

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

May 12, 2021

**ADMINISTRATION**

Proposed Fiscal-Year 2021/2022 budget for the Colorado River Board of California

The proposed budget for Fiscal-Year 2021/2022 (FY-21/22) is \$2,413,000. This is based upon the Governor's budget released in January 2021. This is an increase of \$13,000 from the previous fiscal year (i.e., FY-20/21). The FY-20/21 Accomplishments & FY-21/22 Planned Activities Report has been distributed with the Board meeting materials, and provides information regarding the accomplishments over the past year, and previews anticipated activities in upcoming fiscal year. The Board's FY-21/22 proposed budget will be brought to the Board for consideration and adoption at the June 9<sup>th</sup> meeting.

**COLORADO RIVER BASIN WATER SUPPLY CONDITIONS REPORT**

As of May 10<sup>th</sup>, the surface water elevation at Lake Powell was 3,561.27 feet with 8.42 million-acre feet (MAF) of storage, or 35% of capacity. The surface water elevation at Lake Mead was 1,077.49 feet with 9.80 MAF of storage, or 38% of capacity. As of May 9<sup>th</sup>, the total system storage was 25.35 MAF, or 43% of capacity, which is about 5.38 MAF less than the total system storage at this same time last year.

As of May 2<sup>nd</sup>, the Upper Basin reservoirs, excluding Lake Powell, ranged from 38% of capacity at Fontenelle Reservoir in Wyoming; 85% of capacity at Flaming Gorge Reservoir in Wyoming and Utah; 88% of capacity at Morrow Point, and 44% of capacity at Blue Mesa Reservoir in Colorado; and 62% of capacity at Navajo Reservoir in New Mexico.

As of May 4<sup>th</sup>, the forecasted unregulated inflow into Lake Powell for Water Year (WY) 2021 is 3.64 MAF (34% of normal). The April through July 2021 runoff into Lake Powell for Water Year-2021 is forecast to be 2.0 MAF (28% of normal), which would be the third driest April-July period on record if the value holds. For WY-2021, the April observed Lake Powell inflow was 0.29 MAF (27% of normal), and the forecast May Lake Powell observed inflow is 0.50 MAF (21% of normal).

To date, WY-2021 precipitation is 73% of normal and the current basin snowpack is 53% of normal in the Upper Colorado River Basin.

#### April 24-Month Study Report

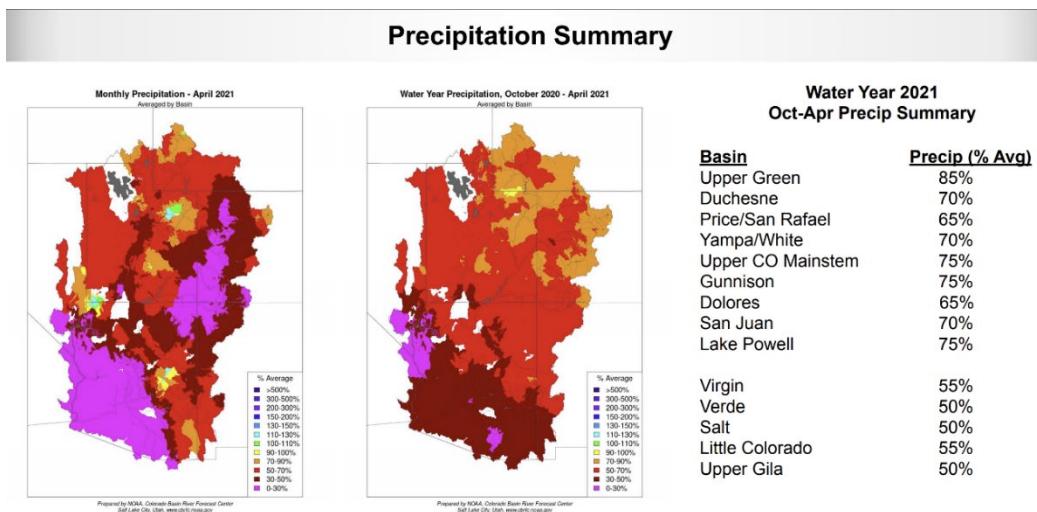
On April 15, 2021, Reclamation released the April 2021 24-Month Study for the operation of Lakes Powell and Mead through March 2023. The study shows that Lake Powell will remain in the Mid-Elevation Release Tier over the next 24 months, which means a high likelihood of a 7.48 MAF release from Lake Powell in 2022. The study also shows a high probability that Lake Mead will be in the Tier 1 Shortage condition in 2022 for the first time since the interim guidelines were adopted in 2007. A Tier 1 Shortage condition will require mandatory shortages in 2022 to the States of Nevada and Arizona and the country of Mexico in addition to Drought Contingency Plan contributions by those two states and the Binational Water Scarcity Contingency Plan contributions by Mexico.

