August 3)

### Comparison with History



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# Timing of Operational Decisions

- August 24-Month Study projections of January 1 elevations sets the operating tiers for Lake Powell and Lake Mead
- When Lake Powell is in Upper Elevation Balancing Tier, April 24-Month Study projections of September 30 elevations may result in an adjustment to Powell's operations



## B. Upper Elevation Balancing Tier

1. In Water Years when the projected January 1 Lake Powell elevation is below the elevation stated in the Lake Powell Equalization Elevation Table and at or above 3,575 feet, the Secretary shall release 8.23 maf from Lake Powell if the projected January 1 Lake Mead elevation is at or above 1,075 feet.
2. If the projected January 1 Lake Powell elevation is below the elevation stated in the Lake Powell Equalization Elevation Table and at or above 3,575 feet and the projected January 1 Lake Mead elevation is below 1,075 feet, the Secretary shall balance the contents of Lake Mead and Lake Powell, but shall release not more than 9.0 maf and not less than 7.0 maf from Lake Powell in the Water Year.
3. When operating in the Upper Elevation Balancing Tier, if the April 24-Month Study projects the September 30 Lake Powell elevation to be greater than the elevation in the Lake Powell Equalization Elevation Table, the Equalization Tier will govern the operation of Lake Powell for the remainder of the Water Year (through September).
4. When operating under Section 6.B.1, if the April 24-Month Study projects the September 30 Lake Mead elevation to be below 1,075 feet and the September 30 Lake Powell elevation to be at or above 3,575 feet, the Secretary shall balance the contents of Lake Mead and Lake Powell, but shall release not more than 9.0 maf and not less than 8.23 maf from Lake Powell in the Water Year.
5. When Lake Powell is projected to be operating under Section 6.B.2. and more than 8.23 maf is projected to be released from Lake Powell during the upcoming Water Year, the Secretary shall recalculate the August 24-Month Study projection of the January 1 Lake Mead elevation to include releases above 8.23 maf that are scheduled to be released from Lake Powell during the months of October, November, and December of the upcoming Water Year, for the purposes of determining Normal or Shortage conditions pursuant to Sections 2.A. or 2.D. of these Guidelines.

## August Determination

## April Determination



# Lake Powell & Lake Mead Operational Table

## Operational Tiers for Water/Calendar Year 2021<sup>1</sup>

Lake Powell			Lake Mead		
Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) <sup>1</sup>	Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) <sup>1</sup>
3,700	Equalization Tier Equalize, avoid spills or release 8.23 maf	24.3	1,220	Flood Control Surplus or Quantified Surplus Condition Deliver > 7.5 maf	25.9
3,636 - 3,666 (2008-2026)		15.5 - 19.3 (2008-2026)	1,200 (approx.) <sup>2</sup>	Domestic Surplus or ICS Surplus Condition Deliver > 7.5 maf	22.9 (approx.) <sup>2</sup>
	3,591.60 ft Upper Elevation Balancing Tier <sup>3</sup> Release 8.23 maf;		1,145		15.9
	Jan 1, 2021 projection if Lake Mead < 1,075 feet, balance contents with a min/max release of 7.0 and 9.0 maf		1,105	Normal or ICS Surplus Condition Deliver ≥ 7.5 maf	11.9
3,575		9.5	1,085.28 ft Jan 1, 2021 projection		
	Mid-Elevation Release Tier Release 7.48 maf; if Lake Mead < 1,025 feet, release 8.23 maf		1,075	Shortage Condition Deliver 7.167 <sup>4</sup> maf	9.4
3,525		5.9	1,050	Shortage Condition Deliver 7.083 <sup>5</sup> maf	7.5
	Lower Elevation Balancing Tier Balance contents with a min/max release of 7.0 and 9.5 maf		1,025	Shortage Condition Deliver 7.0 <sup>6</sup> maf Further measures may be undertaken <sup>7</sup>	5.8
3,490		4.0	1,000		4.3
3,370		0	895		0

Diagram not to scale

<sup>1</sup> Acronym for million acre-feet

<sup>2</sup> This elevation is shown as approximate as it is determined each year by considering several factors including Lake Powell and Lake Mead storage, projected Upper Basin and Lower Basin demands, and an assumed inflow.

<sup>3</sup> Subject to April adjustments which may result in a release according to the Equalization Tier

<sup>4</sup> Of which 2.48 maf is apportioned to Arizona, 4.4 maf to California, and 0.287 maf to Nevada

<sup>5</sup> Of which 2.40 maf is apportioned to Arizona, 4.4 maf to California, and 0.283 maf to Nevada

<sup>6</sup> Of which 2.32 maf is apportioned to Arizona, 4.4 maf to California, and 0.280 maf to Nevada

<sup>7</sup> Whenever Lake Mead is below elevation 1,025 feet, the Secretary shall consider whether hydrologic conditions together with anticipated deliveries to the Lower Division States and Mexico is likely to cause the elevation at Lake Mead to fall below 1,000 feet. Such consideration, in consultation with the Basin States, may result in the undertaking of further measures, consistent with applicable Federal law.



# Official WY 2021 Operations Run

SCT Powell.sct

File Edit Slots Aggregation View Config DMI Run Scripts Diagnostics Go To

600 1,000 acre-ft/month

Series Slots Edit Series Slot List Scalar Slots Other Slots Object Grid

Timestep	Day	Powell Unreg Inflow 1,000 acre-ft/month	Powell Reg Inflow 1,000 acre-ft/month	Powell Outflow 1,000 acre-ft/month	Powell Pool Elevation ft	Mead Pool Elevation ft
8/31/19	Sat	472.21	NaN	899.97	3,618.55	1,083.45
9/30/19	Mon	142.97	NaN	686.58	3,615.36	1,083.00
10/31/19	Thu	264.71	NaN	625.14	3,612.99	1,082.61
11/30/19	Sat	403.90	NaN	626.06	3,611.23	1,083.85
12/31/19	Tue	352.53	NaN	750.15	3,608.74	1,090.49
1/31/20	Fri	277.36	NaN	759.86	3,605.48	1,094.68
2/29/20	Sat	288.34	NaN	675.27	3,602.72	1,096.27
3/31/20	Tue	475.35	NaN	699.88	3,600.71	1,098.59
4/30/20	Thu	474.53	NaN	630.11	3,599.32	1,096.39
5/31/20	Sun	1,541.28	NaN	628.67	3,605.05	1,091.32
6/30/20	Tue	1,452.77	NaN	649.89	3,610.62	1,087.07
7/31/20	Fri	289.71	NaN	749.93	3,606.25	1,084.63
8/31/20	Mon	265.00	437.81	835.00	3,601.99	1,084.63
9/30/20	Wed	270.00	415.67	600.05	3,599.76	1,084.18
10/31/20	Sat	390.00	469.23	640.00	3,597.78	1,083.07
11/30/20	Mon	410.00	425.31	640.00	3,595.36	1,082.34
12/31/20	Thu	330.00	369.97	720.00	3,591.60	1,085.28
1/31/21	Sun	310.00	349.97	760.00	3,587.32	1,088.53
2/28/21	Sun	310.00	335.25	680.00	3,583.63	1,090.96
3/31/21	Wed	500.00	463.30	710.00	3,580.86	1,088.64
4/30/21	Fri	770.00	656.20	640.00	3,580.82	1,084.42
5/31/21	Mon	1,750.00	1,322.11	630.00	3,587.87	1,080.10
6/30/21	Wed	2,400.00	2,094.85	660.00	3,601.77	1,076.23
7/31/21	Sat	820.00	722.59	750.00	3,601.02	1,075.12
8/31/21	Tue	385.00	480.17	800.00	3,597.42	1,075.21
9/30/21	Thu	325.00	430.69	600.00	3,595.30	1,073.82
10/31/21	Sun	442.64	504.15	640.00	3,593.63	1,075.32
11/30/21	Tue	440.79	466.85	640.00	3,591.58	1,075.44
12/31/21	Fri	362.53	487.85	720.00	3,588.97	1,078.41
1/31/22	Mon	361.18	476.47	860.00	3,584.91	1,082.88
2/28/22	Mon	392.99	466.72	750.00	3,581.83	1,086.14
3/31/22	Thu	665.38	608.96	800.00	3,579.64	1,084.76
4/30/22	Sat	1,055.51	897.54	710.00	3,581.45	1,081.25
5/31/22	Tue	2,342.99	2,132.37	710.00	3,595.84	1,077.78
6/30/22	Thu	2,666.05	2,384.74	750.00	3,611.01	1,074.91
7/31/22	Sun	1,090.84	960.23	850.00	3,611.52	1,074.94
8/31/22	Wed	499.88	568.49	900.00	3,607.97	1,076.17
9/30/22	Fri	408.21	522.53	670.00	3,606.14	1,075.58

