Minutes of Meeting
COLORADO RIVER BOARD OF CALIFORNIA
Wednesday, August 12, 2020

A meeting of the Colorado River Board of California (Board) was held virtually on Wednesday, August 12, 2020, using the Zoom Webinar meeting platform.

Board Members and Alternates Present:

David DeJesus (MWD Alternate)
James Hanks (IID)
Jeanine Jones (DWR Designee)
Henry Kuiper (Public Member)
Peter Nelson, Chairman (CVWD)
Glen D. Peterson (MWD)
David R. Pettijohn (LADWP)
John Powell, Jr. (CVWD Alternate)
David Vigil (DFW Alternate)
Mark Watton (SDCWA Alternate)

Board Members and Alternates Absent:

Evelyn Cortez-Davis (LADWP Alternate)
Dana B. Fisher, Jr. (PVID)
Norma Sierra Galindo (IID Alternate)
Christopher Hayes (DFW Designee)
Jim Madaffer (SDCWA)
Jack Seiler (PVID Alternate)

Others Present:

Steven Abbott
Brian Alvarez
Justina Gamboa-Arce
Jim Barrett
Daniel Bunk
Michael Coleman
Melissa Baum-Haley
Christopher Harris
Bill Hasencamp
Michael Hughes
Sarai Jimenez
Lisa Johansen
Lori Jones
Rich Juricich
Eric Katz
Jessie Khaya
Larry Lai
Laura Lamdin
Tom Levy
Lindia Liu
Henry Martinez
Kara Mathews
Jenny McCarthy
Aaron Mead
Brea Mohamed
Dylan Mohamed
Jessica Neuwerth
Vic Nguyen
Angela Rashid
Ivory Reyburn
Kelly Rodgers
Shanti Rosset
Tom Ryan
Tina Shields
Zach Stevens
Jay Weiner
Meena Westford
Jerry Zimmerman

CALL TO ORDER

Chairman Nelson announced the presence of a quorum and called the meeting to order at 10:05 a.m.

OPPORTUNITY FOR THE PUBLIC TO ADDRESS THE BOARD

Chairman Nelson invited members of the audience to address the Board on items on the agenda or matters related to the Board. Hearing none, Chairman Nelson moved to the next item on the agenda.

ADMINISTRATION

Chairman Nelson asked for a motion to approve the June 10, 2020, meeting minutes. Mr. Kuiper moved that the minutes be approved, seconded by Mr. Peterson. By roll-call vote, the minutes were unanimously approved.

COLORADO RIVER BASIN WATER REPORTS

Colorado River Basin Report

Mr. Juricich reported that as of August 3rd, the water level at Lake Powell was 3,606.00 feet with 12.33 million-acre feet (MAF) of storage, or 51% of capacity. The water level at Lake Mead was 1,084.57 with 10.39 MAF of storage, or 40% of capacity. The total system storage was 30.56 MAF, or 51% of capacity, which is 2.2 MAF less than system storage at this time last year.

Mr. Juricich reported that as of August 3rd, the unregulated inflow into Lake Powell for Water Year 2020 was 6.3 MAF, or 58% of normal and the Water Year-2020 forecasted April to July inflow to Lake Powell is 3.73 MAF, or 52% of normal. For Water Year-2020, the observed July inflow to Lake Powell was 0.26 MAF, or 24% of normal and the August to Lake Powell is 0.26 MAF, or 53% of normal. The precipitation to date is 83%.

Mr. Juricich reported that the precipitation conditions in June and July were very dry throughout the Basin, with exception to Eastern Utah, Western Colorado, and Wyoming.

Mr. Juricich reported that as of August 6th, the Brock and Senator Wash regulating reservoirs captured 86,230 AF and 44,114 AF, respectively. He also reported that the excess deliveries to Mexico through August 6th, were 48,349 AF. He noted that the excess flows were

higher than this time last year most likely due to significant storms that occurred in February and March. Mr. Juricich reported that as of August 3rd, the total amount of saline drainage water bypassed to the Cienega de Santa Clara in Mexico was 80,004 AF.

Annual Operating Plan, Second Consultation

Mr. Juricich reported that on July 23rd, the CRB staff participated in the second consultation for the Annual Operating Plan (AOP) hosted by the Bureau of Reclamation (Reclamation). He reported that it is anticipated that Lake Powell will be operated under the Upper Elevation Balancing Tier regime with a 9.0 MAF release from Lake Powell in 2021, noting that this contrasts with this year's release of 8.23 MAF. The final AOP consultation is scheduled for September 3rd at 10:00 a.m. PDT.