#### Colorado Basin River Forecast Center Webinar

On May 7<sup>th</sup>, the Colorado Basin River Forecast Center (CBRFC) held its last webinar of the season to review the Basin's current water supply conditions and forecasts for Water Year-2021 (WY-21). In April, precipitation conditions were below average throughout the Basin. Of note, the Basin experienced similar dry conditions in April 2020 as well.

Figure 1, displaying the WY-21 precipitation (October 2020 to April 2020) shows the impact of consecutive, monthly dry conditions for the water year. WY-2021 precipitation conditions in the Upper Basin ranged from (65% in the Dolores Basin to 85% in the Upper Green Basin. Monthly temperatures conditions in April 2021 were also above average in the Lower Basin, while some areas of the northern portion of the Upper Basin experienced slightly below average temperatures. Overall, the Basin experienced above average temperatures during the beginning and end of April causing snowmelt and runoff in April through early May. The observed April streamflow volumes were below normal throughout the Basin, with some exceptions in the Duchesne, Upper Colorado Headwaters and San Juan Basins.

During the end of the first week of May, weather models forecasted above average temperatures and a storm system moving through the northern portion of the Upper Basin. The Climate Prediction Center's 8-to-14-day outlook predicts slightly elevated chances of above normal temperatures and below normal precipitation, especially in Four Corners region. In addition, the weather forecasts show no signs of an extended wet period.



Another month of generally below to well below normal.  
Water year precipitation deficits continue to grow.

**Figure 1: April and Water Year-2021 Precipitation Map and Summary (Source: CBRFC)**

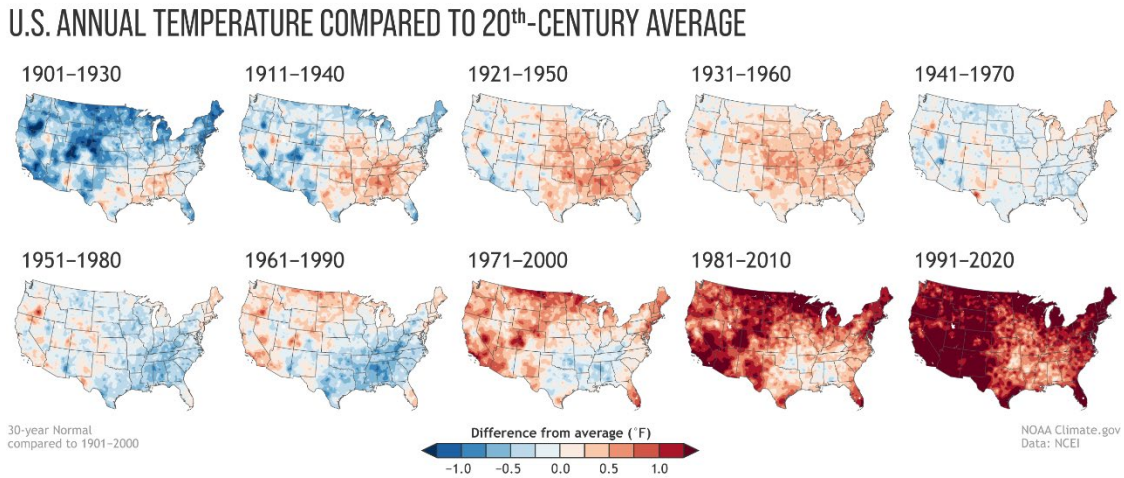
National Oceanic and Atmospheric Association (NOAA) updates Climate Normals