Powell.Outflow -- Total Volume: 8,230,000 [acre-ft]

Sum 8,230.00 -- Ave 685.83 -- Med 670.00 -- Min 600.00 -- Max 800.00 -- Range 200.00 [1000 acre-ft/month]

## Water Year 2021

Based on Tier Determination Run:  
Start with Powell Release = 8.23 maf

Operating under Upper Elevation  
Balancing Tier

August run shows an April adjustment  
to Balancing (6.B.4)

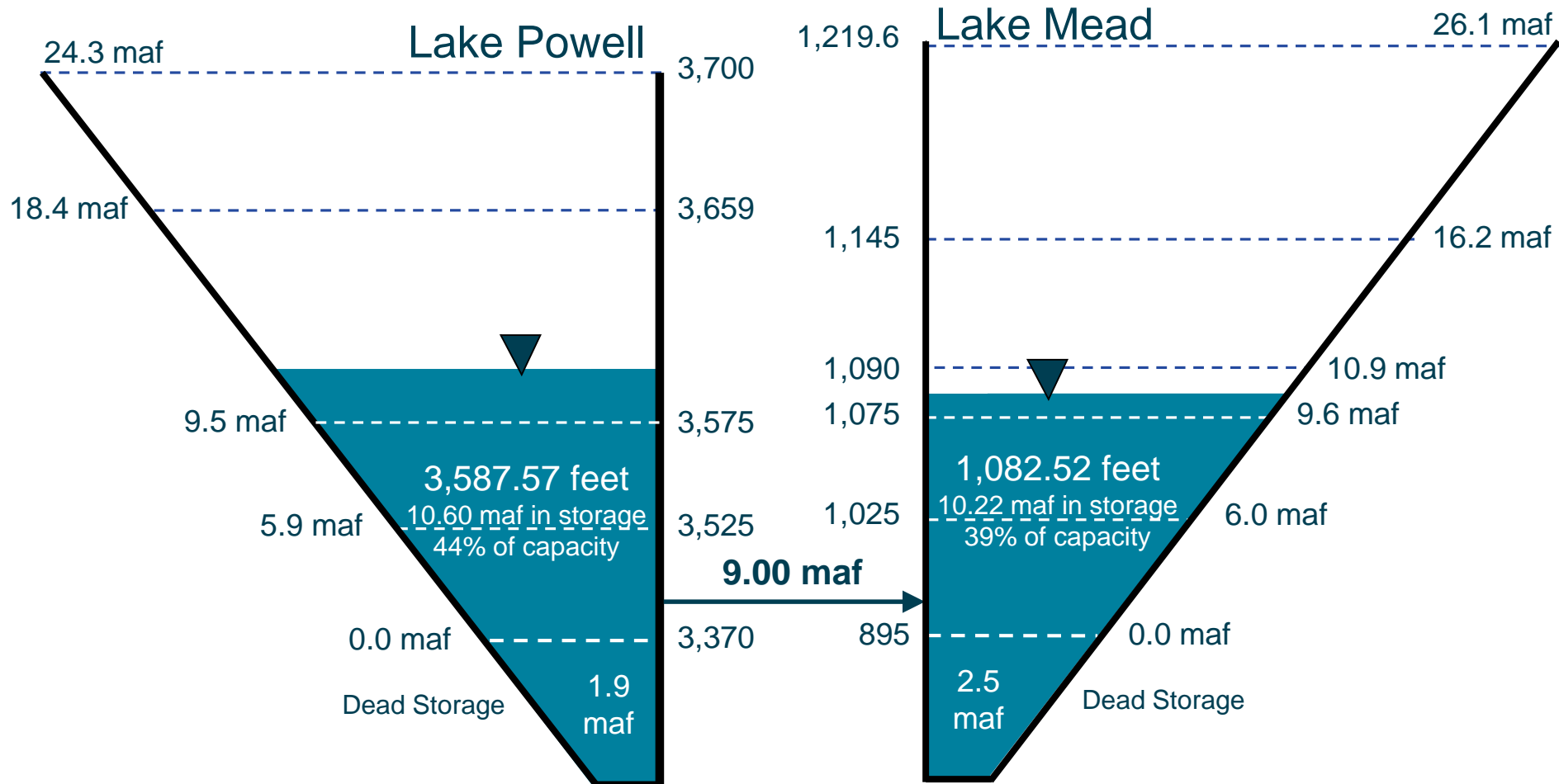
WY 2021 Projected Release = 9.0 maf



# End of Water Year 2021 Projections

## August 2020 24-Month Study Most Probable Inflow Scenario<sup>1</sup>

*Based on a Lake Powell Unregulated Inflow Forecast of 8.70 maf (80% of average)*



Not to Scale





# Minimum Probable WY 2021 Operations Run

## Water Year 2021

Based on Tier Determination Run:  
Start with Powell Release = 8.23 maf

Operating under Upper Elevation  
Balancing Tier

August run shows Powell elevation on  
September 30, 2021 below 3,575 ft and  
Mead below 1,075 ft.

No April adjustment to Balancing (6.B.1)

