EXECUTIVE DIRECTOR'S REPORT
TO THE
COLORADO RIVER BOARD OF CALIFORNIA

February 10, 2021

COLORADO RIVER BASIN WATER SUPPLY CONDITIONS REPORT

As of February 1st, the surface water elevation at Lake Powell was 3,576.45 feet with 9,638 million-acre feet (MAF) of storage, or 40% of capacity. The surface water elevation at Lake Mead was 1,085.95 feet with 10.51 MAF of storage, or 40% of capacity. As of January 31, the total system storage was 27.31 MAF, or 46% of capacity, which is about 3.87 MAF less than the total system storage at this same time last year.

As of February 1st, the Upper Basin reservoirs, excluding Lake Powell, ranged from 46% of capacity at Fontenelle Reservoir in Wyoming; 84% of capacity at Flaming Gorge Reservoir in Wyoming and Utah; 91% of capacity at Morrow Point, and 48% of capacity at Blue Mesa Reservoir in Colorado; and 63% of capacity at Navajo Reservoir in New Mexico.

As of January 19th, the forecasted unregulated inflow into Lake Powell for Water Year (WY) 2021 is 5.36 MAF (49% of normal). The forecasted April through July 2021 runoff into Lake Powell for Water Year-2021 is 3.45 MAF (48% of normal). For WY-2021, the December observed Lake Powell inflow was 0.17 MAF (47% of normal), and the January Lake Powell inflow forecast is 0.20 MAF (55% of normal). To date, WY-2021 precipitation is 66% and the current basin snowpack is 75% of normal in the Upper Colorado River Basin.

Colorado Basin River Forecast Center Webinar

On February 5th, the Colorado Basin River Forecast Center (CBRFC) held a webinar to review the Basin's current water supply conditions and forecasts. During the first three weeks of January, precipitation conditions throughout the Basin were very dry. The last ten days of January brought much needed precipitation to the Basin, greatly benefitting the Lower Colorado Basin. The WY-2021 (October 2020 to January 2021) precipitation conditions are below average throughout the Basin, ranging from 55% to 75% in the Upper Basin and 45% to 60% in the Lower Basin.

Dry soil moisture conditions continue to persist throughout the Basin due in part to record dry conditions in 2020. Modeled soil moisture conditions in the Upper Colorado are ranked in the

bottom fifth over the 1981 to 2020 period, while the San Juan and Dolores River basins are ranked in the bottom third. Dry soil conditions, along with below average snowpack conditions will continue to impact water supply forecasts.

As of February 4th, early snowpack conditions in February are below average, with SNOTEL sites reporting Snow Water Equivalent (SWE) conditions ranging from 60% to 90% in the Upper Colorado Basin. SWE conditions in the Lower Colorado Basin are slightly worse with the Salt, Lower Colorado and Upper Gila River Basin ranging from 25% to 55%. Conversely, SWE conditions in the Verde River Basin were 100% of median, likely aided by late January storm activity in Arizona.

The water supply forecasts for the April to July runoff period in the Upper Colorado range from 35% to 80% of median while the forecast in the Lower Colorado River Basin, which uses the February to May runoff period, projects significantly low inflows, ranging from 20% to 65% of median. The April to July 2021 inflow forecast into Lake Powell is 3,300 KAF, or 46% of average and represents a 7% decrease from January's water supply forecast. In 2020, the observed April to July inflow to Lake Powell was 3,760 KAF, or 53% of average. There continues to be a 30% chance that the April to July runoff for WY-2021 will be among the fifth lowest inflows on record.

During the next two weeks of February, weather models project slightly above normal precipitation conditions in the northern portions of the Basin, with little to no precipitation forecasted across southern Utah and the Lower Basin. The National Oceanic Atmospheric Administration's (NOAA) 8-to-14-day Precipitation Outlook forecasted slightly increased chance for above average precipitation conditions across the Lower Basin. La Nina conditions are expected to continue through the Northern Hemisphere for Winter 2020/2021, which increases chances for drier weather in the Lower Colorado Basin. There is the potential for La Nina conditions to transition to an ENSO-neutral conditions in Spring 2021.

