

January 24-Month Study
Date: January 15, 2021

From: Water Resources Group, Salt Lake City
To: All Colorado River Annual Operating Plan (AOP) Recipients

Current Reservoir Status

Reservoir	December Inflow (unregulated) (acre-feet)	Percent of Average (%)	January 14, Midnight Elevation (feet)	January 14, Midnight Reservoir Storage (acre-feet)
Fontenelle	26,700	82	6,481.68	167,600
Flaming Gorge	24,100	68	6,024.85	3,154,700
Blue Mesa	20,900	81	7,464.91	398,000
Navajo	9,800	39	6,036.19	1,072,000
Powell	168,900	46	3,579.55	9,901,000

Expected Operations

The operation of Lake Powell and Lake Mead in this January 2021 24-Month Study is pursuant to the December 2007 Record of Decision on Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations of Lake Powell and Lake Mead (Interim Guidelines), and reflects the 2021 Annual Operating Plan (AOP). Pursuant to the Interim Guidelines, the August 2020 24-Month Study projections of the January 1, 2021, system storage and reservoir water surface elevations set the operational tier for the coordinated operation of Lake Powell and Lake Mead during 2021.

The August 2020 24-Month Study projected the January 1, 2021, Lake Powell elevation to be below the 2021 Equalization Elevation of 3,659 feet and above elevation 3,575 feet. Consistent with Section 6.B of the Interim Guidelines, Lake Powell will operate in the Upper Elevation Balancing Tier for water year 2021, with an initial water year release volume of 8.23 maf and the potential for an April adjustment to equalization or balancing releases in April 2021. Based on the most probable inflow forecast, this January 24-Month Study projects Lake Powell to remain in 6.B.1 with a release of 8.23 maf in water year 2021.

Consistent with Section 2.B.5 of the Interim Guidelines, the Intentionally Created Surplus (ICS) Surplus Condition is the criterion governing the operation of Lake Mead for calendar year 2021. In addition, Section III.B of Exhibit 1 to the Lower Basin Drought

Contingency Plan (DCP) Agreement is also governing the operation of Lake Mead in calendar year 2021.

The 2021 AOP is available for download at:
<https://www.usbr.gov/lc/region/g4000/aop/AOP21.pdf>.

The Interim Guidelines are available for download at:
<https://www.usbr.gov/lc/region/programs/strategies/RecordofDecision.pdf>.

The Colorado River DCPs are available for download at:
<https://www.usbr.gov/lc/region/programs/dcp.html>.

Fontenelle Reservoir -- As of January 10, 2021, the Fontenelle Reservoir pool elevation is 6482.37 feet, which amounts to 51 percent of live storage capacity. Inflows for the month of December totaled 27,000 acre-feet (af) or 82 percent of average.

Fontenelle's releases are currently set at 825 cfs. This release is scheduled to be maintained through the Fall/Winter operation period, which typically ends in late March or early April when ice on the Green River begins to thaw.

The January final forecast for unregulated inflows into Fontenelle for the next three months projects below average conditions. January, February, and March inflow volumes amount to 25,000 af (82 percent of average), 22,000 af (80 percent of average), and 40,000 af (76 percent of average), respectively.

The 2021 water year unregulated inflow volume is forecasted to be 719,000 af (66 percent of average) based on the January forecast. This is a considerable decrease when compared to the November forecast when the unregulated inflow volume was forecasted to be 799,000 af (74 percent of average).

The August 27, 2020, Fontenelle Working Group meeting minutes are available online on USBR's website at <https://www.usbr.gov/uc/water/crsp/wg/ft/ftcurrnt.html>. The next Fontenelle Working Group meeting is scheduled for April 22, 2021. The meeting will be held at 10:00am at the Seedskadee National Wildlife Refuge. Depending on the COVID-19 (Coronavirus) situation we may need to change it to a virtual meeting using WebEX. The Fontenelle Working Group is an open public forum for information exchange between Reclamation and other parties associated with the operation of Fontenelle Reservoir.