WY 2021 Minimum Projected  
Release = 8.23 maf

SCT Powell.sct						
File Edit Slots Aggregation View Config DMI Run Scripts Diagnostics Go To						
599.999999999999 1,000 acre-ft/month						
Series Slots Edit Series Slot List Scalar Slots Other Slots Object Grid						
Timestep	Day	Powell Unreg Inflow 1,000 acre-ft/month	Powell Reg Inflow 1,000 acre-ft/month	Powell Outflow 1,000 acre-ft/month	Powell Pool Elevation ft	Mead Pool Elevation ft
8/31/19	Sat	472.21	NaN	899.97	3,618.55	1,083.45
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10/31/19	Thu	264.71	NaN	625.14	3,612.99	1,082.61
11/30/19	Sat	403.90	NaN	626.06	3,611.23	1,083.85
12/31/19	Tue	352.53	NaN	750.15	3,608.74	1,090.49
1/31/20	Fri	277.36	NaN	759.86	3,605.48	1,094.68
2/29/20	Sat	288.34	NaN	675.27	3,602.72	1,096.27
3/31/20	Tue	475.35	NaN	699.88	3,600.71	1,098.59
4/30/20	Thu	474.53	NaN	630.11	3,599.32	1,096.39
5/31/20	Sun	1,541.28	NaN	628.67	3,605.05	1,091.32
6/30/20	Tue	1,452.77	NaN	649.89	3,610.62	1,087.07
7/31/20	Fri	289.71	NaN	749.93	3,606.25	1,084.63
8/31/20	Mon	265.00	440.70	835.00	3,602.02	1,084.63
9/30/20	Wed	270.00	419.34	600.05	3,599.82	1,084.18
10/31/20	Sat	390.00	453.16	640.00	3,597.69	1,082.83
11/30/20	Mon	380.61	383.58	640.00	3,594.85	1,081.97
12/31/20	Thu	299.50	338.18	720.00	3,590.76	1,084.87
1/31/21	Sun	296.39	328.00	760.00	3,586.23	1,087.89
2/28/21	Sun	326.68	338.42	680.00	3,582.55	1,089.92
3/31/21	Wed	495.86	441.79	710.00	3,579.53	1,086.88
4/30/21	Fri	593.65	540.99	640.00	3,578.24	1,082.02
5/31/21	Mon	1,034.67	849.08	630.00	3,580.37	1,077.10
6/30/21	Wed	969.53	945.70	660.00	3,583.04	1,072.75
7/31/21	Sat	99.46	251.72	750.00	3,577.19	1,071.05
8/31/21	Tue	76.82	247.42	800.00	3,570.53	1,070.84
9/30/21	Thu	236.84	377.13	600.00	3,567.54	1,069.22
10/31/21	Sun	308.20	395.70	480.00	3,566.26	1,068.25
11/30/21	Tue	394.27	402.38	500.00	3,564.82	1,066.12
12/31/21	Fri	329.58	346.99	600.00	3,561.57	1,067.28
1/31/22	Mon	329.05	341.45	720.00	3,556.87	1,069.78
2/28/22	Mon	371.70	367.52	640.00	3,553.38	1,071.39
3/31/22	Thu	585.07	493.94	675.00	3,550.94	1,068.40
4/30/22	Sat	746.63	641.12	600.00	3,551.28	1,063.25
5/31/22	Tue	1,624.85	1,358.03	600.00	3,560.50	1,057.98
6/30/22	Thu	1,654.32	1,380.38	630.00	3,569.00	1,052.85
7/31/22	Sun	403.50	448.10	710.00	3,565.49	1,050.77
8/31/22	Wed	256.41	387.59	760.00	3,560.59	1,049.95
9/30/22	Fri	287.22	418.70	565.00	3,558.38	1,048.09
Powell.Outflow -- Total Volume: 8,230,000 [acre-ft]						
17 Sum 8,230.00 -- Ave 685.83 -- Med 670.00 -- Min 600.00 -- Max 800.00 -- Range 200.00 [1000 acre-ft/month]						



# Maximum Probable WY 2021 Operations Run

SCT Powell.sct

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## Water Year 2021

Based on Tier Determination Run:  
Start with Powell Release = 8.23 maf

Operating under Upper Elevation  
Balancing Tier

August run shows Powell elevation on  
September 30, 2021 above 3,575 ft and  
below Equalization elevation of 3,659 ft  
(2021), and Mead above 1,075 ft.

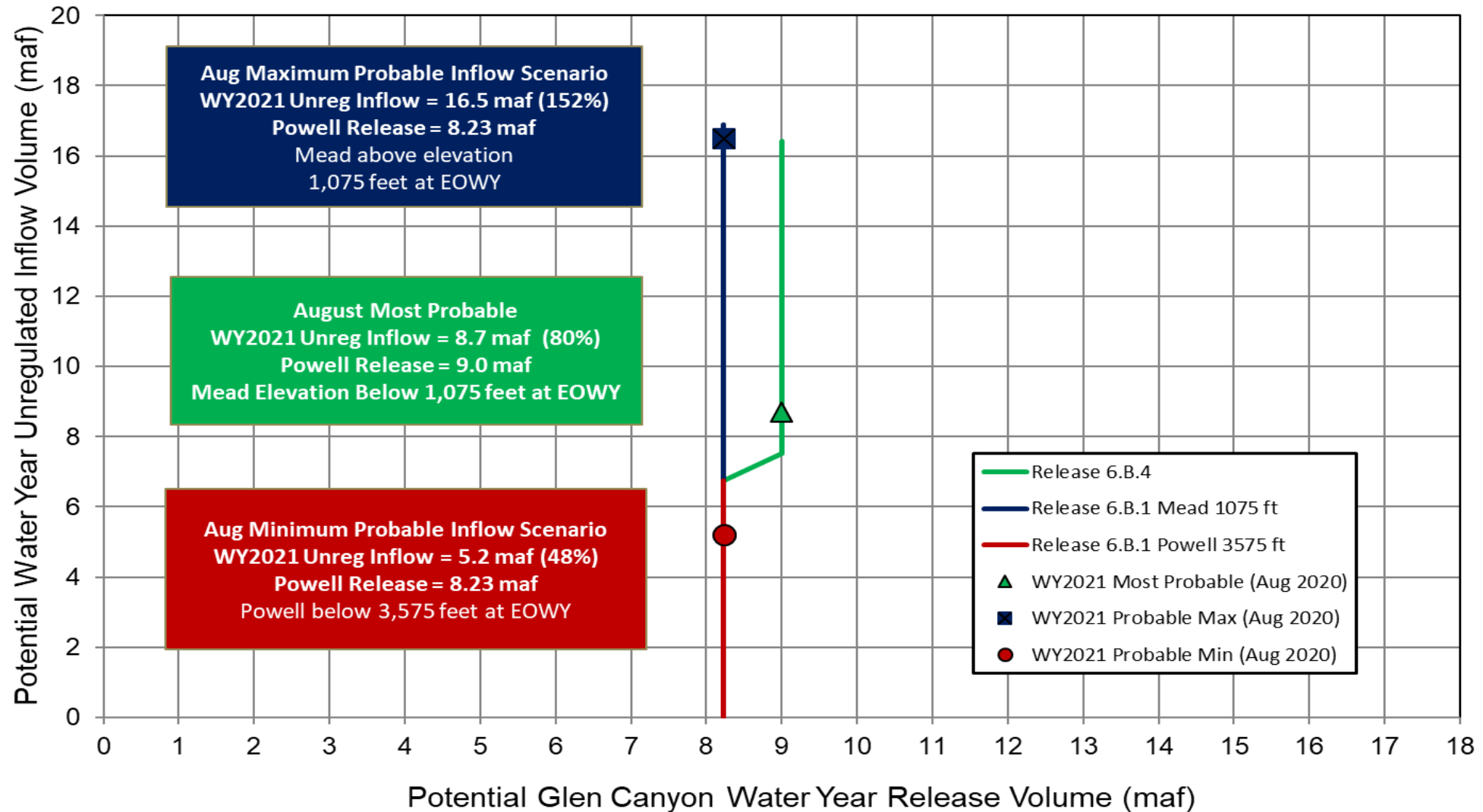
No April adjustment to Balancing (6.B.1)