Mr. Juricich reported that the forecasted January 1st elevation in the August 24-Month Study is used to determine Lakes Powell and Mead operational tiers and releases. He added that in addition to the operational targets for the Interim Guidelines, the 24-Month Study also sets the targets for the Drought Contingency Plan (DCP). Reclamation will host a webinar on August 14th at 10:00 a.m. PDT to discuss the August 24-Month Study.

State and Local Report

Ms. Jones, representing the California Department of Water Resources (DWR), reported that the State is currently going through the dry season. She noted that precipitation activity has been limited in Southern California, which would normally be experiencing monsoonal activity during this time of the year. Ms. Jones reported that significant dryness on the North Coast has been causing concern with the State's Water Resources Control Board. She noted the Russian River system has experienced its third driest winter and the State Board has approved a temporary urgency petition for flows in that watershed.

Ms. Jones reported that the National Oceanic and Atmospheric Administration (NOAA) has released an early forecast of the ENSO conditions for fall and winter that indicate that the conditions may be transitioning to La Nina conditions. She noted that the ENSO forecast is early and more will be known by November. She added that La Nina conditions may be an indicator of dry precipitation conditions in Southern California but has no predictive capability for Northern California. Ms. Jones reported that reservoir storage is doing well thanks to the prior year's wet conditions.

Mr. Peterson, representing the Metropolitan Water District of Southern California (MWD), reported, that MWD's water use is down most likely due to the COVID-19 pandemic and the cost of water.

PRESENTATION BY BUREAU OF RECLAMATION – CRSS 101

Ms. Jessie Khaya with Reclamation provided a summary of the Colorado River Simulation System (CRSS) model, which is Reclamation's official long-term planning model. Ms. Khaya explained Reclamation's operational decision-making hierarchy, which explained how Reclamation utilizes various RiverWare Operations Models such as CRSS, Mid-term Operations Probabilistic Model (MTOM), and the 24-Month Study to make decisions over varying time horizons.

Ms. Khaya explained that the CRSS model is used to make long-term decisions, up to 50 to 60 years, while the MTOM and 24-Month Study are utilized to make decisions over a shorter time horizon, 1 to 2 year projections for the 24-Month Study and 5 years for the MTOM. She stated that the 24-Month Study model is used to determine the tier determinations for the AOP and provide projections of current reservoir conditions. The 24-Month Study is a deterministic model, while the CRSS model and MTOM are probabilistic models. The 24-Month Study produces one single hydrologic trace. She explained that a deterministic model is a model that's output is fully determined by the parameter values, inputs, and initial conditions. She further explained that a deterministic model has only one set of assumptions run through the model and outputs one set of results every time the model is run. Probabilistic models perform several simulations and provide a range of output. The CRSS model runs 112 hydrologic traces, while the MTOM runs 35 traces.

Ms. Khaya provided a detailed description of the assumptions and inputs used with the three operations models. She stated the operations for the 24-Month Study are input manually and is provided by the operators of the various reservoirs in the Basin, which carefully monitor the hydrologic systems of their respective reservoirs and have a good idea how to model the reservoir's water supply. Ms. Khaya explained that the MTOM and 24-Month Study models use the unregulated inflow forecasts provided by the Colorado Basin Forecast Center (CBRFC) for Upper Basin inflow. To model inflows in the CRSS model, various natural flow scenarios are utilized such as the historical hydrology and the paleo record, which is derived from Basin tree-ring data.

Ms. Khaya stated that for the MTOM and 24-Month Study, Basin demands are incorporated into the unregulated inflow forecasts provided by the CBRFC. She explained that the inflow forecast incorporate estimates of Upper Basin demands. For the Lower Basin demands, these models rely on the official approved and operational schedules.

However, for the CRSS model, Basin demands are explicitly modeled. The Upper Basin demands are based on the 2007 Upper Colorado River Commission (UCRC) Upper Basin scheduled depletion-demands. Ms. Khaya explained that since the model analyzes scenarios over a long-term horizon, the general operational schedules are used as inputs for Lower Basin demands.