Flaming Gorge -- As of January 11, 2021 Flaming Gorge Reservoir pool elevation is 6024.85 feet, which amounts to 84 percent of live storage capacity. Unregulated inflows for the month of December is approximately 24,103 acre-feet (af), which is 69% of the average December unregulated inflow volume.

The winter base flow period started on December 1. Winter average daily releases will meet moderately dry hydrologic condition lower targets in Reach 2 (1,100 cfs to 1,500

cfs, includes flows from the Yampa River). The daily average release of 1,000 cfs will be maintained through January, which is near +25% of the winter base flow.

The January final forecast for unregulated inflows into Flaming Gorge for the next three months projects below average conditions. January, February and March forecasted unregulated inflow volumes amount to 30,000 af (74 percent of average), 33,000 af (74 percent of average) and 76,000 af (74 percent of average), respectively.

Reclamation is planning to hold the next Flaming Gorge Working Group meeting on March 18, 2021 at 10:00 am MDT via WebEx. This will be followed up with the mid-April meeting on April 15, 2021 at 10:00 am MDT via WebEx. The Flaming Gorge Working Group is an open public forum for information exchange between Reclamation and the stakeholders of Flaming Gorge Dam. The public is encouraged to attend and comment on the operations and plans presented by Reclamation at these meetings. Meeting notes from past Working Group meetings are posted on the Working Group webpage. For more information on this group and these meetings please contact Dale Hamilton at 801-379-1186.

Aspinall Unit Reservoirs – As of January 10, 2021 releases from Crystal Dam are approximately 400 cfs. Gunnison Tunnel diversions have been terminated for the irrigation season. There will be periodic diversions to refill Fairview Reservoir about every 2 weeks throughout the winter months. Flows in the Black Canyon are about 385 cfs.

The unregulated inflow volume in December to Blue Mesa was 20,888 af (67 percent of average). Unregulated Inflow volumes forecasted for Blue Mesa for the next three months (December, January and February) are projected to be: 19,000 af (79 percent of average), 17,000 af (77 percent of average) and 29,000 af (81 percent of average), respectively. The January 24-Month Study is reflective of these new forecasts.

The 2021 water year unregulated inflow volume is projected to be 670,692 af (70 percent of average). The water supply period (April-July) for 2021 is forecasted to have 470,000 af of unregulated inflow (70 percent of average). At this point in the year there is a great deal of uncertainty for how the year will ultimately turn out. Current forecasting projects at a probability of 80 percent that the water year unregulated inflow volume to Blue Mesa will be in the range from 498,000 acre-feet to 999,000 acre-feet.

Blue Mesa is not projected to fill in 2021 under the most probable inflow scenario. Blue Mesa is projected to be at a peak elevation of approximately 7,497 feet by late July, 2021. This will be down approximately 20 feet from the full pool elevation (7,519.4 feet) and water storage in Blue Mesa at this time will be approximately 632,000 acre-feet which is 74 percent of live capacity.

The Aspinall Unit Operations Group is an open public forum for information exchange between Reclamation and the stakeholders of the Aspinall Unit. The public is encouraged to attend and comments on the operations and plans presented by Reclamation at these

meetings. Meeting notes from past working Group meetings are posted on the Operations Group webpage. For more information on this group and these meetings please contact Erik Knight in the Grand Junction Area Office at (970) 248-0629.

The next Operations Group meeting would normally be in January, 2021. However due to the pandemic this meeting is now cancelled. The next meeting would normally be scheduled in April, 2021 but a time and place have not yet be scheduled. Contact Erik Knight in the Grand Junction Area Office for details (970) 248-0629.

Navajo Reservoir – On January 11th, the daily average release rate from Navajo Dam was 400 cfs while reservoir inflow was averaging approximately 140 cfs. The water surface elevation was 6036.38 feet above sea level. At this elevation the live storage is 1.074 maf (63 percent of live storage capacity) and the active storage is 0.412 maf (40 percent of active storage capacity). NIIP is not diverting. The San Juan-Chama project is not currently diverting from the basin above the reservoir. The river flow measured at the Animas River at Farmington USGS gage was at 170 cfs. River flow at the San Juan River at Four Corners USGS gage was 525 cfs.

