

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

February 9, 2015

ADMINISTRATION

Minutes of the January 14, 2015 Meeting of the Colorado River Board

A copy of the draft Board meeting minutes from the meeting held on January 14, 2015 has been emailed for your review.

Consideration of application for allocation from the Colorado Water Supply Project

Included in the Board packet is a proposed Resolution regarding an application from Richard Bauer for approval of a subcontract for up to 4 acre-feet of water per year from the Colorado Water Supply Project to be utilized on 4 half-acre parcels located outside the City of Needles. The Colorado River Board's staff has reviewed the application and has conferred with the City of Needles and has found that the application meets the requirements of the Water Supply Project. Staff recommends that the Board approve the application and send a recommendation to the Bureau of Reclamation and the City of Needles to proceed with the subcontracting process for the applicant.

COLORADO RIVER BASIN WATER REPORT

As of February 2, 2015, the water level at Lake Mead was at 1,089 feet with 10.74 million acre-feet (MAF) of storage, or 41% of capacity. At Lake Powell, the water level was at 3,594 feet with 11.15 MAF of storage, or 46% of capacity. The total system Active storage as of February 1, 2015 was 29,395 MAF, or 49% of capacity, which is approximately 400,000 AF more than one year ago with the system storage also at 49% of capacity. As of February 2, 2015, the Upper Colorado River Basin reservoirs other than Lake Powell ranged from 86% full at Flaming Gorge Reservoir in Wyoming to 64% full at Navajo Reservoir in the San Juan Basin in New Mexico. The unregulated inflow into Lake Powell for Water Year 2015 is forecast to be 9.76 MAF, or 90% of average. Precipitation as of February 2, 2015 for Water Year 2015 is reported at 80% of average for the Upper Colorado River Basin.

NOAA's National Weather Service's monthly precipitation map for January 2015 shows that most of the northern half of the Colorado River Basin received below average precipitation. The snowpack as of February 3, 2015 is near average in some areas but many other areas are below average. The next Colorado River Basin Forecast Center water supply update is scheduled for March 5, 2015.

CALIFORNIA DROUGHT UPDATE

The month of January was the driest month on record for California. The January 29, 2015 snow survey recorded the snowpack at 12% of normal. A subsequent analysis utilizing automated measuring devices showed a snowpack of 22% of normal, as of February 2, 2015.

Drought conditions within California have not improved and Governor Brown's January 17, 2014 and April 25, 2014 State of Emergency Proclamations have been extended to 2015. The Department of Water Resources has continued to issue bi-weekly Drought Briefs to provide updates on current conditions, key action items and drought response activities. On February 3, 2015, the State Water Resources Control Board announced a statewide urban water conservation rate of 22% in December, which was up from 10 % in November, and may be attributable to the above average level of precipitation in that occurred in December. A follow up Water Resources Control Board meeting is planned for February 17 and will include presentations regarding additional conservation efforts that may be implemented. On February 6, the Resources Department announced the availability of draft guidelines for implementation of Proposition 1. A draft of the guidelines is available at:

<http://bondaccountability.resources.ca.gov/Guidelines.aspx?PropositionPK=48>

The January 27, 2015, Drought Monitor map for California indicates that almost 40% of the State continues to be in the "exceptional drought" category, which is the worst level of drought severity. Reservoir levels at most of the California reservoirs are significantly below average storage levels. Winter storms over the past weekend may help bring the overall precipitation levels closer to normal, but significant storms throughout the remainder of the winter would be required to bring the state out of drought.

COLORADO RIVER BASIN PROGRAM REPORTS

Basin States Drought Contingency Planning Efforts

The Memorandum of Understanding for Pilot Drought Response Actions with the other Lower Basin States, the US and certain municipal water agencies (CAP, SNWA and MWD) was signed in December 2014. The Bureau of Reclamation has evaluated the initial round of proposals for funding through the Pilot System Water Conservation Program in the Lower Basin and has requested follow up information regarding certain proposals.

