BUREAU OF RECLAMATION
NAVAJO RESERVOIR COORDINATION MEETING
August 24th, 2021
SUMMARY

Dear Interested Party:

Enclosed is a summary of our August 24th, 2021 meeting to coordinate Bureau of Reclamation's (Reclamation) operation of the Navajo Unit. The meeting was held virtually over Microsoft Teams video conferencing.

Summary points of the meeting:

- WY 2021 April-July runoff was poor throughout the San Juan River Basin. Navajo Modified Unregulated Inflow totaled 378 kaf which was 51% of average.
- There was no spring peak release. Releases varied from 300 –900 cfs throughout WY 2021.
- Drought conditions have improved in the Four Corners due to rains but drought still persists and is still at its maximum D4 level in many places. Soil moisture has also improved due to rains.
- In November and December of 2021, releases are scheduled to increase in response to a continual declining dry hydrologic condition for the Colorado River system. This drought operation is implemented under the Upper Basin Drought Response Operations Agreement. The maximum flexibility within the Record of Decision will be used to release an additional 20,000 af on top of base releases. Notification of releases will occur prior to the scheduled release change.
- Based on current storage and streamflows and the statistical range of likely hydrologies for WY 2022, there is a 25% chance for a spring peak release. The median runoff forecast is for 83% of average.
- The statistical "average" range will soon be migrated from 1981 –2010 to the 1991 – 2020.

Copies of the material presented, and past meeting notes are available online at:
http://www.usbr.gov/uc/water/crsp/cs/nvd.html

If you have any suggestions on improving the operation meetings or the summaries of the meetings, please let us know. The next meeting will be held on **Tuesday, January 18th at 1:00 PM. This meeting is currently set to be in a virtual format. A meeting notice with conferencing information will be sent out prior to the meeting date.**

NAVAJO UNIT OPERATIONS MEETING
August 24th, 2021

Participation: This meeting was held virtually via Microsoft Teams. The attendance list is attached.

Purpose of Meeting: The purpose of these meetings, held annually in January, April, and August, is to gather input for determining upcoming operations for Navajo Reservoir. This input is used in Reclamation's development of an overall 24-month study for operation of Reclamation projects in the Upper Colorado River Basin, which includes plans for Glen Canyon, Flaming Gorge, Aspinall Unit and Navajo. 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.

Drought Response Operations

Katrina Grantz, Assistant Regional Director for the Upper Colorado Basin Region, Reclamation, Salt Lake City

The Drought Response Operations Agreement (DROA) is a key tool we have for addressing the impact of drought on the Colorado River and on operations at Glen Canyon Dam, in collaboration with our state partners and other federal and non-federal stakeholders and tribes. The purpose of DROA is to protect critical elevations at Lake Powell.

Elevation 3,490 feet at Lake Powell is the lowest elevation at which we can generate power, which is critical to Reclamation's operations. Glen Canyon Dam generates enough energy to meet the needs of 363,000 households, including large power suppliers, large and small municipalities, and Tribes. Revenue from the generation of this hydropower is essential for continued operation of Reclamation facilities and for funding environmental compliance efforts. Maintaining an elevation above 3,490 feet is also for operational reasons, as falling below has the potential to lead to cavitation, debris entrapment, and severe damage to the power facility.

The States and Reclamation determined one of the purposes of DROA would be to start protection at an elevation of 3,525 feet, which is 35 feet above minimum power pool elevation of 3,490 feet. The agreement provides two tools to this end. One is to adjust timing of deliveries from Lake Powell to Lake Mead, and the second tool is to make supplemental deliveries from upper initial CRSP Units: Flaming Gorge, Blue Mesa, and Navajo.

As part of that effort, under that agreement, when Lake Powell hit certain elevation triggers, Reclamation began enhanced monitoring, modeling, and coordination with the States and began to develop a plan for protecting those elevations at Lake Powell.