Releases from Navajo Dam are made for authorized purposes of the Navajo Unit and are pursuant to the Record of Decision for the Navajo Reservoir Operations. Releases target the San Juan River Recovery Implementation Program's recommended downstream baseflow range of 500 cfs to 1,000 cfs through the critical habitat reach of the San Juan River (Farmington, NM to Lake Powell). Current modeling shows the release will most likely vary between 250 and 500 cfs to accomplish this for the remainder of fall and early winter. The current weekly calculated baseflow average is 506 cfs, which is within the SJRIP's recommended range.

Navajo was at 6036.9 ft of pool elevation and 1,079,469 acre-ft of storage by the end of December, which was 82% of average for the end of the month. The release averaged 360 cfs and totaled 21,860 af, which was 51% of average for the month. Preliminary modified unregulated inflow (MUI) into Navajo was 10,171 af. Calculated evaporation for the month was 528 af. Navajo had a net storage loss of 14,973 af in December.

The most probable inflow forecast (adjusted to include observed flows and the short term forecast) for January, February, and March is 8,910 af (41% of average), 14,000 af (46% of average), and 37,000 af (40% of average), respectively.

The April-July runoff forecasts are as follows:

Min Probable: 275,000 af (37% of average)

Most Probable: 450,000 af (61% of average)

Max Probable: 740,000 af (100% of average)

Reclamation conducts Public Operations Meetings three times per year to gather input for determining upcoming operations for Navajo Reservoir. Input from individuals, organizations, and agencies along with other factors such as weather, water rights, endangered species requirements, flood control, hydro power, recreation, fish and

wildlife management, and reservoir levels, will be considered in the development of these reservoir operation plans. In addition, the meetings are used to coordinate activities and exchange information among agencies, water users, and other interested parties concerning the San Juan River and Navajo Reservoir. The next meeting will be held virtually on Tuesday, January 19th at 1:00 PM.

Glen Canyon Dam / Lake Powell

Current Status

The unregulated inflow volume to Lake Powell during December was 168 thousand acre-feet (kaf) (46 percent of average). The release volume from Glen Canyon Dam in December was 720 kaf. The end of December elevation and storage of Lake Powell were 3582.21 ft (118 feet from full pool) and 10.13 maf (42 percent of full capacity), respectively.

The six-month period from April to December 2020 is one of the driest periods on record. August 2020 with -20 kaf unregulated inflow (-4% of avg), is the second driest on record, following August 2002. September 2020 with 47 kaf unregulated inflow (12% of avg) is the second driest on record, following September 2018 (1 kaf). October 2020 with 91 kaf (18% of avg) is the driest on record, followed by October 2001 (159 kaf). November 2020 is the third driest. December 2020 with 168 kaf (46% of avg) is the driest on record, followed by December 2012 (201 kaf). Current conditions resemble 2002, 2012, 2013 and the beginning of 2018, four out of the five driest years on record.

Current Operations

The operating tier for water year 2021 (September 2020 through October 2021) was established in August 2020 as the Upper Elevation Balancing Tier, consistent with Section 6.B of the Interim Guidelines. Consistent with Section 6.B of the Interim Guidelines, Lake Powell's operations in water year 2021 will be governed by the Upper Elevation Balancing Tier. With an 8.23 million acre-foot (maf) release from Lake Powell in water year 2021, the January 2021 24-Month Study projects the end of water year elevation at Lake Powell to be below 3,575 feet, and the end of water year elevation at Lake Mead to be below 1,075 feet. Therefore, in accordance with Section 6.B.1 of the Interim Guidelines, the January 24-Month Study projects that 8.23 maf shall be released from Lake Powell in water year 2021.

In January, the release volume will be approximately 763 kaf, with fluctuations anticipated between about 9,284 cfs in the nighttime to about 16,151 cfs in the daytime, and consistent with the Glen Canyon Dam, Record of Decision (dated December 2016). The anticipated release volume for February is 675 kaf and March is 713 kaf.