Ms. Khaya stated that the CRSS model is a comprehensive model developed by Reclamation in the early 70's and was initially developed in Fortran and converted to the RiverWare software in the 90's. It is the primary tool that Reclamation uses for analyzing future river and reservoir conditions for planning. CRSS has been used to update official modeling projections three to two times a year looking out over a five-year time span, provide analysis and make decisions for environmental impact statements, Minute 323, Tribal Basin Study and the DCP. She added that CRSS is a probabilistic model that excels at comparative analysis. The model analyzes the impacts of various policies and provides a range of potential future conditions, such as reservoir elevations, releases, and energy generation every time the model is run.

Ms. Khaya reported that Reclamation utilizes specific reservoir operating policies for Upper and Lower Basin reservoirs. In the Upper Basin, the reservoirs are operated in accordance with each reservoirs respective Record of Decision (ROD). In addition, the Upper Basin reservoirs are operated in accordance with the 2007 Interim Guidelines, which coordinates the operations between Lakes Powell and Mead, as well as the Upper Basin DCP. The model runs an approximation of those drought response operations that were agreed to in the Upper Basin DCP and does not model the demand management plan. For Lower Basin operations, the reservoirs are also operated in accordance with the 2007 Interim Guidelines with shortages applied at specific Lake Mead elevations and also incorporates the Intentionally Created Surplus (ICS) logic, key elements of Minute 323 that were agreed upon in the Binational Water Scarcity Plan, as well as the Lower Basin DCP.

Ms. Khaya explained the assumptions and inputs necessary to model the Basin's future water supply in CRSS. She stated that the performance of the model is most sensitive to assumptions about future water supply. She noted that there is uncertainty in the projected future hydrology in the Basin and research suggest that this uncertainty is likely to increase. Future water supply scenarios can be developed using different methods and inflow datasets to account for different levels of uncertainty such resampling the historical hydrologic record or inflow datasets developed using Basin tree-ring data. Ms. Khaya reported that the official projections are developed using supply scenarios that resample the full historical record, known as the Full Hydrology, spanning from 1906 to 2018 and a subset of the Fully Hydrology known as the Stress Test Hydrology, which spans from 1988 to 2018. She noted that the average annual natural flow at Lee Ferry for the full historical hydrology dataset (i.e., 1906-2018) is about 14.3 MAF, while the average annual natural flow at Lee Ferry for the Stress Test Hydrology (i.e., 1988-2018) is 13.8 MAF. She added that the temperatures in the Basin during the Stress Test period are warmer and research studies have shown that the increasing temperature trend during this period has impacted the Basin's runoff efficiency.

Ms. Khaya reported that to develop future demand scenarios Reclamation has been working with the Basin's water users to incorporate future water demands. She noted that currently, CRSS utilizes the 2007 UCRC depletion-demand schedule and is currently working to

incorporate the 2016 updated UCRC depletion schedule. Ms. Khaya noted that the 2016 schedule is lower than the 2007 depletion schedule but the demands ramp up as they approach 2060. She added that the Lower Basin demands have been developed in coordination with the Lower Basin States, key water users and Mexico and are derived from the 2007 Interim Guidelines Final Environmental Impact Statement schedules which water users update, when available.

Ms. Khaya displayed a chart showing projections for Lake Powell based on the April 2020 CRSS model run. She explained that the chart showed the 10^{th} to 90^{th} percentiles, as well as the historical and median projected Lake Powell pool elevation using the Full and Stress Test Hydrology. She also displayed the results of the 5-Year Table which provides the probabilities of various reservoir system conditions for Lakes Powell and Mead over a 5-year period. The 5-year table is updated with the results of Reclamation's official modeling runs in January, April, and August. Ms. Khaya reiterated that Reclamation is working on incorporating the 2016 UCRC demand schedule into the CRSS model and is also working with Lower Basin water users to update demands out through 2070.

Chairman Nelson remarked that Ms. Khaya and her colleagues at Reclamation are a great resource for learning and understanding the CRSS model. Board member Mr. Peterson asked for more clarity regarding the large range of future possibilities developed by the CRSS model. Ms. Khaya responded that the range is large due to the different water supply scenarios employed within the model. She added that there is no agreement in the scientific community about how to create a supply scenario that would give us the most accurate view of the future. Mr. Peterson also inquired about how the model incorporates the snow that is produced during cloud seeding. Ms. Khaya explained that the impacts of cloud seeding activities are incorporated into the natural flow record. She explained that the natural flow record uses gauged water use data and backs out human involvement in the Basin, such as reservoir operations from the dataset.

