

**Colorado River Storage Project
Fontenelle Working Group
Meeting Minutes
April 28, 2022**

Participation

This meeting was held Thursday, April 28, 2022, from 10:00 am to 11:30 am. The meeting was held via WebEx virtual meeting. Attendees are listed below.

Purpose of Meeting

The purpose of these working group meetings is to inform the public and other interested parties of Reclamation's current and future operational plans and to gather information from the public regarding specific resources associated with Fontenelle Reservoir and the river corridor below it. In addition, the meetings are used to coordinate activities and exchange information among agencies, water users, and other interested parties concerning the Green River.

General

Dale Hamilton (United States Bureau of Reclamation - Reclamation) began the meeting at 10:00 am, discussed virtual meeting logistics, and introduced the meeting agenda and presenters: Brenda Alcorn (Colorado River Basin River Forecast [CBRFC], hydrologist), Nathaniel Todea (Reclamation, hydraulic engineer), and himself. Hydrology, forecast, past and potential future operations, and potential upper Colorado basin drought response operations were discussed and presented. To avoid audio feedback, attendees introduced themselves via the chat function in the virtual meeting (attendees who identified themselves or were identified by their meeting attendee name are included in the list of attendees below).

Fontenelle Reservoir: Current Conditions and Forecasts

Brenda Alcorn, Senior Hydrologist, National Weather Service (NWS), CBRFC

Brenda presented information on past weather, current snow conditions, current runoff forecasts, and upcoming weather.

Water year 2022 (October-March) precipitation above Fontenelle has been 90% of average overall but is being propped up by much above average October totals. Without the 170% of average October precipitation, November thru March precipitation totals are below average (75% of average) and are reflected in the snowpack. Average monthly maximum temperatures in the Upper Green were generally near normal in March, with two short periods of much above normal temperatures (March 1-3 and 26-29), which resulted in a little more snowmelt than usual at the end of the month. It appears that April precipitation will be the first near to above average month since December, and temperatures have been 3-6 degrees below normal which has helped to hold on to our snowpack.

SNOTEL snow conditions above Fontenelle have increased since April 1 but are still below the daily median and median seasonal peak values, especially in higher elevations. It is important to note that snow-to-runoff is not a one-to-one relationship, spring weather will impact runoff. The Colorado Basin River Forecast Center model accounts for snow in areas above and below SNOTEL sites and indicates that snow in the central and southern Wind Rivers which generally provides half the runoff volume is below median.

Modeled soil moisture is improved from a year ago but much of the Wind River basins are still below normal.

The official April–July runoff volume forecast for Fontenelle inflow is 485,000 acre-feet (66% of average) as of April 15. Future forecasts have the potential to increase to ~83% of average with wet future conditions or decrease to ~43% of average with dry future conditions. The forecast is low, but better than last year. On average, Fontenelle April 1 runoff volume forecasts contain +/-21% error with error decreasing as the season progresses. Errors in runoff forecast are primarily due to future weather (uncertainty, extreme events), model snow states (verified as possible by satellite images and SNOTEL sites), and demand/diversion assumptions.

Upcoming weather is anticipated to bring 7-day total precipitation of ~1-inch in higher elevations. The 8-14-day outlook indicates slightly above normal temperatures and precipitation.

Fontenelle Reservoir Hydrology and Forecasted Operations

Nathaniel Todea, Hydraulic Engineer, Reclamation

Nathaniel presented information on 2021 operations and 2022 runoff forecasts and forecasted operations.

2021 operations saw very dry conditions, and, as a result, there was no spring peak release. The reservoir elevation never went above elevation 6500 feet. The winter release was set at 825 cfs.

The unregulated April thru July runoff volume into Fontenelle is currently forecasted to be 485,000 acre-feet (66% of average, 71% of median) which is in the middle of the moderately dry hydrologic classification. The observed April-July inflow for 2021 was 318,000 acre-feet (44% of average).

Fontenelle is currently at elevation 6479.1 feet, 154,000 acre-feet of storage (46% of capacity), with inflows averaging 840 cfs, and releases averaging 825 cfs. Operations over the next year will be highly dependent on observed and forecasted inflows, releases are currently anticipated to be: 825 cfs through early May, then 1,200 cfs, then up to nearly 1500 cfs with the goal of getting above elevation 6500 feet and back below 6500 by July 1, then about 1,000 cfs through the fall/winter baseflow period. It is not anticipated that the bypass will be used for a spring peak release.