In July 2021, rapidly declining hydrology and an imminent need to protect Lake Powell's elevation prompted an emergency action under DROA. Supplemental deliveries to Lake Powell

within the Record of Decisions (ROD) of each upper initial unit were scheduled, and in some cases began. An additional 181,000 acre-feet of water were scheduled to be released to Lake Powell by the end of December. The 181,000 acre-feet is equivalent to approximately 3-feet at Lake Powell. The 181,000 acre-feet is divided as follows: Flaming Gorge: 125,000 af released from July to October, Blue Mesa: 36,000 af released from August – October, and Navajo: 20,000 af released from November to December.

In the meantime, the Upper Basin States and Reclamation are committed to completing our planning efforts and are striving to have a plan in place by April of 2022. Enhanced modeling continues to take place and will assist in planning any additional DROA releases in the future.

For more information on DROA, please see the links below.

Drought Contingency Plans
https://www.usbr.gov/dcp/finaldocs.html

Attachment A1- Agreement for Drought Response Operations at the Initial Units of the Colorado River Storage Project Act
https://www.usbr.gov/dcp/docs/final/Attachment-A1-Drought-Response%20Operations-Agreement-Final.pdf

News Release regarding DROA
https://www.usbr.gov/newsroom/#/news-release/3917

Weather Summary and Outlook
Aldis Strautins, National Weather Service, Grand Junction

Water year 2021 is another consecutive year of below average precipitation. Water Year 2020 was also very below-average in terms of precipitation, with an average of 50-70% of normal precipitation. The end of 2020 was particularly dry, with the Four Corners receiving only 25 – 50% of normal precipitation in most areas.

Temperatures in WY 2021 have been on average normal to just below normal for the year. Precipitation has been on average 50-80 percent of normal. Snowpack peaked at 85% of average in the basin.

CPC outlooks presented in April did a good job of predicting monsoonal precipitation events that would occur in July and August of this year. Those forecasts verified. While temperatures were above average, July precipitation was overall 125 to 200 percent of average in the basin for the month. Similarly August has been above average in terms of temperature, and while precipitation events have occurred, they were further to the east than the previous month.

Despite the rains, the entirety of the Four Corners remain in a drought. While conditions have improved since April, higher elevations remain in D0 or D1, while lower elevations are in D2

through D4, with D4 being the most severe classification of drought. Drought conditions overall are much worse on the western slope than they were at this time in 2020.

The ENSO outlook is for a probability of La Nina beginning this fall. Currently ENSO status is in a neutral condition.

The 7-day precipitation outlook (accumulation period from Aug 24-31) shows a possibility for up to a half inch of precipitation in the high country. The CPC outlook for August shows above average precipitation, much of which we have already seen in the earlier part of the month. Unfortunately, the CPC outlook is showing a likelihood of below-average precipitation and above average temperatures through December.

Streamflow Summary and Outlook

Ashley Nielson, Colorado Basin River Forecast Center, Salt Lake City

Most of the snowpack accumulation season in WY 2021 was well below-average on a monthly basis. October through March had a mean precipitation average of 85% of average above Navajo. May through July finally offered some reprieve with above average precipitation, but when combined with the earlier season, the total water year precipitation was still well below normal, and so far has totaled 85% as of the end of July.

Runoff began early in the San Juan River Basin, and almost 5 inches of SWE was lost in the Animas the first two weeks of April. Snow peaked below normal and early, and runoff was early throughout the basin. Additional snow accumulation at high elevations in late May helped improve water supply conditions, increased runoff efficiency, and lessened the impact of the dry antecedent soil moisture conditions.

Final April – July runoff came in at 51% of average for Navajo. The official forecast started at 450 kaf in January and decreased slightly monthly as the season unfolded. A low forecast in May was bolstered by weather events, and by June the forecast had come up closer to the final volume. The observed April-July volumes fell within the forecasted range of possibilities, suggesting the model was initialized well with good values for soil moisture.