In addition to daily scheduled fluctuations for power generation, the instantaneous releases from Glen Canyon Dam may also fluctuate to provide 40 megawatts (mw) of system regulation. These instantaneous release adjustments stabilize the electrical generation and transmission system and translate to a range of about 1,100 cfs above or below the hourly scheduled release rate. Under system normal conditions, fluctuations

for regulation are typically short lived and generally balance out over the hour with minimal or no noticeable impacts on downstream river flow conditions.

Releases from Glen Canyon Dam can also fluctuate beyond scheduled releases when called upon to respond to unscheduled power outages or power system emergencies. Depending on the severity of the system emergency, the response from Glen Canyon Dam can be significant, within the full range of the operating capacity of the power plant for as long as is necessary to maintain balance in the transmission system. Glen Canyon Dam currently maintains 30 mw (approximately 800 cfs) of generation capacity in reserve in order to respond to a system emergency even when generation rates are already high. System emergencies occur fairly infrequently and typically require small responses from Glen Canyon Dam. However, these responses can have a noticeable impact on the river downstream of Glen Canyon Dam.

Inflow Forecasts and Model Projections

The forecast for water year 2021 unregulated inflow to Lake Powell, issued on January 1, 2021, by the Colorado Basin River Forecast Center, projects that the most probable (median) unregulated inflow volume this year will be 5.72 maf (53 percent of average).

There is significant uncertainty regarding next season's snowpack development and resulting runoff into Lake Powell. Reclamation updates the minimum and maximum probable forecasts four times a year: January, April, August and October. The January forecast for water year 2021 ranges from a minimum probable of 3.59 maf (33 percent of average) to a maximum probable of 8.84 maf (82 percent of average). There is a 10 percent chance that inflows could be higher than the current maximum probable forecast and a 10 percent chance that inflows could be lower than the minimum probable forecast.

Based on the current forecast of 5.72 maf unregulated inflow, the January 24-Month Study projects Lake Powell elevation will end water year 2021 near 3,563.97 feet with approximately 8.63 maf in storage (35 percent of capacity). Note that projections of elevation and storage for water year 2021 have significant uncertainty at this point in the season. Projections of end of water year 2021 elevation and storage using the minimum and maximum probable inflow forecast from January 2021 are 3,543.77 feet (7.15 maf, 29 percent of capacity) and 3,581.54 feet (10.07 maf, 41 percent of capacity), respectively. Under these scenarios, there is a 10 percent chance that inflows will be higher, resulting in higher elevation and storage, and 10 percent chance that inflows will be lower, resulting in lower elevation and storage. The annual release volume from Lake Powell during water year 2021 is projected to be 8.23 maf under the January most probable. The January minimum probable scenario is projected to release 8.23 maf, and 9.0 maf under the January maximum probable inflow scenario.

Under the January minimum probable 24-Month Study, the January minimum probable forecast projects Lake Powell's water surface elevation to fall below 3,525 feet during the beginning of water year 2023 (October-December 2022). This model result initiates enhanced monitoring and coordination under the Agreement for Drought Response Operations at the Initial Units of the Colorado River Storage Project Act (Drought

Response Operations Agreement “DROA”). Notification went out to the Basin States (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming) and the Upper Colorado River Commission (UCRC) informing them of this event. This model result does not initiate operational changes to Reclamation facilities.

The Upper Division States and the UCRC enhanced monitoring and coordination will involve a monthly meeting communicating monthly model results from the minimum (10th percentile), most (50th percentile) and maximum (90th percentile) projected operations. Please note that 90 percent of the unregulated inflow hydrologic inputs are expected to be above the minimum probable projections and there is currently a 10 percent expectation to be below elevation 3525 feet under the minimum probable scenario.

The minimum probable 24-Month Study will continue showing operations under the Lower Elevation Balancing Tier (LEBT) that is pursuant to the 2007 Record of Decision on the Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations of Lake Powell and Lake Mead (Interim Guidelines).

The DROA coordination will continue until either (i) the minimum probable projected elevation remains above 3,525 feet for 24 months or (ii) the process moves to the next step when the most probable projected elevation indicates Powell elevations below 3,525 feet and a Drought Response Operations Plan is implemented.