WY 2021 Maximum Projected  
Release = 8.23 maf



## Lake Powell Release Scenarios under Section 6.B

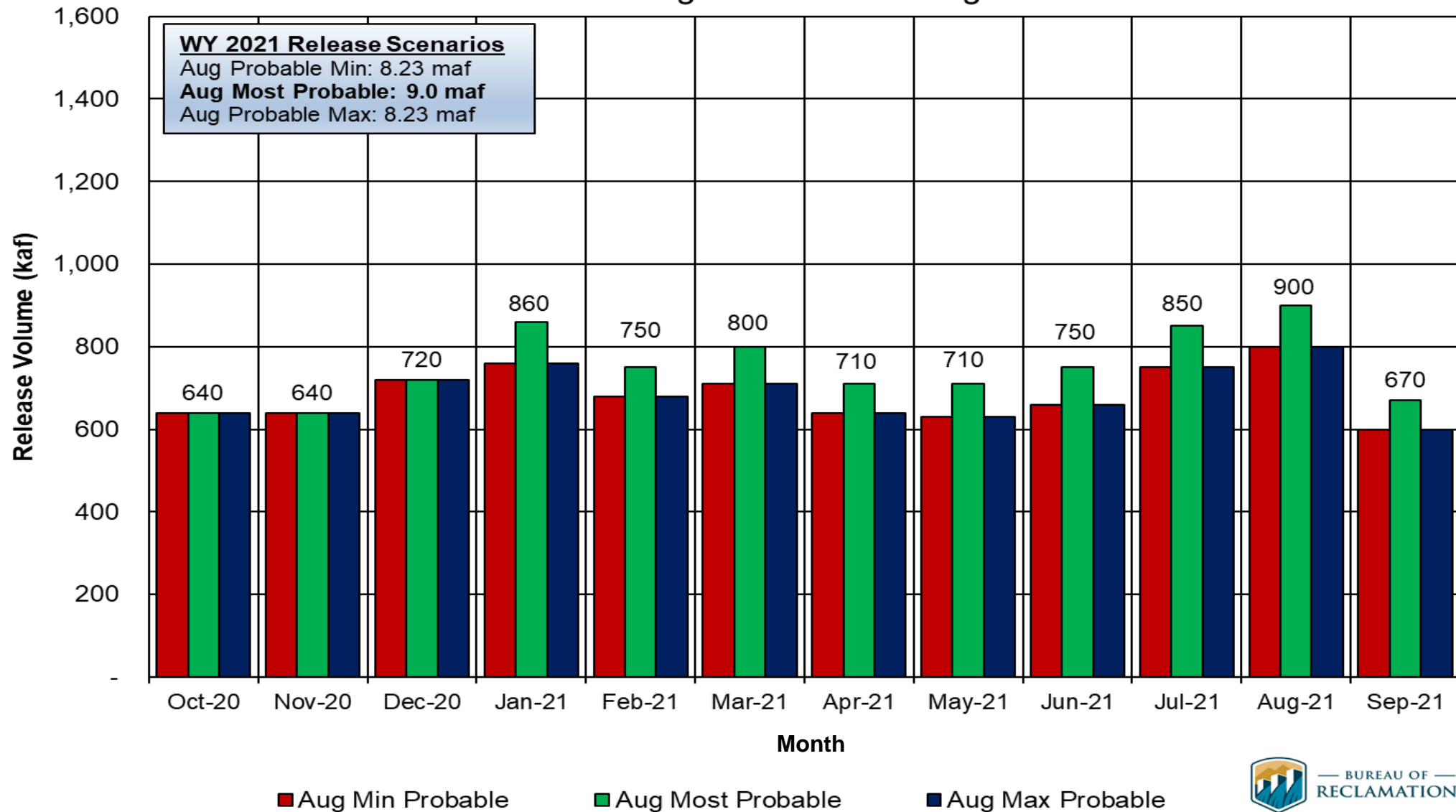
Water Year 2021 Release Volume as a Function of Upper Elevation Balancing Tier  
based on August 2020 24-Month Study Conditions