Review of Water Year 2021 Operations to date

At the beginning of WY 2021, the reservoir elevation was at 6043 ft (1,147kaf of live storage). As of 8/23, the reservoir is at 6032 ft (1,030 kaf live storage. This is a difference of -117 kaf since the beginning of the water year. Inflows into the reservoir were lower than the release throughout much of the winter, causing a steady decrease in storage until runoff season began.

The release has varied throughout the water year from 300 cfs to 900 cfs in order to maintain the target baseflow range of 500 – 1000 cfs. We typically target the minimum of that range to save water throughout the year. The release increases as hydrologic inputs decrease and irrigation demand is high, to continue to meet the minimum target baseflow.

At the start of the water year, the reservoir was in the lowest 70th percentile of historical levels, and has since dropped into the 90th percentile. The reservoir peaked at 6041.54 ft in June, and has been decreasing throughout the summer.

The Animas River cumulative flows throughout the winter were the lowest on record. By runoff the cumulative flows had surpassed the record low set in 2002.

The flow targets for the San Juan went unfulfilled in 2021, with only three days above 2,500 cfs at Four Corners from March through July.

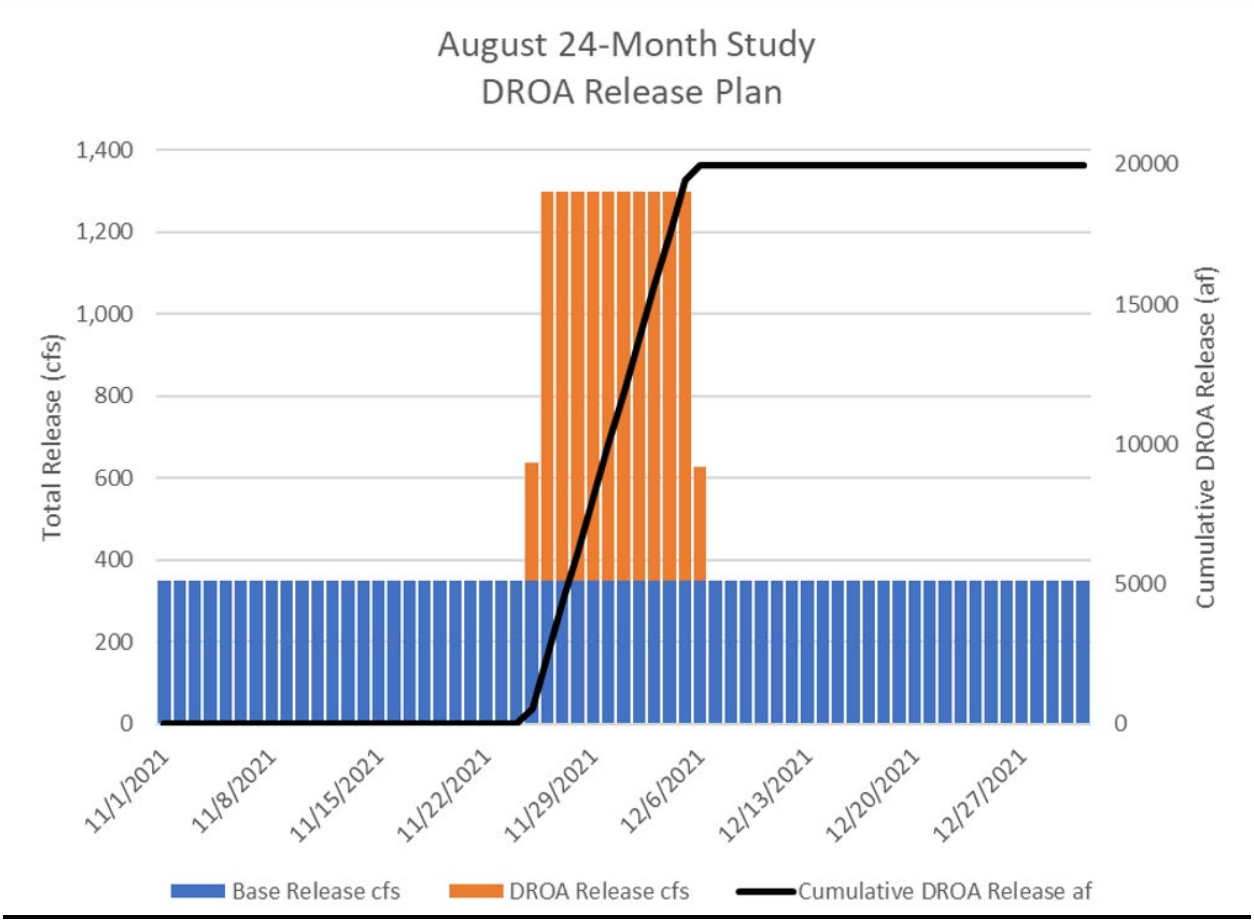
Late July and August did bring monsoonal precipitation with the following notable flow peaks: USGS Bloomfield 4,000 cfs; USGS Farmington 5,270 cfs; USGS Bluff 7,000 cfs.