The Upper Colorado River Commission passed Resolutions during their meeting in December regarding Development of an Emergency Upper Basin Drought Contingency Plan and Implementation of the 2014 System Conservation Pilot Program. The Board will hear an update from Don Ostler, the Commission's Executive Director, during the February 11 meeting.

Colorado River Basin Water Supply and Demand Study

The Report documenting the progress of Phase 1 of the Basin Study's Next Steps process was expected to be finalized in January, but has been delayed.

Minute 319 Implementation

Discussions are underway between the Basin States, the Department of the Interior and the International Boundary Water Commission regarding the status of implementation of Minute 319 and how to approach the next round of negotiations with Mexico. Mexican officials involved in the discussions have continued to express interest in fully implementing the provisions of Minute 319 and continuing progress toward negotiation of the next series of agreements. A bi-national meeting to review the progress of Minute 319 is being planned for May, 2015.

Colorado River Basin Salinity Control Program

The next meeting of the Salinity Control Forum is scheduled for May 20-21, 2015 in Salt Lake City, Utah. California will be hosting the next workgroup meeting on February 17-19, 2015, which will include a tour of Diamond Valley Lake and water recycling projects at the Eastern Municipal Water District. The workgroup is also anticipated to review the status of studies to improve the damage estimates associated with increased salinity levels in the Colorado River, among other topics.

The Salinity Control Forum's Advisory Council is in the process of finalizing its Annual Report for 2014. The Report documents the comments provided to the Department of the Interior and the Department of Agriculture during the last Salinity Control Forum meeting and provides recommendations on the appropriate level of federal funding for the Salinity Forum's ongoing activities. The final version of the Report will be sent to the Board next month.

Status of the Glen Canyon Dam Adaptive Management Program

Glen Canyon Dam Adaptive Management Program Technical Work Group members met in Phoenix, AZ on January 20-21 for the Annual Reporting Meeting. Topics covered during the meeting included geomorphology, cultural resources, riparian resources, and aquatic and fishery resources.

Staff from the Grand Canyon Monitoring and Research Center (GCMRC) reported that the 2014 High Flow Experiment (HFE) resulted in 22 sandbars increasing in size (58%), 11 sandbars demonstrating no change (29%), and 5 sandbars decreasing in size (11%). These results are largely consistent with the 2012 and 2013 HFEs, which show that HFEs, on average, increase sandbar size. These gains in sandbar volume are typically lost between HFE events, and monitoring results have not yet indicated whether HFEs lead to cumulative sandbar increases: i.e. whether the cumulative building and eroding effects lead to a net, long-term gain with the application of frequent HFEs.

Tribal representatives for the Pueblo of Zuni, Hualapai, and Southern Paiute reported on the recent activities and concerns of their tribes. These tribes are carrying out cultural activities, monitoring, and outreach in the Grand Canyon. The Pueblo of Zuni expressed concern for visitor access in the canyon, particularly around culturally important sites (e.g., Ribbon Falls).

GCMRC, National Park Service and U.S. Fish and Wildlife Service researchers reported generally encouraging results associated with humpback chub (HBC) translocation projects occurring in the upper Little Colorado River (LCR), Shinumo Creek, and Havasu Creek. In 2014, the Shinumo Creek watershed experienced a wildfire and subsequent flooding which reduced the fish population, including translocated natives, by 99%. However, in an estimated 3-5 years, the system could be ready for new translocations of HBC and other native fish species. Bright Angel Creek, which could provide suitable HBC habitat, is in the middle of a five-year trout reduction program (2012-2017). So far, an estimated 40,000 trout have been removed from the creek, including about 12,000 in 2013-2014, most of which (approximately 10,500) were brown trout.

GCMRC also reported on a recent laboratory-based study that examined chub predation rates in response to various factors, including size, temperature, turbidity, and predator species. The study showed that small increases in temperature, chub size, or turbidity had large positive effects on chub survival when chub were paired with rainbow trout. However, when paired with brown trout, predation rates were extremely high regardless of variation in temperature, turbidity, or chub size.