On May 4<sup>th</sup>, NOAA updated its U.S. “climate normals” representation of average climate conditions experienced during 1991-2020 period. NOAA updates the climate normals every ten years and it represents thirty-year averages of climate observations, such as temperature and precipitation. There are ten versions of U.S. climate normals dating back to the period of 1901 – 1930.

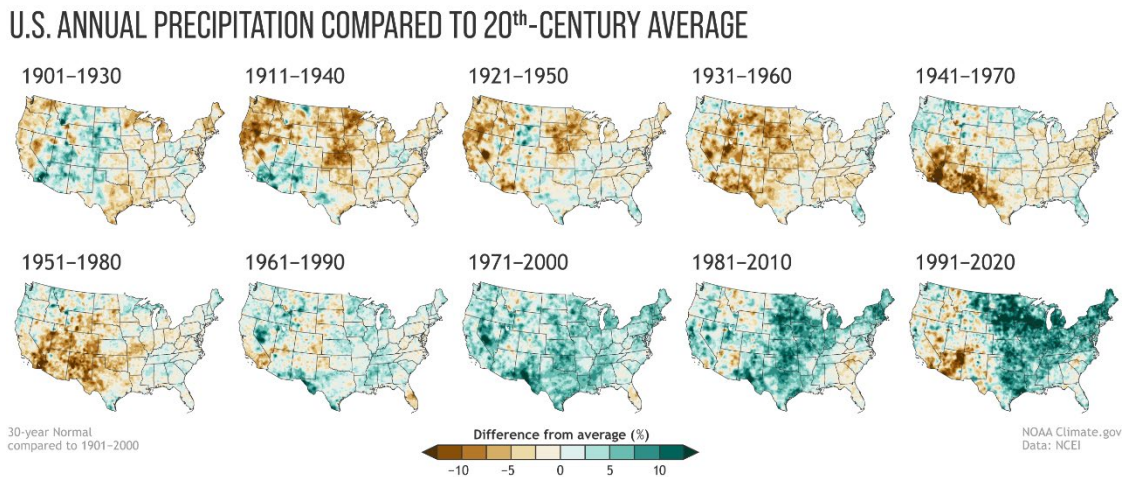
It is anticipated that the updated climate normals may impact the long-term averages of hydrology and temperature datasets that the Colorado River Basin relies on to model and forecast hydrology conditions, such as streamflow, snowpack, and soil moisture. Over the last thirty years, conditions in the Basin have been drier and warmer than the previous thirty-year period. On an absolute basis, the differences between these time periods (1981-2010 vs. 1990 to 2020) confirm the drier and warmer conditions that many scientists and water managers have observed over the years. While on a relative basis, when comparing the new climate normals to current conditions, differences may not appear as dramatic, but it does tend to illustrate a trend toward drier and warmer conditions in the Colorado River Basin.

Figures 2 and 3, shows U.S annual temperature and precipitation conditions compared to the 20<sup>th</sup> Century average (1901 – 2020). Figure 2 shows that last three thirty-year periods of temperature conditions deviate significantly from the 20<sup>th</sup> Century average. On the other hand,

Figure 3 shows that normal annual precipitation patterns have shifted and changed, throughout the 20<sup>th</sup> Century and leading into the 21<sup>st</sup> Century.