Current storage levels across the basin are below average. Navajo is 61% full, Vallecito is 40% full, Lemon is 31% full, McPhee is 44% full, and Jackson is 39% full. Lake Nighthorse pumped to fill this season and is 99% full.

Proposed Operations for Remainder of WY 2021 and WY 2022

Based on current forecasted streamflows for the remainder of the water year, we expect to release between 300 cfs and 800 cfs through the end of September. Heavy rains could aid in the decrease of the release, but warm dry weather will likely result in a release on the higher end of that range from the dam. The reservoir elevation at the end of this water year is expected to be between 6028 and 6031 ft depending on the release and rainfall.

In November and December of 2021, releases are scheduled to increase in response to a continual declining dry hydrologic condition for the Colorado River system. This drought operation is implemented under the Upper Basin Drought Response Operations Agreement. The maximum flexibility within the Record of Decision will be used to release an additional 20,000 af on top of base releases. Approximately 10,000 af is planned for release in November, and 10,000 af is planned for release in December. Currently, that release is planned as an increase of 1,000 cfs over the base release, for a total of between 1200 and 1400 cfs, depending on the base release at the time, for 10 days (November 25 - December 05). This plan may be modified as hydrologic conditions change. Notification of releases will occur prior to the scheduled release change. It is important to note that water released for DROA is CRSP system water, and is not contracted water. A current plan for the release is shown below.



Based on current streamflow conditions, storage levels, and statistical outlooks based on 35 years of historical hydrology, runoff projections for WY 2022's April-July runoff season range from 300 kaf (42% of average) to 1,130 kaf (153% of average with a median projection of 615kaf (83% of average). There is a 25% chance of a spring peak release. There is also a 3% chance of falling below minimum active storage levels (5990 ft). The most probable end of water year elevation at Navajo for WY2022 is 6048 ft. The range is wide, with a low of 6008 ft and a high of 6055 ft. This range captures 80% of the uncertainty at this point in time.

Statistical averages used in reporting are due to be updated in the near future. The 30-year average used across agencies progresses every decade. Currently we use 1981 – 2010 time period, and this will be updated to 1991 – 2020. This means that the Navajo April- July Modified Unregulated Inflow will change as follows: 1981-2010: 737 -> 1991-2020: 628 kaf, a difference of -109 kaf. This will result in percent-averages that are higher. For instance, WY 2021's April – July inflow of 378 kaf (51% of 1981 -2010) will be 60% of average for the 1991 – 2020 time period.

Maintenance Activities

The hydroelectric power plant is undergoing repairs on one unit. For the time being, only one unit will be running. Any flows beyond the capacity of that unit will be made up with the

Auxiliary 4x4 from the center of the spillway. A minimum release of 300 cfs must be maintained at the 4x4 while it is in use. Every attempt will be made to make release adjustments through the power plant to limit sediment input into the river. The second unit at the power plant is expected to be down for 3-6 weeks while parts are ordered and repairs are made.