The CRBFC also discussed its continuing effort to improve forecasting errors. As discussed previously, the CBRFC's forecasting ability is better in headwaters as well as areas that are primarily driven by snow melt and where there are known diversions and demands. Conversely, its forecasting ability is weaker in areas at lower elevations, where precipitation falls as rain or experiences early snow melt, and basins that have downstream diversions or little is known about diversion and demands. The CBRFC also discussed it will be incorporating new science into its system which could potentially improve the forecasts, such as utilizing data from the Airborne Snow Observatory.

The next Colorado River Basin Water Supply Briefing is scheduled on Friday, March 5th.

COLORADO RIVER BASIN PROGRAM UPDATES

Colorado River Basin Salinity Control Program

Paradox Valley Salinity Control Project

As described at our January Board meeting, Reclamation published the Paradox Valley Unit (PVU) Salinity Control Project Final EIS on December 11, 2020. The Final EIS is the culmination of the environmental review process to identify a replacement salinity control project for PVU that was initiated with scoping in 2012. As first reported at the December Board meeting, contrary to the wishes of the seven Basin States, Reclamation has selected the No Action Alternative as the preferred alternative in Paradox Valley. Combined with the continued closure of the existing PVU brine injection well, the No Action Alternative leaves no salinity control in Paradox Valley for the foreseeable future.

The Paradox Valley salinity control unit (PVU) is one of the original salinity control projects authorized under Title II of the 1974 Colorado River Basin Salinity Control Act (P.L. 93-320, as amended). The PVU is comprised of a series of brine collection wells and a deep injection disposal well that has prevented approximately 100,000 tons of salt each year from entering the waters of the Colorado River until its closure in March 2019 due to seismic activity. Reclamation identified four PVU replacement alternatives in the Final EIS, including: A) No Action, B) New Injection Well, C) Evaporation Ponds, and D) Zero Liquid Discharge.

On December 29, 2020, the Board submitted a letter on the Final EIS to then Reclamation Commissioner Brenda Burman highlighting the belief that working collaboratively with Reclamation, the seven Colorado River Basin States, and other stakeholders in the Basin, the Board believes a suitable replacement project in Paradox Valley can be developed that mitigates against the environmental concerns identified in the FEIS. The Board's letter is consistent with letters submitted by the Basin States and several of the Board's member agencies. On January 21, 2021, Reclamation responded to the Board's letter with a letter stating Reclamation does not intend to issue a Record of Decision associated with the PVU FEIS, and that Reclamation remains committed to working collaboratively in furthering the objectives of the Salinity Control Program. A copy of that letter is included in the Board packet. Board staff and member agencies continue to work closely through the Forum and Basin States process to identify a pathway with Reclamation for continued long-term salinity control in Paradox Valley.

Salinity Forum Work Group Meetings Schedule for February 23-24, 2021

The Colorado River Basin Salinity Control Forum Work Group meetings are scheduled for February 23-24, 2021. These virtual meetings will consider a number of important topics for the program including status of the existing PVU brine injection well and next steps on a PVU replacement project. The Work Group continues to receive updates from federal agencies on scientific studies, program funding, and salinity control efforts.

Colorado River Basin States Webinar Regarding Federal DCP Implementation

Representatives of the seven Basin states convened via webinar on February 4, 2021, to share status updates regarding the following: (1) proposed federal legislative initiative(s) for appropriations for Reclamation's implementation of System conservation measures during the interim period; (2) status of DCP implementation; (3) status of the proposed Colorado River Indian Tribes legislation; and (4) status of preparatory review and assessment of technical modeling needs and updates.