# Potential Lake Powell Monthly Release Volume Distribution

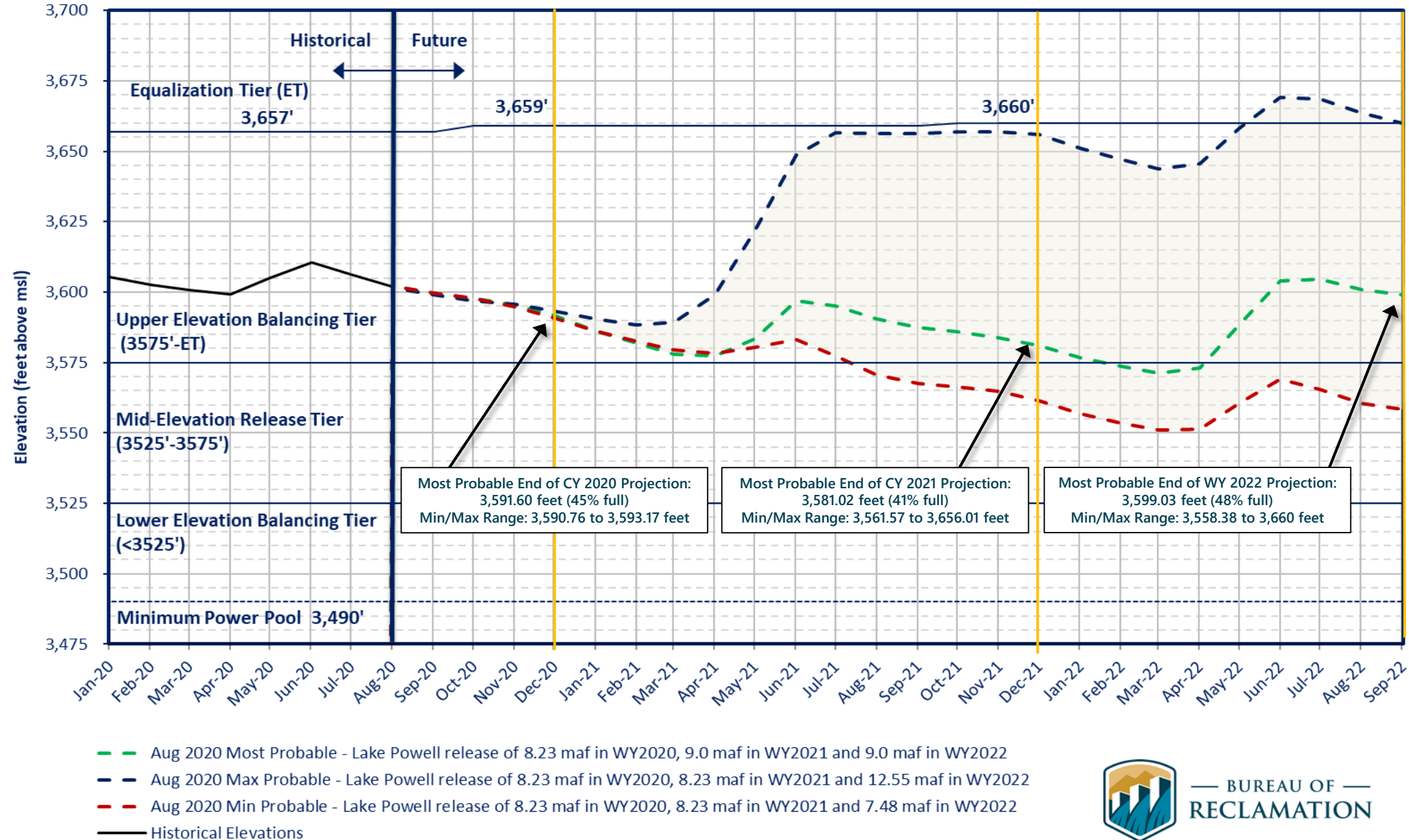
Release Scenarios for Water Year 2021

Based on August 2020 Modeling



# Lake Powell End of Month Elevations

Historic and Projected based on August 2020 24-Month Study Inflow Scenarios

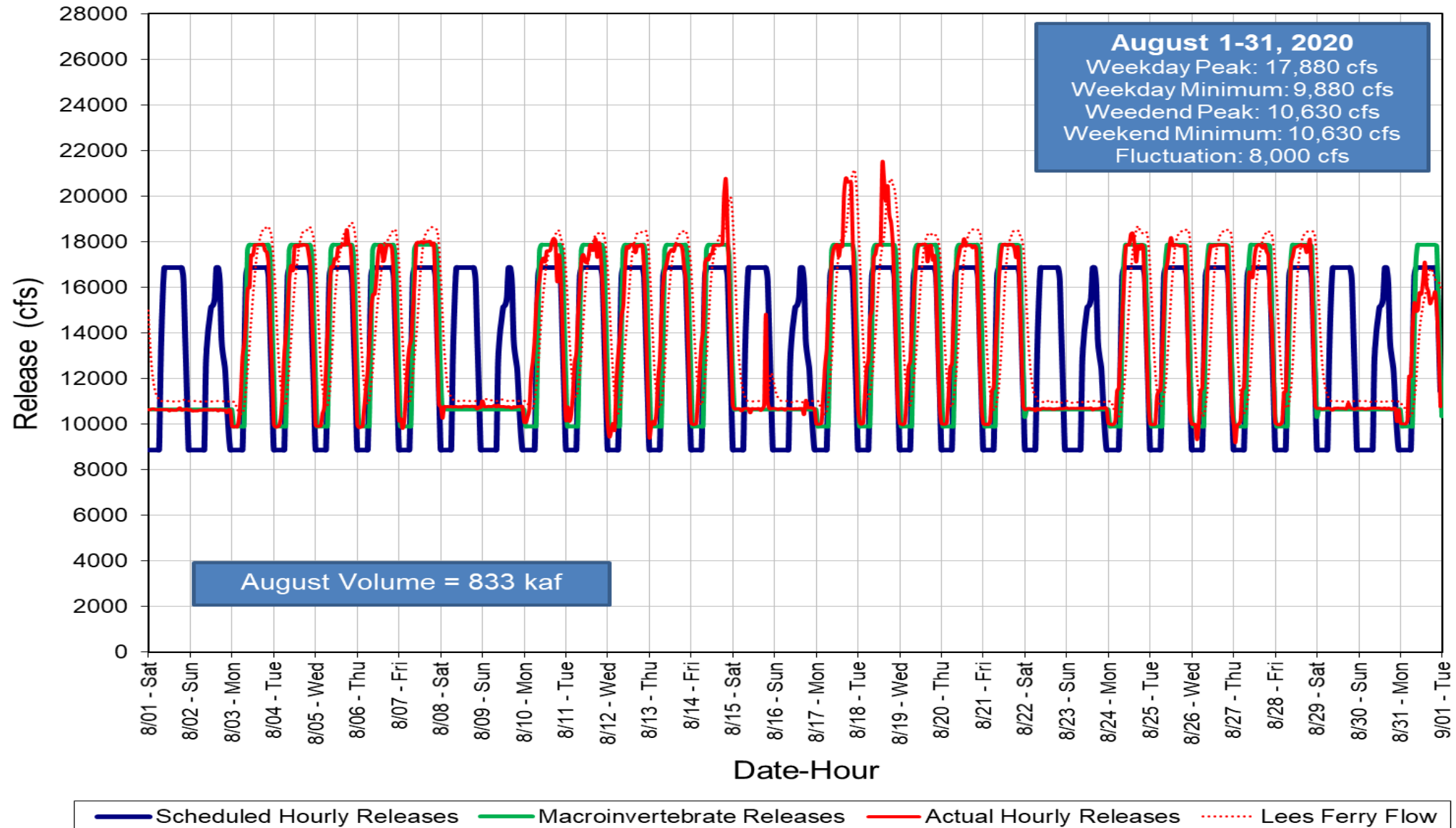


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## Glen Canyon Dam Hourly Release Pattern August 2020



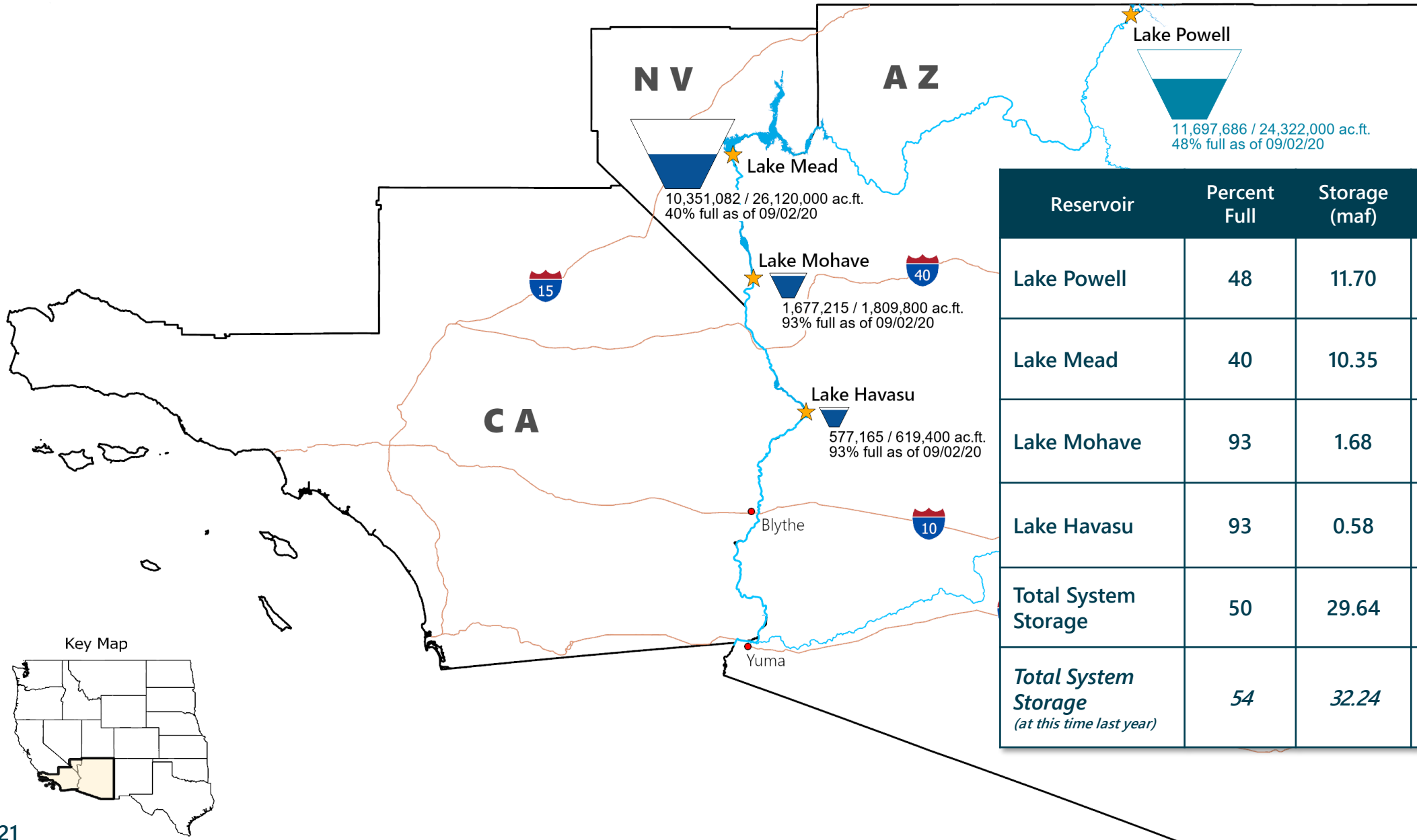


# Lower Colorado Basin

## System Conditions and Operations Update



# Colorado River System Conditions (as of September 2, 2020)



Reservoir	Percent Full	Storage (maf)	Elevation (feet)
Lake Powell	48	11.70	3,599.45
Lake Mead	40	10.35	1,084.07
Lake Mohave	93	1.68	642.21
Lake Havasu	93	0.58	447.85
Total System Storage	50	29.64	-
<i>Total System Storage (at this time last year)</i>	<i>54</i>	<i>32.24</i>	-





# Lower Basin Side Inflows – WY/CY 2020<sup>1,2</sup>

## Intervening Flow from Glen Canyon to Hoover Dam

	Month	5-Year Average Intervening Flow (kaf)	Observed Intervening Flow (kaf)	Observed Intervening Flow (% of Average)	Difference From 5-Year Average (kaf)
Historical	October 2019	75	34	45%	-41
	November 2019	68	116	169%	47
	December 2019	64	118	184%	54
	January 2020	95	75	79%	-20
	February 2020	101	68	67%	-33
	March 2020	91	156	171%	65
	April 2020	69	83	120%	14
	May 2020	49	33	68%	-15
	June 2020	28	19	68%	-9
	July 2020	73	35	48%	-38
	August 2020	91	70	77%	-21
Future	September 2020	75	75		
	October 2020	75	75		
	November 2020	68	68		
	December 2020	64	64		
	WY 2020 Totals	878	881	100%	3
	CY 2020 Totals	878	821	93%	-57

<sup>1</sup> Values were computed with the LC's gain-loss model for the most recent 24-month study.