Interim Guidelines Review Status

Mr. Dan Bunk with Reclamation provided a brief update on Reclamation's review of the effectiveness of the 2007 Interim Guidelines, also known as 7.D Review. Mr. Bunk reported that the 7.D Review Report refers to section 7.D of the 2007 Interim Guidelines and requires the Department of Interior (DOI) to evaluate the effectiveness of the 2007 Guidelines before Reclamation can work on the next set of interim operating guidelines for the post-2026 period. He stated that it is important to review the current operations under the 2007 Interim Guidelines before determining its replacement. The intent of the provision is for Reclamation to perform the review in coordination with its partners and stakeholders. Mr. Bunk stated that in December 2019, at the Colorado River Water Users Association Conference, Secretary Bernhardt reported that the DOI would begin the review early, although the requirement and guidelines state that the review should commence by the end of this year. He stated that Reclamation has already begun its review and anticipated completing the review by the end of this calendar year. Mr. Bunk added that Secretary

Bernhardt instructed Reclamation that review should also be inclusive of partners such as the basin states, tribes, NGOs, and other federal agencies.

Mr. Bunk reported that the goals of the review are to evaluate the effectiveness of the 2007 Interim Guidelines and to document Reclamation's operational experience since the guidelines were adopted in late 2007. He added that Reclamation hosted webinars in March to a wide range of stakeholders to propose the scope and provide our initial approach to the review. He stated that Reclamation received an excellent range of input and comments that is currently available on Reclamation's website. He stated that Reclamation is working to refine its approach based on the comments.

Mr. Bunk reported that Reclamation also met with a technical workgroup of consulting Basin states and representatives and key water district to discuss the draft outline for the 7.D Review Report. He noted that workgroup provided feedback and comments which Reclamation is taking into consideration for incorporation into the draft product. Reclamation is currently working through the comments received and anticipates releasing a draft report for review by the technical workgroup by the end of September.

STATUS OF COLORADO RIVER BASIN PROGRAMS

Status of Minute No. 323 Implementation

Ms. Neuwerth reported that the Environmental Work Group (EWG) for Minute No. 323 met via webinar on July 21st. Ms. Neuwerth noted that, under the Minute, 210,000 AF of water for environmental purposes is committed in equal parts by NGOs, the U.S. federal government, and the Mexican federal government. Through Water Year-2020, only NGO water has been delivered to restoration sites, but Ms. Neuwerth noted that the EWG is currently reviewing a potential request for approximately 35,000 AF of Mexican federal water, to be delivered to the river channel in Reach 4 of the Delta. Ms. Neuwerth reported that this water would be delivered through canals directly to areas with the most restored habitat to maximize the ecological impact of the water. Ms. Neuwerth noted that the feasibility of this potential water delivery is still being assessed by the EWG and Mexican section of the International Boundary and Water Commission, known as CILA.

Finally, Ms. Neuwerth reported that the EWG is continuing efforts to restore and maintain habitat, with approximately 290 acres of habitat planned for completion in 2020 and 2021.

Status of the Salinity Control Program

Mr. Juricich updated the Board on the status of Paradox Valley Unit (PVU) of the Salinity Control Program. The PVU EIS is expected to be available for public comments soon. In April,

Reclamation restarted the brine injection operations at PVU for a six-month test, but after 1-month decided to halt the test and complete an ongoing analysis of the March 4, 2019 M_w 4.5 earthquake in the Paradox Valley before resuming the test. Currently the decision to restart the injection is a policy one. Mr. Juricich showed on a chart that a significant drop in salt load in the Dolores River in tons per day when the well restarted. When the well was shut down once again, the salt load dropped. Reclamation is seeing a decline even with the well not in operation, which may be due to lower hydrology. Mr. Juricich reported that Reclamation may not restart the well until November.

Status of the Glen Canyon Dam Adaptive Management Program

Ms. Neuwerth reported that the Technical Work Group (TWG) of the Glen Canyon Dam Adaptive Management Program met via webinar on June 23-24. The TWG discussed the draft Triennial Work Plan and Budget for FY 2021-2023, which directs approximately $11 million in funding for research and monitoring efforts below Glen Canyon Dam. Ms. Neuwerth noted that the Program's funding source for FY2021 remains uncertain. Ms. Neuwerth reported that the TWG recommended approval of the draft budget and work plan, which would subsequently be considered by the Adaptive Management Work Group (AMWG) at its August 19-20 meeting.