Upper Colorado River Basin Hydrology

Upper Colorado River Basin regularly experiences significant year to year hydrologic variability. During the 21-year period 2000 to 2020, however, the unregulated inflow to Lake Powell, which is a good measure of hydrologic conditions in the Colorado River Basin, was above average in only 4 out of the past 19 years. The period 2000-2020 is the lowest 21-year period since the closure of Glen Canyon Dam in 1963, with an average unregulated inflow of 8.62 maf, or 80 percent of the 30-year average (1981-2010). (For comparison, the 1981-2010 total water year average is 10.83 maf.) The unregulated inflow during the 2000-2020 period has ranged from a low of 2.64 maf (24 percent of average) in water year 2002 to a high of 15.97 maf (147 percent of average) in water year 2011. In water year 2018 unregulated inflow volume to Lake Powell was 4.6 maf (43 percent of average), the third driest year on record above 2002 and 1977. Under the current most probable forecast, the total water year 2021 unregulated inflow to Lake Powell is projected to be 5.72 maf (53 percent of average).

At the beginning of water year 2021, total system storage in the Colorado River Basin was 28.88 maf (48 percent of 59.6 maf total system capacity). This is a decrease of 2.77 maf over the total storage at the beginning of water year 2020 when total system storage was 31.64 maf (53 percent of capacity). Since the beginning of water year 2000, total Colorado Basin storage has experienced year to year increases and decreases in response to wet and dry hydrology, ranging from a high of 94 percent of capacity at the beginning of 2000 to the now current level of 48 percent of capacity at the beginning of water year 2021. Based on current inflow forecasts, the current projected end of water year total Colorado Basin reservoir storage for water year 2021 is approximately 27.55 maf (46

percent of total system capacity). The actual end of water year 2021 system storage may vary from this projection, primarily due to uncertainty regarding this season's runoff and reservoir inflow.

TO ALL ANNUAL OPERATING PLAN RECIPIENTS

MAILED FROM UPPER COLORADO REGION
WATER RESOURCES GROUP
ATTENTION UC-430
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SALT LAKE CITY, UT 84138-5571
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RUNOFF AND INFLOW PROJECTIONS INTO UPPER BASIN RESERVOIRS ARE PROVIDED BY
THE COLORADO RIVER FORECASTING SERVICE THROUGH THE NATIONAL WEATHER SERVICES'S
COLORADO BASIN RIVER FORECAST CENTER AND ARE AS FOLLOWS

:	Obs				sep	Forecast				
:	sep	oct	nov	dec	%Avg	jan	feb	mar	apr-jul	%Avg
GLDA3:Lake Powell	47	87	261	168	46%:	215/	250/	410/	3800/:	53%
GBRW4:Fontenelle	25	31	32	26	81%:	25/	22/	40/	460/:	63%
GRNU1:Flaming Gorge	28	26	36	24	69%:	30/	33/	76/	585/:	60%
BMDC2:Blue Mesa	23	20	25	21	82%:	19/	17/	29/	470/:	70%
MPSC2:Morrow Point	23	16.8	27	24	87%:	20/	19/	32/	510/:	69%
CLSC2:Crystal	25	18.3	29	27	83%:	23/	21/	36/	570/:	68%
TPIC2:Taylor Park	5.5	4.2	4.1	3.9	83%:	3.4/	2.9/	3.2/	75/:	76%
VCRC2:Vallecito	4.1	2.6	3.4	2.7	43%:	2.5/	2/	3/	110/:	57%
NVRN5:Navajo	-7.36	6.3	16.9	9.8	39%:	11.5/	14/	37/	450/:	61%
LEMC2:Lemon	0.69	0.36	0.53	0.43	39%:	0.3/	0.3/	0.7/	31/:	56%
MPHC2:McPhee	8.1	1.49	1.92	1.33	30%:	2.0/	2.5/	7.0/	170/:	58%
RBSC2:Ridgway	3.2	3.2	3.9	3.2	71%:	2.9/	2.6/	4.4/	62/:	61%
YDLC2:Deerlodge	5.2	14.2	22	22e	88%:	19/	18/	52/	855/:	69%
DRGC2:Durango	9.9	7.3	8.3	6.8	46%:	7.0/	6.5/	10.0/	240/:	58%