As has been discussed previously, the Central Arizona Water Conservation District (CAWCD) initiated an effort during the fall of 2020 to develop some proposed federal legislation that would provide appropriations for Reclamation's implementation of System water conservation activities that would result in the creation of up to 100,000 acre-feet annually during the remaining interim period of the DCPs and 2007 Guidelines. The states discussed the various legislative options and timing, which ranged from the stand-alone legislation proposed by CAWCD, to an add-on to either a larger reauthorization of the Water Infrastructure Improvements for the Nation (WIIN) Act or other large Biden administration infrastructure bill. The states will continue to coordinate with delegation staff members and Washington D.C. representatives to help determine the most effective path forward, with the hope that this could be accomplished over the next few months.

Representatives of the states also very briefly reported out the status of implementation of the basinwide DCPs. In the upper basin, it was reported that the recent 24-Month Study report minimum probable study indicates that Lake Powell could reach elevation 3,525 feet by March 2022. This has triggered the initiation of additional coordination and communication among the Upper Basin states and Reclamation associated with the Upper Basin Drought Operations Agreement that was executed in 2019. In the lower basin, Arizona reported that it has initiated a shortage implementation discussion among its stakeholders in anticipation of Lake Mead reaching or falling below elevation 1,075 feet in the next few years. California reported that due to the additionally flexibility provided by the 2019 Lower Basin DCP Agreement, that it had

created and stored an additional 0.340 MAF of extraordinary conservation intentionally created surplus in Lake Mead in calendar-year 2020.

Arizona also reported that discussions between the State and the Colorado River Indian Tribes (CRIT) are continuing with respect to the CRIT proposed federal legislation that would authorize the CRIT to enter into agreements to conserve, store, lease, and exchange a portion of its consumptive use of Colorado River water. Arizona reported that it has conducted a series of public meetings associated with the CRIT proposal, and that comments have been generally favorable and supportive. It is still not yet clear when the proposed legislation would be introduced in the Congress.

Finally, the Lower Basin states reported that they have initiated the formation of a small sub-principal's level group of technical representatives to work with Reclamation evaluating the modeling tools that are currently being used in basinwide water supply assessments, primarily the Colorado River Simulation System (CRSS) model. The purpose of the working group is to develop a sensitivity analysis and identify drivers and a deeper understanding of the implications that these drivers have for hydrologies, water use demands, and the various release regimes modeled in CRSS. The sensitivity analysis will not include any policy recommendations. The states also indicated that this effort will necessarily maintain respect for individual state processes, but recognizes a need for enhanced interstate coordination with Reclamation's modeling team too. The Lower Basin states will provide the Upper Basin states with the notes and outline developed during its first kick-off meeting last week. Finally, the states were asked to provide the names and contact information for modeling working group participants to Nevada as soon as possible.

Glen Canyon Dam Adaptive Management Program

The Technical Work Group (TWG) of the Glen Canyon Dam Adaptive Management Program met on January 20-22 via webinar in conjunction with the program's Annual Reporting meeting. The group received updates on the status of resources below Glen Canyon Dam and throughout the Grand Canyon, including sediment and beach erosion, native and nonnative fish, hydropower generation, tribal perspectives, and the results of recent experimental actions.

Researchers reported that the number of adult humpback chub, an endangered species whose largest population resides in the Grand Canyon, was relatively stable at its main population site at the confluence of the Little Colorado River. However, the number of sub-adult fish detected in 2020 was low, likely as a result of unusually low reproduction in 2016-2018. These low numbers of sub-adult fish have met certain triggers in the Long-Term Experimental and Management Plan (LTEMP) Biological Opinion, meant to spur action when the population may be in decline. The US

Fish and Wildlife Service (USFWS) will consult with the National Park Service (NPS) and Reclamation to determine any next steps that are needed, and researchers will continue to monitor the Lower Colorado River population of humpback chub closely.