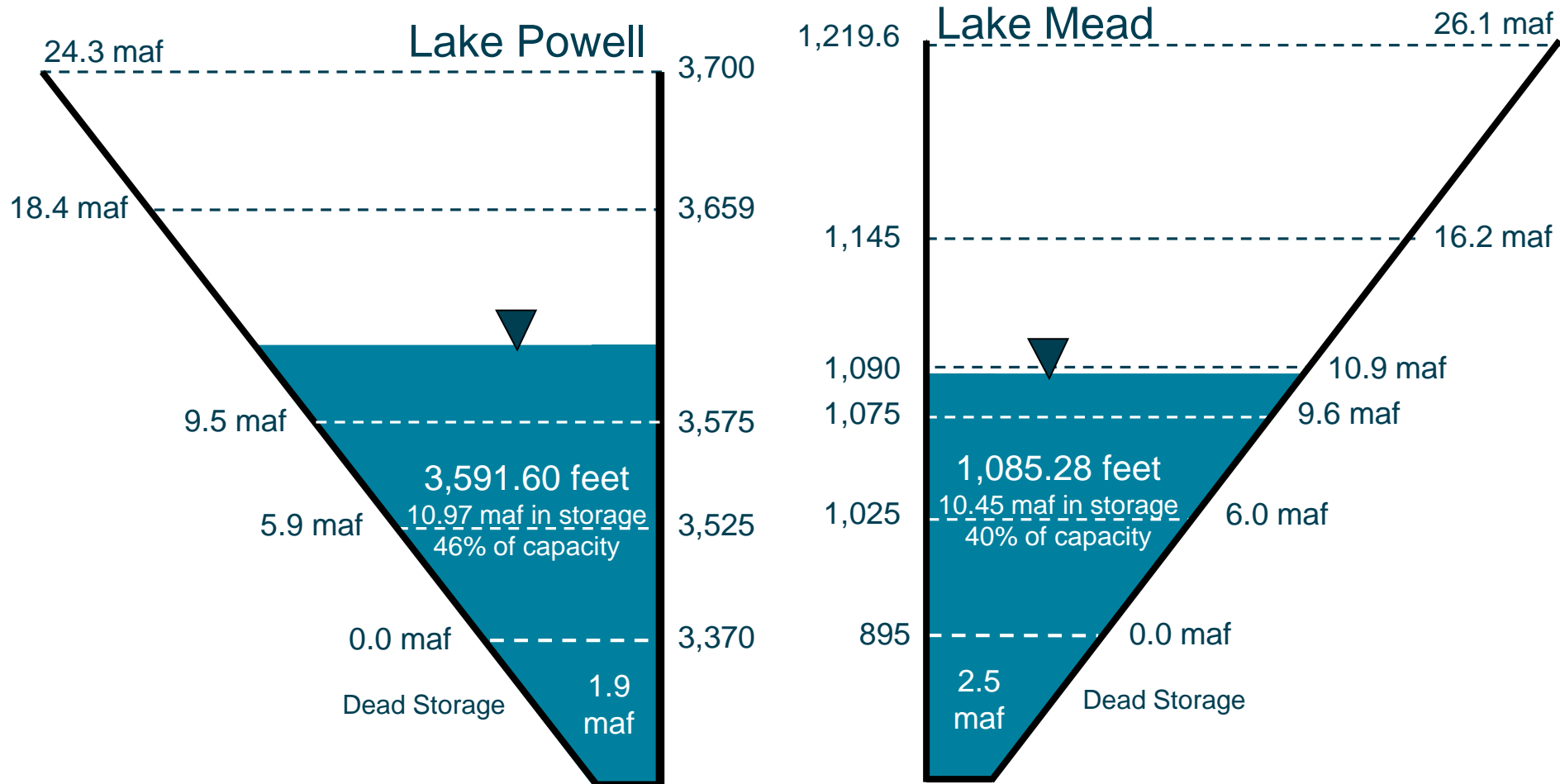
<sup>2</sup> Percents of average are based on the 5-year mean from 2015-2019.



# End of Calendar Year 2020 Projections

## August 2020 24-Month Study Most Probable Inflow Scenario<sup>1</sup>

*Based on a Lake Powell release of 8.23 maf in WY 2020 and 9.00 maf in WY 2021*



Not to Scale





# Lake Powell & Lake Mead Operational Table

## Operational Tiers for Water/Calendar Year 2021<sup>1</sup>

Lake Powell			Lake Mead		
Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) <sup>1</sup>	Elevation (feet)	Operation According to the Interim Guidelines	Live Storage (maf) <sup>1</sup>
3,700	Equalization Tier Equalize, avoid spills or release 8.23 maf	24.3	1,220	Flood Control Surplus or Quantified Surplus Condition Deliver > 7.5 maf	25.9
3,636 - 3,666 (2008-2026)		15.5 - 19.3 (2008-2026)	1,200 (approx.) <sup>2</sup>	Domestic Surplus or ICS Surplus Condition Deliver > 7.5 maf	22.9 (approx.) <sup>2</sup>
	3,591.60 ft Upper Elevation Balancing Tier <sup>3</sup> Release 8.23 maf;		1,145		15.9
	Jan 1, 2021 projection if Lake Mead < 1,075 feet, balance contents with a min/max release of 7.0 and 9.0 maf		1,105	Normal or ICS Surplus Condition Deliver ≥ 7.5 maf	11.9
3,575		9.5	1,085.28 ft Jan 1, 2021 projection		
	Mid-Elevation Release Tier Release 7.48 maf; if Lake Mead < 1,025 feet, release 8.23 maf		1,075	Shortage Condition Deliver 7.167 <sup>4</sup> maf	9.4
3,525		5.9	1,050	Shortage Condition Deliver 7.083 <sup>5</sup> maf	7.5
	Lower Elevation Balancing Tier Balance contents with a min/max release of 7.0 and 9.5 maf		1,025	Shortage Condition Deliver 7.0 <sup>6</sup> maf Further measures may be undertaken <sup>7</sup>	5.8
3,490		4.0	1,000		4.3
3,370		0	895		0

Diagram not to scale

<sup>1</sup> Acronym for million acre-feet

<sup>2</sup> This elevation is shown as approximate as it is determined each year by considering several factors including Lake Powell and Lake Mead storage, projected Upper Basin and Lower Basin demands, and an assumed inflow.

<sup>3</sup> Subject to April adjustments which may result in a release according to the Equalization Tier

<sup>4</sup> Of which 2.48 maf is apportioned to Arizona, 4.4 maf to California, and 0.287 maf to Nevada

<sup>5</sup> Of which 2.40 maf is apportioned to Arizona, 4.4 maf to California, and 0.283 maf to Nevada

<sup>6</sup> Of which 2.32 maf is apportioned to Arizona, 4.4 maf to California, and 0.280 maf to Nevada

<sup>7</sup> Whenever Lake Mead is below elevation 1,025 feet, the Secretary shall consider whether hydrologic conditions together with anticipated deliveries to the Lower Division States and Mexico is likely to cause the elevation at Lake Mead to fall below 1,000 feet. Such consideration, in consultation with the Basin States, may result in the undertaking of further measures, consistent with applicable Federal law.