SJRIP Update

The Recovery Program has conducted its monitoring, management, and research activities as planned in 2021. Although meetings are still being held virtually, there have been no COVID-related restrictions for work on the San Juan River. The Recovery Program's partners continue discussions and negotiations of the scope and funding sources for the Program post-2023. Funding and the cooperative agreement for the San Juan River Basin Recovery Implementation Program (and Upper Colorado River Endangered Fish Recovery Program) expire in 2023. Finally related to the monsoon storms, during a high flow event in late July several Recovery Program researchers observed a substantial fish kill in the San Juan River downstream of the Four Corners Bridge. The cause of the fish kill is unknown and the researchers were conducting other work so were not prepared to preserve fish for further analysis.

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Next Coordination Meeting - The next meeting will be held on **Tuesday, January 18th, 2022 at 1:00 PM. The meeting will be in a virtual format. A meeting notice with conferencing details will be sent out prior to the meeting date.**

Attendance List – August 24, 2021 Navajo Operations Meeting

Aaron Chavez	San Juan Water Commission
Aldis Strautins	National Weather Service (NWS)
Ali Rye	San Juan County Office of Emergency Management
Amee Andreason	Reclamation
Ashley Nielson	Colorado Basin River Forecast Center (CBRFC)
Barry Massey	
Brandt Hart	BLM River Ranger, Lower San Juan, Bluff, Utah
Buck Skillen	Five Rivers Trout Unlimited
Carrie Padgett	Southwestern Water Conservation District
Christopher Cutler	Reclamation
Christopher D. Watt	Reclamation
Clay Cady	Arizona Public Service (APS)
Clay Johnston	Turley
Colleen Cunninghamm	New Mexico Interstate Stream Commission (NMISC)
Dominique Work	NMISC
Ed Warner	Reclamation
Elizabeth Anderson	Albuquerque Bernalillo County Water Utility Authority (ABCWUA)
Erik Knight	Reclamation
Fletcher Brinkerhoff	USGS
Frederic L. Shean	ABCWUA
Gary Horner	Citizen
Gordon Miller	San Juan Water Commission
Heather Patno	Reclamation
James (Scott) Miller	APS
Jamie Shockey	City of Farmington Electric Utility
Jeanette Joe	NAPI O&M
Jennifer Erickson	Reclamation
Kathi Smith	Hammond Conservancy District
Katrina Grantz	Reclamation
Letisha Yazzie	New Mexico Office of the State Engineer (NMOSE)
Linda Corwin	Bloomfield, NM
Mark P. Kelly	ABCWUA
Michele Truby-Tillen	San Juan County (NM) Community Development
Mike Mestas	San Juan County (NM) office of Emergency Management
Patrick Page	Reclamation
Paul Harms	NMISC
Phillip Richards	APS
Ryan Christianson	Reclamation
Ryan Royer	Reclamation
Ryan Unterreiner	Colorado Parks and Wildlife
Scott Branham	Reclamation
Scott Durst	FWS, San Juan River Recovery Implementation Program (SJRIP)

Stacy Dodd	Bloomfield Irrigation District (BID)
Susan Behery	Reclamation
Thomas Hook	Student at Colorado Mesa
Jeff Derry	Center for Snow and Avalanche Studies (CSAS)
Christina Noftsker	NMISC
Nathaniel Todea	Reclamation
Paul Davidson	Reclamation
Robb Carter	Navajo State Park
Ben Shannon	City of Farmington
Nathan Franssen	FWS, SJRIP
Jim Hook	Landowner/Motel owner Bluff, UT
Duane Joe	Navajo Agricultural Products Inc (NAPI) O&M
Nabil Shafike	US Army Corps of Engineers (USACE)
Paul Montoia	City of Farmington
Tyrell Lee	Bureau of Land Management (BLM)
Henry Day	APS
Marc Miller	Reclamation