Researchers also reported on the population of humpback chub in the Western Grand Canyon, where native fish in the area have increased dramatically in recent years, particularly since 2014. A new population estimate for the Western Grand Canyon, stretching from the inflow of Lake Mead to approximately 50 miles upstream, indicated that there may be 15,000 to 30,000 humpback chub in this stretch of the river, a population at least as large as the population at the Little Colorado River. However, because this population has appeared so recently and rapidly, its stability and permanence are still uncertain. The Little Colorado River population, which has been self-sustaining and relatively stable for several decades, continues to be the population used to assess the condition of the species in the Grand Canyon.

In recent years, the Western Grand Canyon has seen a meteoric increase in all native fish species, with native species now making up the vast majority of fish caught in the area. One potential explanation described by researchers is that the decline of Lake Mead has contributed to the creation of the Pearce Ferry rapid near the inflow to Lake Mead, and this rapid has served as a barrier, making it difficult for nonnative species common in Lake Mead to migrate upstream into the Grand Canyon. Sampling data gathered in 2020 indicated that 94% of the fish caught above the rapid were native, while 99% of the fish caught downstream of the rapid were nonnative. This raised concern among stakeholders that future increases in Lake Mead's elevation could inundate the Pearce Ferry rapid, potentially jeopardizing native fish in the area. More research is needed to determine at what Lake Mead elevation that might occur and if this barrier effect can be achieved through other means.

From 1996 to 2020, eleven high flow experiments (HFEs) have been conducted at Glen Canyon Dam, with the most recent one occurring in fall 2018. These experiments are triggered by sediment inputs from tributaries and are intended to reduce the erosion of sandbars important primarily for recreation and preservation of cultural resources. Researchers reported that HFEs have been effective in maintaining sandbar size, although they have not resulted in progressively larger sandbars. HFEs do not appear to have a noticeable effect on nonnative trout or native fish populations, although recent increases in nonnative brown trout in the tailwater below Glen Canyon Dam have coincided with the frequent implementation of HFEs. Brown trout are a far more effective predator than the rainbow trout that have persisted in the tailwater for many decades, and the species can also function well in the silty, warm water that native fish prefer. Brown trout have seen an exponential increase in recent years, with particularly successful reproduction in 2020. In response, the NPS initiated an "incentivized harvest" program in fall

2020 to pay anglers to remove brown trout from the area below Glen Canyon Dam (link). The program is slated to continue for several years.

The group also received an update on the results of "bug flows" that were conducted at Glen Canyon Dam during the summers of 2018, 2019, and 2020. These low, steady weekend flows were intended to increase aquatic insect production by limiting dam fluctuations that desiccate insect eggs. The results so far are equivocal, with the flows appearing to increase the abundance of some insect taxa but not others. Researchers estimate that the cost to hydropower for each experiment is approximately $300,000. A technical team will convene in mid-February to begin discussing whether to recommend approval of a fourth year of bug flows.

A technical team has been meeting for several months to consider a proposed "spring disturbance flow" (SDF) that is planned for March 15-26, 2021 (Figure 1). The proposed dam release is not one of the experimental releases identified in the LTEMP but would work within the operational flexibility available under the LTEMP. The proposed SDF would build off of flow changes required for dam maintenance, in order to evaluate the ecosystem impacts of spring high flows. The Bureau of Reclamation intends to lower dam releases to 4,000 cfs (half of the normal minimum release) for approximately 5 days to complete repairs to the concrete apron below the dam. Releases would then be ramped up over the course of two days to the maximum releases within powerplant capacity (approximately 20,000 cfs) for 84 hours, before ramping back down. The SDF will not result in changes to the monthly or annual release volumes from Glen Canyon Dam. The Glen Canyon Dam Leadership Team unanimously recommended that the SDF be implemented, and on February 8th, the Department of the Interior (DOI) made a final decision to conduct the SDF.

Finally, the Adaptive Management Work Group (AMWG) will meet February 10-11 and the TWG will hold its next meeting on April 13-14, both via webinar.