In response to a question as to whether—instead of increasing flows for July and dropping back down in August—it would be possible to keep June and August releases consistent with base flow releases through October, it was stated that the intent of the higher July releases is to provide cooler water for the fishery.

Colorado River Storage Project – Drought Response Operations

Dale Hamilton, Division Manager, Reclamation

Dale presented information on the status of Colorado River Storage Project (CRSP) reservoirs, background of the Drought Response Operation Agreement (DROA), the Drought Response Operations (DRO) Plan Development, Flaming Gorge drought response scenario options and modeling, Flaming Gorge resource potential impacts, and the DRO Plan schedule.

The Colorado Basin is experiencing its 22nd year of drought. It has been the driest 22-year period on record. The combined storage of Lake Powell and Lake Mead has dropped from 95% full in 1999 to 28% full in 2022. Lake Mead elevations have decreased from 95% full in 1999 to 32% of capacity in 2022 (April 12). Lake Powell elevation has dropped from 95% full in 1999 and went below elevation 3525 feet

on March 14, 2022 (the elevation that the Drought Response Operations Agreement was intended to protect) and is at 24% of capacity.

The Lake Powell elevation projections from the April 24-month study show Lake Powell dipping below 3525 briefly this year and again next year with minimum probable projections approaching and crossing the minimum power pool (3490 feet) beginning in 2024. (The Flaming Gorge water surface elevation hit 6018.75 feet on April 12, 2022.) Dale shared aerial images of Lake Powell showing the decreasing reservoir surface area near the Bullfrog Marina and stated that as he understands it, the decision on whether the Bullfrog Marina is open or not is currently a day-by-day decision—smaller watercraft are still allowed to launch but larger watercraft are not. If Lake Powell falls below elevation 3490 feet, power generation would no longer be possible. Lake Powell provides power to 5-million customers in seven states (Arizona, Colorado, Nebraska, Nevada, New Mexico, Utah, and Wyoming) as well as several Native American Tribes. And Glen Canyon was not designed to rely solely on the outlet works bypass pipes for long durations. They have less flexibility for maintenance and could potentially limit the ability to release the full 1922 Colorado River Compact allotment to the Lower Basin. The Lower Basin also has interest in maintaining Lake Powell above elevation 3490 feet.

The DROA is an element of the Drought Contingency Plan (signed into law in May 2019) to address water elevations in key Colorado River reservoirs. The purpose is to minimize the risk of Lake Powell falling below the target elevation of 3525 feet (35 feet above the minimum power pool elevation of 3490 feet) and thereby fulfill compact obligations, maintain hydropower production, and minimize adverse effects to resources and infrastructure. The Agreement directed Upper Basin States (Wyoming, Utah, Colorado, and New Mexico) and Reclamation to develop a Drought Response Operations Plan.

Since July 2021 Reclamation and the Upper Basin states have been developing a DRO Plan. The Draft Plan has two parts: 1) the Plan Framework which provides general, static guidance including authorities and outlines what information should be included in Plan Attachments, and 2) the Plan Attachments, which are specific to operations for a specific year, are developed each spring with adjustments as needed (similar to the development of the Flaming Gorge Operation Plan) based on hydrologic conditions. The Draft DRO Plan Framework can be found at <https://www.usbr.gov/dcp/droa.html>. The Plan Attachments for this year are still in development. The DRO Plan outlines criteria for accounting and recovery. 125,000 acre-feet of additional releases were made from Flaming Gorge last year.

Dale presented information from a modeling effort that Utah recently undertook. Utah has worked to perform modeling analysis of the potential range of releases necessary to protect critical infrastructure at Lake Powell. The model runs were based on CBRFC's 1991-2020 runoff forecast traces and an additional most probable hydrology trace. Note that the results are limited to the range of conditions experienced between 1991 and 2020. Model results were displayed as a figure showing the statistical Lake Powell elevation range from March 2022 thru March 2024, with uncertainty increasing the further the forecast extends into the future. Based on the analysis, a volume of 1 million-acre-feet would be necessary to be 100% confident of holding Lake Powell above 3490 feet through May 2023, and doing nothing, we'd be 70% confident that Lake Powell would not drop below 3490 feet through May 2023. DROA parties have evaluated a range of DROA scenarios to improve confidence of maintaining Lake Powell at or above elevation 3490 feet during the January to May 2023 period including a release of 500 thousand-acre-feet (kaf) which would decrease the likelihood of going below 3490 feet in March 2023 from ~30% to ~20% (a 10% improvement in confidence).