**Figure 2: U.S. Annual Temperatures Compared to 20<sup>th</sup> Century Average (Source: NOAA)**



**Figure 3: U.S. Annual Precipitation compared to 20<sup>th</sup> Century Average (Source: NOAA)**

Colorado River System 5-Year Projected Future Conditions

On May 4, 2021, Reclamation released updated 5-year projections of the operational conditions for Lake Powell and Lake Mead. The projections assume implementation of the Drought Contingency Plan (DCP) Contributions, Intentionally Created Surplus, and other system conservation activities including Mexico's Binational Water Scarcity Contingency Plan. The two

figures below show conditions for Lake Powell and Lake Mead for both the Full Hydrology scenario (1906-2019) and the Stress Test hydrology scenario (1988-2019). The results show a high probability that Lake Powell will remain in the Middle Elevation Balancing tier (elevation < 3575' to >= 3525') through 2023, with a greater probability of recovering to the Upper Elevation Balancing tier (elevation >= 3575') in 2024 and 2025. The results show a high likelihood that Lake Mead will remain in the Tier 1 Shortage Condition through 2025, with a possibility of falling to a Tier 2 Shortage Condition in 2024 and 2025.

**Upper Basin – Lake Powell**  
**Percent of Traces with Event or System Condition**  
**Results from April 2021 CRMS MTOM Mode/CRSS using the Full Hydrology and Stress Test Hydrology (values in percent)**

Event or System Condition	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
<b>Equalization Tier (Powell ≥ Equalization [EQ] Elevation)</b>	0	0	6	12	17	0	0	0	3	7
Equalization – annual release > 8.23 maf	0	0	6	12	17	0	0	0	3	7
Equalization – annual release = 8.23 maf	0	0	0	0	0	0	0	0	0	0
<b>Upper Elevation Balancing Tier (Powell &lt; EQ Elevation and ≥ 3,575 ft)</b>	100	3	36	49	50	100	3	31	41	39
Upper Elevation Balancing – annual release > 8.23 maf	0	2	35	45	44	0	2	30	39	36
Upper Elevation Balancing – annual release = 8.23 maf	100	<1	1	4	5	100	<1	<1	2	3
Upper Elevation Balancing – annual release < 8.23 maf	0	0	0	<1	0	0	0	0	<1	0
<b>Mid-Elevation Release Tier (Powell &lt; 3,575 and ≥ 3,525 ft)</b>	0	91	51	31	23	0	91	65	45	35
Mid-Elevation Release – annual release = 8.23 maf	0	0	0	<1	2	0	0	0	0	5
Mid-Elevation Release – annual release = 7.48 maf	0	91	51	30	21	0	91	65	45	30
<b>Lower Elevation Balancing Tier (Powell &lt; 3,525 ft)</b>	0	6	7	8	10	0	6	4	11	18
Below Minimum Power Pool (Powell < 3,490 ft)	0	0	1	4	6	0	0	<1	9	12

Notes:  
<sup>1</sup> Modeled operations include the 2007 Interim Guidelines, Upper Basin Drought Response Operations, Lower Basin Drought Contingency Plan, and Minute 323, including the Binational Water Scarcity Contingency Plan.  
<sup>2</sup> Reservoir initial conditions on March 31, 2021 were simulated using the April 2021 MTOM based on the CBRFC unregulated inflow forecast ensemble dated April 2, 2021.  
<sup>3</sup> Each of the 35 initial conditions from MTOM were coupled with 114 hydrologic inflow sequences from the Full Hydrology that resamples the observed natural flow record from 1906-2019 for a total of 3,990 traces analyzed and with 32 hydrologic inflow sequences from the Stress Test Hydrology that resamples the observed natural flow record from 1988-2019 for a total of 1,120 traces analyzed.  
<sup>4</sup> Percentages shown in this table may not be representative of the full range of future possibilities that could occur with different modeling assumptions.  
<sup>5</sup> Percentages shown may not sum to 100% due to rounding to the nearest percent.