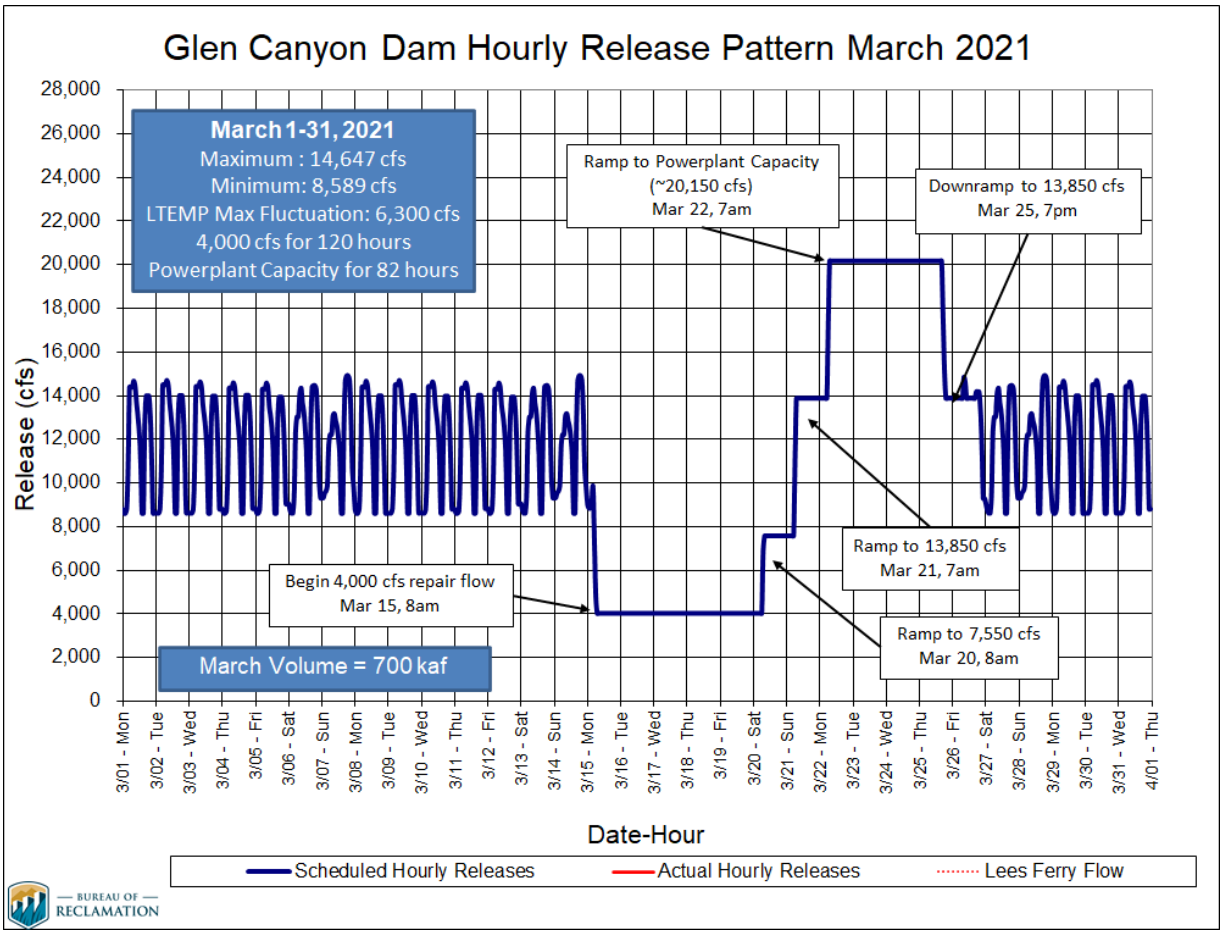

Figure 1. Spring disturbance flow hydrograph that is recommended for implementation in March 2021.

GENERAL ANNOUNCEMENTS AND UPDATES

Washington, D.C. Report

Executive Orders

On President Biden's first day in office, he issued an Executive Order (E.O.) (link) that directs all executive departments and agencies to immediately review and, as appropriate and consistent with applicable law, take action to address the promulgation of Federal regulations and other actions during the last four years.