Dale noted that there are two methods to address decreases in Lake Powell storage: 1) the DRO Plan (500 kaf proposed release from Flaming Gorge), and 2) Lake Powell annual release reduction under the interim

guidelines cooperative action. Outside of the DROA, Department of Interior (DOI) is proposing reducing the 2022 annual release volume from 7.48 million-acre-feet by 480 kaf to 7.0 million-acre-feet, with the future release of the 480 kaf to be determined). The combination of these two methods reduces the probability of Lake Powell falling below 3490 feet to nearly zero percent.

A myriad of DROA release scenarios have been considered with the 500 kaf release from Flaming Gorge being the most likely. Without the proposed DRO releases, the Flaming Gorge elevation would be near 6025 feet by May 2023. With the proposed DRO releases, the Flaming Gorge elevation would be near 6010 feet by May 2023.

Dale shared information on the impacts of Flaming Gorge going down to elevation 6010 feet (the forecasted elevation a year from now). At elevation 6010 feet, Horseshoe Canyon is impassable, the Buckboard floating barge won't pull water from as deep which could later be impacted by algae, the Cedar Springs floating restroom was moved recently to a deeper but less-preferred location. There are also primitive campsites around the reservoir rim that will likely be impacted. Reclamation is currently seeking grant funding to survey the boat ramps and verify our boat ramp bottom elevations. Flaming Gorge has been to elevation 6010 feet in the past 20 years, if you were around and remember conditions in the early 2000s, please help us understand what impacts we're likely to experience.

The DRO Plan remaining schedule includes: an Upper Colorado River Commission special session on April 21st, DOI review from April 22nd to 29th, implementation beginning in May, and ongoing DROA partner coordination meetings. Information about the DRO Plan can be found at <https://www.usbr.gov/dcp/droa.html>.

In response to a question about when Flaming Gorge had been to elevation 6010 feet in the past, Dale replied that 2002 was a very dry year that decreased the reservoir level and much of 2003 and 2004 were near elevation 6010 feet before rising again in 2005.

General Discussion, Comments, Questions

Following the presentations, Dale opened the meeting for discussion, comments, or questions.

In response to a question about how Flaming Gorge DROA releases affect Fontenelle, it was stated that Fontenelle is not a CRSP initial unit and is not impacted by the DROA. In an extreme case, where the upper basin cannot meet the delivery requirements of the 1922 Colorado River Compact to the lower basin, storage from reservoirs of the upper basin states may be called on, but that would be an extreme scenario.

If additional questions or comments arise, send them to Dale Hamilton (dthamilton@usbr.gov) and/or Nathaniel Todea (ntodea@usbr.gov).

Next Meeting

- Tuesday, August 23, 2022, at 10:00 am in Rock Springs (tentative)

Attendees

Rhett Bain	Reel Deal Anglers
Rick Lee	Rock Springs Chamber of Commerce
JT Larson	Rock Springs Chamber of Commerce
Jason Palmer	City of Green River, Utilities
Mark Westenskow	City of Green River

Andy Hooten	City of Green River
Lisa Herrera	Green River Chamber/Visitor Center
Mark Kot	Wyoming Water Development Commission
Robert Keith	Wyoming Game & Fish Department
Jessica Lockwood	Wyoming Game & Fish Department
Ben Bracken	Alternate Upper Colorado River Commissioner
Sadie Valdez	Trout Unlimited, Seedskafee
Ron Wild	Rocky Mountain Power
Terry Leigh	Joint Powers Water Board
Michael Tardoni	Joint Powers Water Board
Hilary Huckfeldt	Sisecam and Joint Powers Water Board
James Tardoni	Sisecam Wyoming (formerly Ciner)
Tyler Schiltz	Sisecam Wyoming (formerly Ciner)
Kristina Barden	Sisecam Wyoming (formerly Ciner)
Katie Theule	Seedskafee National Wildlife Refuge
Brenda Alcorn	NWS, Colorado Basin River Forecast Center
Dale Hamilton	Reclamation
Nathaniel Todea	Reclamation
Heather Patno	Reclamation
Dave Klein	Reclamation
Chris Cutler	Reclamation
Chris Watt	Reclamation
Shane Mower	Reclamation
Gary Henrie	Reclamation