**Lower Basin – Lake Mead**  
**Percent of Traces with Event or System Condition**  
**Results from April 2021 CRMS MTOM Mode/CRSS using the Full Hydrology and Stress Test Hydrology (values in percent)**

Event or System Condition	2021	2022	2023	2024	2025	2021	2022	2023	2024	2025
<b>Surplus Condition – any amount (Mead ≥ 1,145 ft)</b>	0	0	0	1	4	0	0	0	0	0
Surplus – Flood Control	0	0	0	0	<1	0	0	0	0	0
<b>Normal or ICS Surplus Condition (Mead &lt; 1,145 and &gt; 1,075 ft)</b>	100	3	6	17	19	100	3	8	9	6
Recovery of DCP/ICS / Mexico's Water Savings (Mead >= 1,110 ft)	0	0	0	4	9	0	0	0	0	<1
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,090 and > 1,075 ft)	100	3	5	11	10	100	3	7	9	3
<b>Shortage Condition – any amount (Mead ≤ 1,075 ft)</b>	0	97	94	82	77	0	97	92	91	94
Shortage / Reduction – 1 <sup>st</sup> level (Mead ≤ 1,075 and ≥ 1,050)	0	97	81	37	34	0	97	71	31	33
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,075 and > 1,050 ft)	0	97	81	37	34	0	97	71	31	33
Shortage / Reduction – 2 <sup>nd</sup> level (Mead < 1,050 and ≥ 1,025)	0	0	13	44	32	0	0	21	60	36
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,050 and > 1,045 ft)	0	0	11	9	6	0	0	17	6	7
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,045 and > 1,040 ft)	0	0	2	9	6	0	0	4	11	6
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,040 and > 1,035 ft)	0	0	<1	11	8	0	0	0	16	6
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,035 and > 1,030 ft)	0	0	0	10	7	0	0	0	17	6
DCP Contribution / Mexico's Water Savings (Mead ≤ 1,030 and ≥/ > 1,025 ft)	0	0	0	5	6	0	0	0	9	10
Shortage / Reduction – 3 <sup>rd</sup> level (Mead < 1,025)	0	0	0	1	11	0	0	0	<1	25
DCP Contribution / Mexico's Water Savings (Mead <= 1,025 ft)	0	0	0	1	11	0	0	0	<1	25

Notes:  
<sup>1</sup> Modeled operations include the 2007 Interim Guidelines, Upper Basin Drought Response Operations, Lower Basin Drought Contingency Plan, and Minute 323, including the Binational Water Scarcity Contingency Plan.  
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## **COLORADO RIVER BASIN PROGRAM UPDATES**

### Colorado River Basin Salinity Control Program

#### *Colorado River Basin Salinity Control Program Implementation*

Board staff participated in several Colorado River Basin Salinity Control program meetings recently and are supporting upcoming meetings to further program objectives. Discussion topics include preparation of the 2023 Triennial Review of Water Quality Standards for Salinity Colorado River System, status of the Paradox Valley salinity control project, and providing recommendations to Reclamation and U.S. Geological Survey on areas of future salinity control study and program funding. Recent meetings included the Work Group state representatives on April 26<sup>th</sup> and 29<sup>th</sup>, and the Salinity Program Science Team on May 5<sup>th</sup>. On May 12<sup>th</sup> the Advisory Council Technical Advisory Group will meet to confirm recommendations for FY-2022 salinity control studies. The Salinity Control Forum Work Group will meet on June 4<sup>th</sup> and 7<sup>th</sup> followed by Salinity Control Forum and Advisory Council Meetings on June 9<sup>th</sup> and 10<sup>th</sup>.

#### *Salinity Control Program Congressional Subcommittee Appropriation Testimony Letters*

Board staff are coordinating with the Salinity Control Forum to provide Congressional subcommittee appropriation testimony letters for the FY-2022 budget authorizations for the Salinity Control Program. Testimony letters are provided to both the House and Senate subcommittees to support program appropriations for Reclamation's Basinwide Program, the Bureau of Land Management's salinity control efforts under the Aquatic Habitat Management Program, and the Natural Resources Conservation Service's EQIP program.