Aquatic foodbase research has shown that the 2012 fall HFE didn't restructure the food base like the 2008 spring HFE did. The 2008 HFE led to increases in midges and blackflies and a significant increase in the rainbow trout population, for whom midges and blackflies are an important food source. Since 2008, both trout and midges/blackflies have been on the decline (2008-2013). Rainbow trout have decreased from a high of 1.2 million in 2008 to approximately 300,000, perhaps as a result of unusually strong recruitment years in 2008, 2009, and 2011 and the effect that this swarm of fish has had on the foodbase in the Glen and Marble Canyon reaches of the Colorado River. Large fish in particular have been affected, and both trout biomass and recruitment are now quite low.

Recent research on rainbow trout movement from Lee's Ferry through Marble Canyon and to the Little Colorado River inflow show that 95% of trout don't travel distances greater than 5 km. Of the 54,000 trout PIT tagged at Lee's Ferry, for example, only 11 have been recaptured downstream. 8 of these fish were from the 2011 "super-cohort", suggesting that normally low levels of emigration can be altered by the production of a large year class. Generally, however, trout have only a 1% likelihood of moving more than 20 km and a 0.01-0.02% likelihood of traveling from Lee's Ferry to the Little Colorado River. In recent years, upstream trout populations have shown a steady decline, while downstream trout populations are increasing. The trout population at the inflow of the Little Colorado River, while small, has been above the trigger point for mechanical removal for 3 of the last 4 years. There is also evidence of local trout recruitment in the Little Colorado River reach.

The current HBC population in the river is estimated to be around 12,000 and fairly stable. HBC can be found reliably throughout much of the Grand Canyon reach, and although

there are no known large population centers, several areas with “aggregations” have sustained steady populations for several decades. Interest was expressed in encouraging the establishment of a reproducing, independent population which can serve as a backup to the large Little Colorado River population. Of the trigger conditions required to implement nonnative fish control, the only criterion met is the rainbow trout population at the Little Colorado River.

The GCMRC also presented an update on the quagga mussel population in Glen, Marble, and Grand canyons. In 2014, quagga mussels were detected in Lake Powell and have now been found downstream of the dam. Because of the turbidity levels, turbulent flows, and low levels of suspended organic matter in the Colorado River below Glen Canyon Dam, it is believed that quagga infestation will not be widespread.

The next meeting of the Adaptive Management Work Group has been scheduled for February 25-26, 2015, in Salt Lake City, Utah. Additionally, Reclamation has scheduled a one-day workshop to discuss the results of all three of the HFEs that have been conducted since the adoption of the HFE Protocol in 2012. This workshop will be held on February 27, 2015, and will also be in Salt Lake City, Utah.

Status of the Lower Colorado River Multi-Species Conservation Program

The Lower Colorado River Multi-Species Conservation Program (MSCP) held its annual Colorado River Terrestrial and Riparian Meeting January 27-29, 2015 in Laughlin, NV. The meeting included 2014 monitoring and surveying results for birds, amphibians, bats, and small mammals along the Lower Colorado River (LCR), as well as along other southwestern river systems. Habitat restoration projects from across the southwest were discussed, including ongoing projects in both Texas and New Mexico on the Rio Grande, the Colorado River Delta, and in the Imperial Irrigation District.

Riparian avian monitoring in 2014 along the LCR turned up 201 species, 97 of which were observed to be breeding. The Sonoran yellow warbler, an MSCP covered species, was in the top ten most common species at some sites. California black rail survey results were also encouraging, with black rails being found at many sites throughout the LCR, including one new detection at the newly restored Hart Mine Marsh in May 2014.

Several reports detailed the presence of southwestern willow flycatchers (SWFL) and yellow-billed cuckoo (YBC) on the Lower Colorado River. No resident SWFL were detected in the MSCP planning area south of the Bill Williams River (BWR), and the Topock Gorge population has been declining since 2004. Only 3 breeding pairs each were detected at Topock Gorge and the BWR. Alamo Lake had a sizeable population (56 individuals), but declining water levels and low nest success indicate the population may vacate the site in upcoming years. Tamarisk beetles, which could further stress the species, have not advanced further south than Needles, California as of summer 2014. YBC seem to be very successful at the Palo Verde Ecological Preserve (PVER), where numbers have been steadily increasing. In contrast, at the BWR, YBC numbers have been declining since 2010.