# Lower Basin Reservoir Operations

## *Calendar Year 2021*

- Lake Mead operated consistent with the 2007 Interim Guidelines, the Lower Basin DCP, and Minute 323
  - Lake Mead will operate in a Normal/ICS Surplus Condition in CY 2021 with Lower Basin DCP and Minute 323 water savings contributions
  - ICS and system conservation water are also projected to be created
- Lakes Mohave and Havasu will operate consistent with each reservoir's respective elevation guide curves



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

## Total Volumes (kaf)

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 <i>US: (2007 Interim Guidelines Shortages + DCP Contributions)</i> <i>Mexico: (Minute 323 Delivery Reductions + Binational Water Scarcity Contingency Plan Savings)</i>					Total Combined Volumes
	AZ	NV	Mexico	<b>Lower Basin States + Mexico</b>	AZ	NV	CA	Mexico	AZ Total	NV Total	CA Total	Lower Basin States Total	Mexico Total	<b>Lower Basin States + Mexico</b>
1,090 - 1,075	0	0	0	<b>0</b>	192	8	0	41	192	8	0	200	41	<b>241</b>
1,075 - 1050	320	13	50	<b>383</b>	192	8	0	30	512	21	0	533	80	<b>613</b>
1,050 - 1,045	400	17	70	<b>487</b>	192	8	0	34	592	25	0	617	104	<b>721</b>
1,045 - 1,040	400	17	70	<b>487</b>	240	10	200	76	640	27	200	867	146	<b>1,013</b>
1,040 - 1,035	400	17	70	<b>487</b>	240	10	250	84	640	27	250	917	154	<b>1,071</b>
1,035 - 1,030	400	17	70	<b>487</b>	240	10	300	92	640	27	300	967	162	<b>1,129</b>
1,030 - 1,025	400	17	70	<b>487</b>	240	10	350	101	640	27	350	1,017	171	<b>1,188</b>
<1,025	480	20	125	<b>625</b>	240	10	350	150	720	30	350	1,100	275	<b>1,375</b>

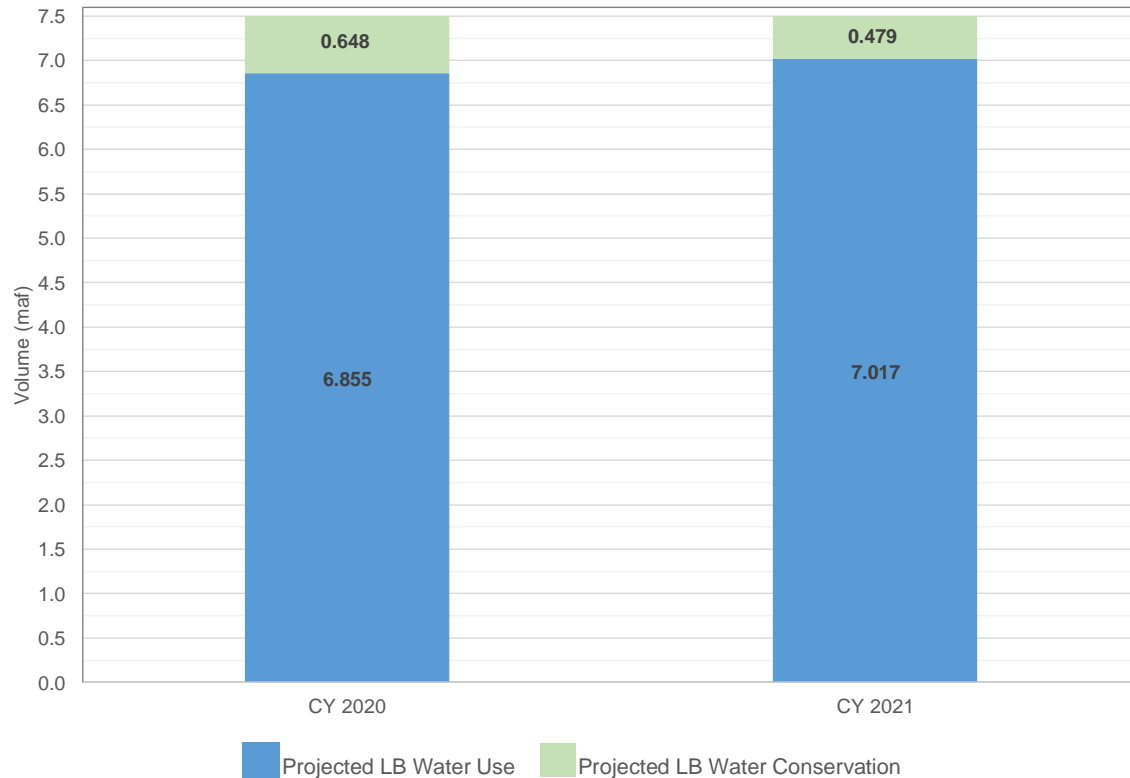
The Secretary of the Interior will take affirmative actions to implement programs designed to create or conserve 100,000 acre-ft per annum or more of Colorado River System water to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the lower basin. All actions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



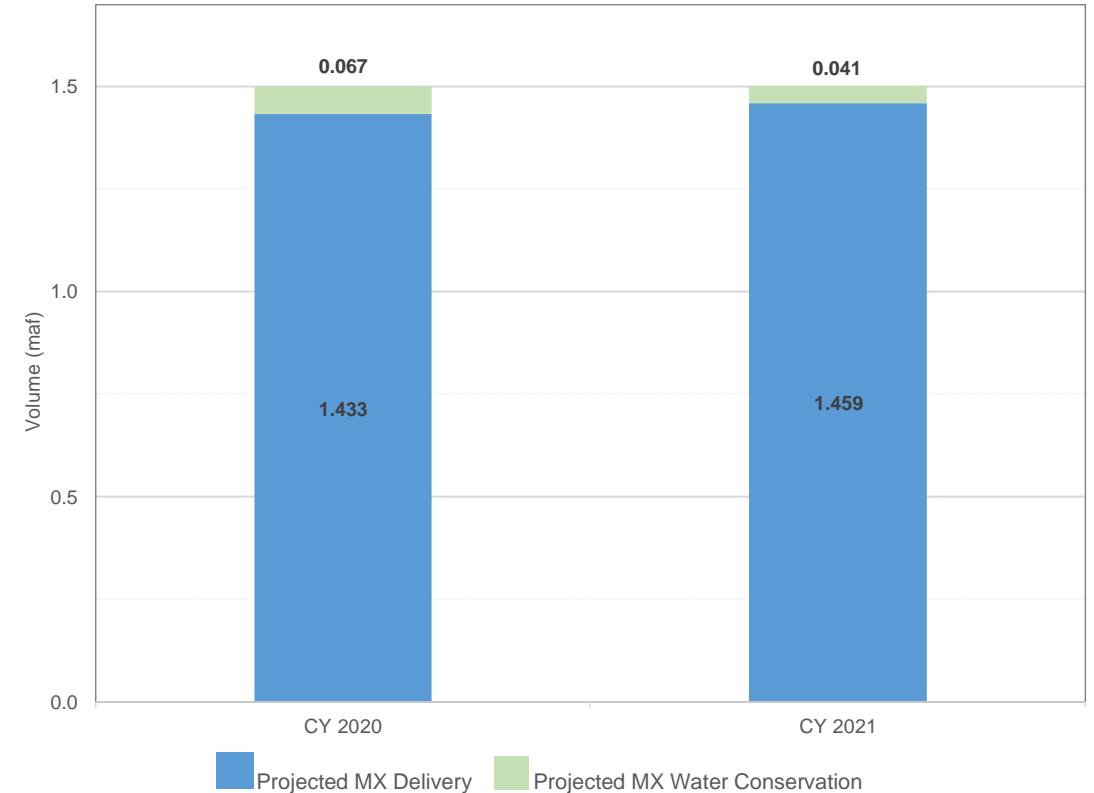
# Projected Lower Basin Water Use<sup>1</sup> and Delivery to Mexico<sup>2</sup>

*As modeled in the August 2020 24-Month Study*

24-Month Study Projections  
Lower Basin Water Use and Conservation/Storage Volumes



24-Month Study Projections  
Delivery of Water to Mexico and Conservation/Storage Volumes



<sup>1</sup> Projected LB water conservation in 2020 and 2021 includes DCP contributions, system conservation, and ICS creation.