Specific to water policy, President Biden's E.O. revoked former President Donald Trump's E.O. 13778, Restoring the Rule of Law, Federalism, and Economic Growth by Reviewing the "Waters of the United States" Rule (February 28, 2017); and also revoked two Presidential Memoranda –

one Promoting the Reliable Supply and Delivery of Water in the West (October 19, 2018) and a second Developing and Delivering More Water Supplies in California (February 19, 2020).

President Biden also rescinded a number of President Trump's Executive Orders that implement Section 401 of the CWA, and the National Environmental Policy Act. These recissions indicate that associated regulations promulgated during the Trump Administration are at the top of the new Administration's chopping block.

President Biden also introduced a second environmental E.O. this past Wednesday focused on tackling climate change by boosting clean energy investment in renewables, building modern and sustainable infrastructure, ensuring scientific integrity, and re-establishing the President's Council of Advisors on Science and Technology (link).

Water in the West Report

The Department of the Interior (DOI) submitted a report to Congress on water supply challenges in the western United States and efforts to respond to them. The report is required every five years. As the concentration of heat-trapping greenhouse gases in the atmosphere rises, the eight major western watersheds are expected to see warmer temperatures, declining snowpack, and stream flows that peak earlier in the year. Droughts are expected to become longer and more severe. (Report)

Salton Sea Cleanup Legislation

U.S. Representatives Raul Ruiz (D-CA), and Juan Vargas (D-CA) reintroduced a bill, the California New River Restoration Act, that is aimed at cleaning up the New River, a highly polluted waterway originating near Mexicali, Mexico that flows north, emptying into the Salton Sea. The bill, HR491, would direct the U.S. Environmental Protection Agency (EPA) to create an organization to be called the California New River Restoration Program, which would coordinate funding and cleanup projects. The proposed legislation, which was introduced on January 25, 2021, was referred to the Committee on Natural Resources and the Committee and Transportation and Infrastructure in the U.S. House of Representatives. (link)

Acting Agency Leaders and Staff Appointments

DOI

Scott de la Vega, a career officer in the Interior solicitor's office and the department's top ethics official, is now Acting DOI Secretary pending Representative Deb Haaland's confirmation.

De la Vega arrived at DOI in 2018 after being the lead ethics official in the Office of the White House Counsel. His hiring was part of an effort by then-Deputy Secretary David Bernhardt to visibly boost the department's ethics operations following some high-profile controversies.

DOI Staff Appointments

Now that the cabinet secretaries have been nominated, the administration is filling out the rest of the agency staff. Two appointments last week are directly involved in water.
Radhika Fox was nominated as Principal Deputy Assistant Administrator for the EPA Office of Water. Fox was the chief executive officer of the U.S. Water Alliance, a nonprofit group that champions water infrastructure.

Additionally, Tanya Trujillo was nominated as Principal Deputy Assistant Secretary for Water and Science for the DOI, an office that oversees the Bureau of Reclamation and U.S. Geological Survey. Camille Touton will serve as Deputy Commissioner of the Bureau of Reclamation. Touton is a veteran of the House Transportation and Infrastructure Committee, as well as the House and Senate natural resources panels. She also served as DOI's Deputy Assistant Secretary for Water and Science during the Obama administration.

Committee Assignments

Representative Jared Huffman (D-CA) will continue to chair the Water, Oceans, and Wildlife Subcommittee on House Natural Resources and Representative Grace Napolitano (D-CA) will chair the Water Resources and Environment Subcommittee on House Transportation and Infrastructure.

The Senate passed an organizing resolution earlier this week and began finalizing Committee rosters. Senator Feinstein will chair the Energy and Water Subcommittee of the Senate Committee on Appropriations, which oversees the Bureau of Reclamation's budget. Senator Padilla will sit on the Environment and Public Works Committee.

***