Ms. Neuwerth noted that invertebrate production flows, or "bug flows" were still occurring at Glen Canyon Dam. These low steady weekend dam releases started on May 1st and continue through August 31st. Ms. Neuwerth reported that these flows don't change monthly or weekly release volumes from the dam. In response to a question from Mr. Harris, Ms. Neuwerth noted that while a fall high flow experiment (HFE) release from Glen Canyon Dam is possible this year, sediment input from tributaries was currently far below the level needed to trigger an HFE.

Lower Colorado River Multi-Species Conservation Program

Ms. Neuwerth reported that the Steering Committee for the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) met via webinar on June 24th. The Steering Committee approved the *Final Implementation Report, FY-2021 Workplan and Budget, FY-2019 Accomplishment Report*. Ms. Neuwerth noted that this report describes FY2019 activities, activities underway in FY2020, and those activities planned for FY2021. Ms. Neuwerth reported that one of the covered activities under the LCR MSCP is change in flow along the Lower Colorado River which occurs as a result of transfers, storage in Lake Mead, or other actions. Ms. Neuwerth reported that a small group of LCR MSCP permittees is currently drafting a supplemental memo to the U.S. Fish and Wildlife Service to provide additional detail on the changes in flow that occurred in 2019 and to develop an annual monitoring process to track reductions in flow in future years.

ANNOUNCEMENTS

Lake Powell Pipeline Project Environmental Impact Statement

Mr. Juricich provided an update on the Board's efforts to review and draft comments for the Draft Environmental Impact Statement for the Lake Powell Pipeline (LPP) project. The proposed LPP project is a 140-mile, 69-inch-diameter water delivery pipeline that would begin at Lake Powell, located in the upper basin of the Colorado River, and terminate at Sand Hollow Reservoir near St. George, Utah, located in the lower basin of the Colorado River. The UBWR proposes building the LPP in order to convey up to approximately 86,000 AF of additional water supplies to Washington County in extreme southwestern Utah to meet future water demands, diversify the regional water supply portfolio, and for water supply reliability enhancement. Mr. Juricich explained that Board staff are meeting with California agencies to share draft DEIS comments, and Board staff are having additional discussions with the Lower Basin and other basin states about potential comments on the EIS.

Board Member Peterson asked how the energy production impacts in Glen Canyon Dam relate to the Upper Basin native fish recovery efforts. Mr. Harris explained that any reduction in power generation at Glen Canyon Dam could financially impact the Upper Basin Development Fund. Ms. Neuwerth responded that the Upper Basin Fund provides funding for several programs including the Upper Basin Native Fish Recovery Program, salinity control, etc.

Status of the Development of the Next Set of Interim Operating Guidelines

Mr. Juricich summarized work by Board staff to prepare and work with the California agencies on development of the next set of operational guidelines for Lake Powell and Lake Mead. Staff have been meeting via webinars with member agency technical staff and to continue to collect, analyze and prepare topical issue technical information, data, and discussion papers; and working with the agencies to identify critical needs. Board staff have also been developing modeling expertise and experience in the utilization of Reclamation's CRSS model. Finally, Board staff continue to track ongoing related activities of the other six Basin states, agencies, and other stakeholder groups.

Salton Sea Management Program

Mr. Juricich announced that on August 19, 2020, the State Water Resources Control Board will conduct a webinar-based public workshop on the Phase I 10-Year Salton Sea Management Program. Information updates will be provided by state agencies implementing the program and there will be an opportunity for the public to comment on the 2019 Annual Report released on February 24, 2020.

California's Water Resilience Report

Mr. Juricich described the released of Governor Newsom's final California Water Resilience Portfolio on July 28, 2020. The portfolio serves as the Administration's blueprint for equipping California to cope with more extreme droughts and floods, rising temperatures, declining fish populations, over-reliance on groundwater and other challenges. The portfolio outlines 142 state actions to help build a climate-resilient water system in the face of climate change.

Next Scheduled Board Meeting

Finally, Mr. Harris noted that the next meeting of the Colorado River Board would be held on September 9th and would also be held virtually using the Zoom Webinar meeting platform.

ADJOURNMENT

With no further items to be brought before the Board, Chairman Nelson adjourned the meeting at 11:29 a.m.