### Glen Canyon Dam Adaptive Management Program

The Technical Work Group (TWG) of the Glen Canyon Dam Adaptive Management Program met April 13-14 via webinar. The TWG received an update on the low numbers of juvenile humpback chub near the Little Colorado River, which has met a trigger under the Long-Term Experimental and Management Plan (LTEMP) Biological Opinion. The trigger is intended to be an early warning, indicating that the population of adult humpback chub could decline in the future. The first step in the response will be submission of a semi-annual status report to the U.S. Fish and Wildlife Service, including formal notification of exceedance of the trigger. Options are being evaluated for the least invasive ways to respond to the trigger.

The National Park Service (NPS) reported on their incentivized harvest program, which was initiated in fall 2020 and pay anglers for each brown trout caught in the Lees Ferry reach and turned in to NPS staff. The effort is intended to provide a low-impact way to manage the population of nonnative brown trout below Glen Canyon Dam, which has increased exponentially since 2014. Increased outreach efforts are being planned as the number of anglers participating in the program remains low.

A spring disturbance flow was conducted at Glen Canyon Dam from March 15-26. The flow consisted of a low steady release to conduct maintenance to the concrete apron below the dam, followed by several days of the maximum release within the dam's powerplant capacity. Data and samples collected during the spring disturbance flow are currently being analyzed, and results from these efforts will be forthcoming.

After considerable discussion amongst stakeholders, the Department of the Interior made a formal decision not to conduct a fourth year of macroinvertebrate production flows, or "bug flows," in summer 2021. These experimental flows have been conducted May-August in 2018, 2019, and 2020 with equivocal results. Initial data indicates that some insect taxa have increased in some years, but not others. The decision not to conduct bug flows in 2021 was a result of several factors, including the high cost of the experiment this year and an interest in thoroughly reviewing the previous years' results before continuing the experiment. The Grand Canyon Monitoring and Research Center (GCMRC) is preparing a report compiling results of previous bug flows. The report is anticipated to be completed by the end of the year in preparation for review by a Science Advisory Panel in January. Findings in the report and from the Science Advisory Panel will be utilized to make decisions regarding potential bug flows in 2022.

The Adaptive Management Work Group (AMWG) will meet May 19 and the TWG will hold its next meeting on June 16 – 17, both via webinar.

#### Lower Colorado River Multi-Species Conservation Program

The Lower Colorado River Multi-Species Conservation Program (LCR MSCP) held a Steering Committee meeting on April 28. The Steering Committee elected Seth Shanahan of the Southern Nevada Water Authority as Chair and Chuck Cullom of the Central Arizona Water Conservation District as Vice Chair.

The focus of the meeting was budget, fisheries, conservation area, and adaptive management accomplishments in FY-2020. These accomplishments are detailed in the Draft Implementation Report, FY-2022 Work Plan and Budget, and FY-2020 Accomplishment Report, available at

<http://lcrmscp.gov>. One notable update is that the Arizona Game and Fish Department's Bubbling Ponds Fish Hatchery will no longer be used to raise native fish for the program. All fish that meet the minimum stocking size will be harvested and stocked into Reaches 3–5. Surplus fish that do not meet the minimum stocking size will be transferred to other hatchery facilities. Comments on the draft reports and work plan are due May 10.

The U.S. Fish and Wildlife Service has released critical habitat designation rules for the Yellow-Billed Cuckoo and Northern Mexican Gartersnake. Both of these critical habitat designations exclude LCR MSCP planning area as the LCR MSCP already provides habitat conservation in this area.

The next Technical Work Group meeting of the LCR MSCP is scheduled for May 12-13. The next Steering Committee meeting will be held on June 23. Both meetings will be virtual.

## **GENERAL ANNOUNCEMENTS AND UPDATES**

### Washington, D.C. Report

#### *Agency Appointments and Confirmations*

Ms. Janet McCabe, a veteran environmental attorney, was confirmed by the Senate to be the EPA Deputy Administrator by a vote of 52-42 in the Senate. Mr. Jason Miller was also confirmed by the Senate to assume the duties of the deputy director for management for the Office of Management and Budget, where he will be charged with coordinating policy, management and regulatory work across the Biden administration.