<sup>2</sup> Projected Mexico water conservation includes water reserve in 2020 and recoverable water savings in 2021.



# Projected Lake Mead Operational Tiers

Based on August 2020 24-Month Study Inflow Scenarios

Inflow Scenario	CY 2021	CY 2022
	Jan 1, 2021 Projection	Jan 1, 2022 Projections
Probable Maximum	Normal - ICS Surplus Condition + Water Savings Contributions <sup>1</sup> Elevation 1,085.28 ft	Normal - ICS Surplus Condition + Water Savings Contributions <sup>1</sup> Elevation 1,083.08 ft
Most Probable		Normal - ICS Surplus Condition + Water Savings Contributions <sup>1</sup> Elevation 1,086.90 ft
Probable Minimum		Level 1 Shortage Condition+ Water Savings Contributions <sup>1</sup> Elevation 1,067.28 ft

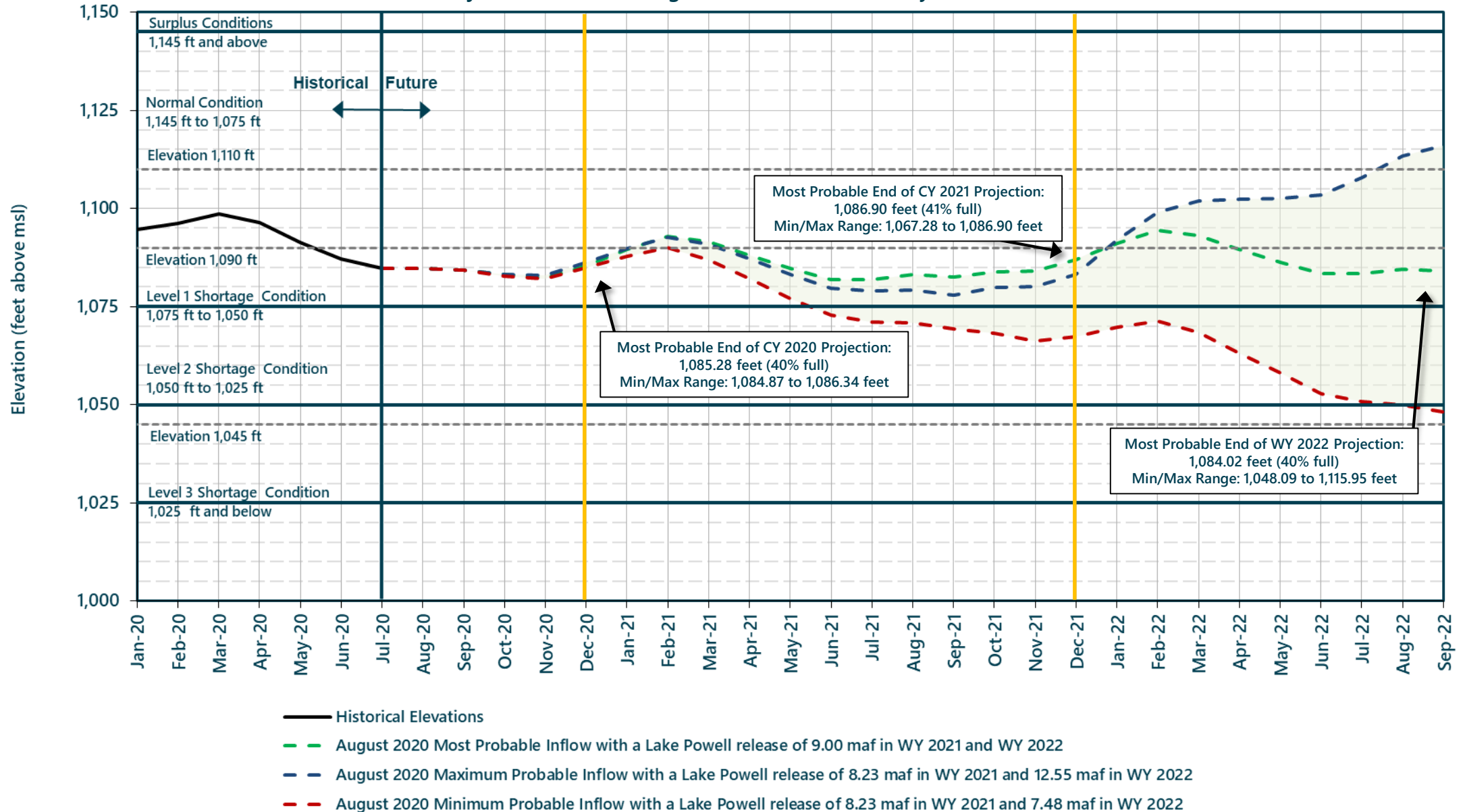
<sup>1</sup>Water savings contributions consistent with the 2019 Colorado River Drought Contingency Plans and Section IV of IBWC Minute No. 323.





# Lake Mead End of Month Elevations

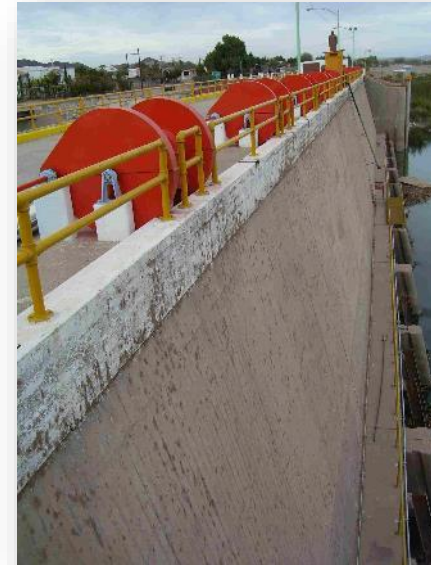
Projections from the August 2020 24-Month Study Inflow Scenarios



# Additional Operational Data

## Provisional 2020 Year-to-Date Totals

- Mexico Excess Flows
  - 49,544 af (through 9/2)
- Brock Reservoir Total Storage
  - 92,913 af (through 8/28)
- Senator Wash Total Storage
  - 52,274 af (through 8/28)



# YAO Operations Update

- Pumped drainage return flows from the Wellton-Mohawk Irrigation and Drainage District
  - Flow at station 0+00 on the Main Outlet Drain from January through July 2020 was 55,902 ac-ft at 2,670 ppm
- Provisional drainage flows to the Colorado River
  - From the South Gila Drainage Wells January through July 2020 was 16,147 ac-ft at 1,664 ppm
  - From the Yuma Mesa Conduit January through July 2020 was 0 ac-ft





2021 Colorado River Annual Operating Plan  
Colorado River Management Work Group  
Final Consultation  
September 3, 2020



— BUREAU OF —  
RECLAMATION