Workshop participants also received updates on YBC and SWFL species on the Rio Grande in New Mexico. Surveying on the Rio Grande in 2014 resulted in 330 YBC detections, including 190 in the Elephant Butte Reservoir area. This Elephant Butte population may be the largest population of YBC in the entire western population segment. The Elephant Butte region is also popular with SWFL, where the majority of the 664 resident birds on the New Mexican stretch of the Rio Grande were found. However, depredation on this SWFL population has increased and nest success for 2014 was only 29%. Additionally, 63% of the SWFL nests were located in tamarisk, and the tamarisk beetle is expected to invade the area within the next few years.

Amphibian and reptile monitoring has been ongoing for several species, including the northern Mexican gartersnake (NMGS), lowland leopard frog, and Colorado River toad. Surveys in recent years have detected NMGS along the BWR and near Planet Ranch, although they are believed to be extirpated from the mainstem LCR. NMGS are also found elsewhere in Arizona, including the San Rafael Valley in southern Arizona, where 51 snakes were found. Surveys for the lowland leopard frog and Colorado River toad along the BWR were complicated by very dry conditions in the last year. Colorado River toad surveys found 12 breeding events, largely in response to summer monsoon storm events.

Since bat monitoring began in 2007, more than 4,000 bats from 15 species have been captured. In 2014, California leaf-nosed bats were found at every site, while only a single Townsend's big-eared bat, a rare species, was captured. PVER has consistently high rates of bat detection, perhaps because of its complex canopy and structural diversity. PVER and the Cibola Valley Conservation Area (CVCA) were shown to be popular with western red bats, while Yuma East Wetlands, CVCA, and PVER were popular with western yellow bats.

Detailed reports containing much of the data and results of the monitoring, research and restoration activities presented during the workshop will be posted on the LCR MSCP webpage (www.lcrmscp.gov) in the near future.

As has been discussed at previous Board meetings, the tenth anniversary of the LCR MSCP will be recognized in April 2015. A two-and-one-half day tour has been scheduled for April 7-9, 2015, and will originate in Yuma, Arizona and conclude near Laughlin, Nevada. On April 7, Interior Secretary Jewell has been invited to a dedication ceremony at the Laguna Conservation Area.

The next MSCP workgroup call is scheduled for February 25, 2015.

Wyoming Weather Modification Pilot Program

Since 2007, the Six Agency Committee, the Southern Nevada Water Authority, the Central Arizona Water Conservation District California, Nevada and Arizona have been contributing funding toward weather modification programs in Wyoming, Utah and Colorado. In December 2014, researchers presented initial draft results of the Wyoming Weather Modification Pilot Program to assess the feasibility of increasing Wyoming water supplies through cloud seeding. The purpose of the study was to determine whether cloud seeding is a viable and cost-

effective technology. An Executive Summary of the draft report can be downloaded at www.wwdc.state.wy.us/.

The Wyoming study followed guidance from a National Research Council report on weather modification, and evaluated the combined results of physical, statistical, and numerical modeling studies that involved analyzing the amount of snow that fell across a seeded mountain range versus a non-seeded mountain range during the same snow events. The results suggest a 5 to 15% increase in precipitation for the seeded storms monitored in the study. The cost of the program ranged from \$30/AF to \$430/AF, depending on whether expenses like start-up costs and evaluation costs were included in the analysis.

ANNOUNCEMENTS AND NOTICES

On January 26, 2015, the Governor of Arizona, Doug Ducey, appointed Tom Buschatzke as the Director of the Arizona Department of Water Resources. Mr. Buschatzke, had been working as the assistant director for the Department and is very familiar with all of the ongoing Colorado River Basin activities.

On February 6, 2015, Governor Brown and Interior Secretary Sally Jewell, announced the availability of \$50 million in drought relief funding by the Bureau of Reclamation. The funding had been included in the FY 2015 appropriations bill. A majority of the funding has been allocated for projects and programs within California, and \$8.6 million will be dedicated toward the Lower Colorado River Basin's drought planning efforts

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