President Biden recently announced another tranche of nominations for key positions within the Department of the Interior (DOI), Army Corps of Engineers, and the EPA, including the following:

- DOI Deputy Secretary – Tommy Beaudreau
- DOI Assistant Secretary for Fish, Wildlife, and Parks – Shannon Estenoz
- DOI Assistant Secretary for Water and Science – Tanya Trujillo
- DOI Assistant Secretary for Policy, Management, and Budget – Winne Stachelberg
- EPA Assistant Administrator for Water – Radhika Fox
- Assistant Secretary of the Army for Civil Works – Michael Connor



### *Water Infrastructure Legislation*

Major bipartisan water infrastructure legislation, the Drinking Water and Wastewater Infrastructure Act, passed the Senate on an 89-2 vote and now heads to the House of Representatives ([link](#)). This proposed legislation authorizes the following:

- \$14.7 billion for the Drinking Water State Revolving Funding over a 5-year period;
- \$14.7 billion for the Clean Water State Revolving Fund over a 5-year period;
- \$250 million for WIFIA over a 5-year period; and
- \$500 million for EPA’s lead reduction projects grant program over a 5-year period.

Congressional Democrats are hopeful that the \$35 billion authorization bill could pave the way for a much larger water infrastructure overhaul as part of the Administration’s “American Jobs Plan.” Congress is expected to begin debating how to actually pay for this massive package — one of the primary conflicts threatening its future.

### *Republican Infrastructure Offer*

Senate Republicans have offered a [slimmed down version of an infrastructure package](#), proposing \$568 billion over five years for the country’s connective systems. Transportation (roads, bridges, rail, public transit, airports) would get three-quarters of the funds. Drinking water and wastewater treatment would get \$35 billion, a fraction of the White House’s wish of \$111 billion. The Republican plan includes \$14 billion for water storage, a perennial demand from their western caucus. Unlike the Biden plan, this proposal aims to raise funds without increasing corporate taxes.

### *Colorado River Basin*

In a recent study, U.S. Geological Survey scientists found a “complex” situation for salt concentrations in the waters of the Upper Colorado River basin. Salt levels declined in the last 90 years, according to the [study](#) published in the Water Resources Research journal. Large reductions occurred especially after salinity-control projects were put in place in the 1980s. In the last two decades, however, salinity reductions have slowed or even increased.

### *Drought Working Group*

The Biden Administration announced the formation of an Interagency Working Group to address worsening drought conditions in the West and support farmers, tribes, and communities

impacted by ongoing water shortages. The White House cited that water allocations are at historic lows, including in areas like the Colorado River Basin, creating an urgent need to minimize the impacts of the drought and develop a long-term plan to facilitate conservation and economic growth.

The Working Group will be co-chaired by the Departments of the Interior and Agriculture to build upon existing resources to help coordinate across the federal government, working in partnership with state, local, and tribal governments to address the needs of communities suffering from drought-related impacts.

The Working Group will work to identify immediate financial and technical assistance for impacted irrigators and Tribes. Development of longer-term measures to respond to climate change and build more resilient communities and protect the natural environment will also be a priority, including through President Biden’s proposed American Jobs Plan and through a recommitment to strengthening the National Drought Resilience Partnership (NDRP). Formed in 2013, the NDRP brings together multiple federal agencies to build long-term drought resilience, including developing innovative science-driven actions to address water supply challenges.

#### *Canal Conveyance Restoration Act*

California congressmen, Costa and Harder, and California’s Senator Feinstein introduced bills that would fund the repair of canals in California that have been damaged by land surface subsidence due to groundwater pumping. The proposed legislation would authorize \$653 million to restore the carrying capacity of three such canals — the Friant-Kern, Delta-Mendota, and California Aqueduct. These three canals convey significant volumes of water supplies to farms and cities in the Central Valley and Southern California. The Federal costs for this repair project would be capped at one-third of the total cost ([link](#)).

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