

April 30, 2020

**NOTICE OF REGULAR MEETING OF THE  
COLORADO RIVER BOARD**

**NOTICE IS HEREBY GIVEN** pursuant to the call of the Chairperson, Peter Nelson, by the undersigned Executive Director of the Colorado River Board of California that a regular meeting of the Board Members is to be held as follows:

Date: Wednesday, May 13, 2020  
Time: 10:00 a.m.  
Place: Pursuant to Governor Newsom's Executive Order N-29-20 issued on March 17, 2020, this meeting will be held virtually using Zoom Webinar. Board members will receive instructions separately. The public are welcome to attend.  
Attendees may access this meeting using the following:  
Webinar Link: <https://us02web.zoom.us/j/83934010833?pwd=bUM2alNsdjFOOXArMHN0d0YweHNsdz09>  
Telephone: US: +1 669 900 9128, enter Meeting ID: 839 3401 0833, followed by #; then press # again to connect.

The Colorado River Board of California welcomes any comments from members of the public pertaining to items included on this agenda and related topics. If members of the public wish to make a comment regarding items on the agenda, there are three options for consideration: (1) Public comments may be submitted by electronic mail, and **should be addressed to the Board's Chairman, Mr. Peter Nelson, at [crb@crb.ca.gov](mailto:crb@crb.ca.gov) and will be accepted up until 10:00 a.m. on the day of the meeting;** (2) During the meeting, members of the public may submit comments by participating in the Zoom Webinar and utilizing the "Q&A" feature in the control panel; **or** (3) By calling into the Zoom Webinar using the telephone number above and pressing \*9 to "Raise Hand." Please note, **written submissions will be read aloud at the public comment period** to the extent they fit within the five-minute time limit.

If accommodations from individuals with disabilities are required, such persons should provide a request at least 24 hours in advance of the meeting by electronic mail to the Board's staff member, Mr. Brian Alvarez at [balvarez@crb.ca.gov](mailto:balvarez@crb.ca.gov).

Requests for additional information may be directed to: Mr. Christopher S. Harris, Executive Director, Colorado River Board of California, 770 Fairmont Avenue, Suite 100, Glendale, CA 91203-1068, or 818-500-1625. A copy of this Notice and Agenda may be found on the Colorado River Board's web page at [www.crb.ca.gov](http://www.crb.ca.gov).

A copy of the meeting agenda, showing the matters to be considered and transacted, is attached.

  
Christopher S. Harris  
Executive Director

**Regular Meeting**  
**COLORADO RIVER BOARD OF CALIFORNIA**  
**Wednesday, May 13, 2020**  
**10:00 a.m.**

At the discretion of the Board, all items appearing on this agenda, whether or not expressly listed for action, may be deliberated upon and may be subject to action by the Board. Items may not necessarily be taken up in the order shown.

COVID-19 Notice

The Board is following guidance provided by Governor Newsom, pursuant to Executive Order N-29-20 issued on March 17, 2020, for adhering to the Bagley-Keene Act's open meeting requirements.

**1. Call to Order**

**2. Opportunity for the Public to Address the Board** (Limited to 5 minutes)  
In accordance with California Government Code, Section 54954.3(a)

**3. Administration**

- a. Consideration and approval of the Minutes of the meeting held March 11, 2020 (Action)
- b. Presentation of Draft Colorado River Board of California FY-2020/2021 Budget (Information)
- c. FY-2019/2020 Accomplishments Report and FY-2020/2021 Planned Activities Report (Information)

**4. Water Supply and Operations Reports**

- a. Colorado River Basin Report
- b. State and Local Reports

**5. Staff Reports Regarding Colorado River Basin Programs**

- a. U.S. Bureau of Reclamation "7.D Review" of the 2007 Interim Operating Guidelines Update
- b. Review and Proposed Board Authorization for Chairman to sign Seven Basin States Letter regarding Reclamation's 7.D Review Process (Action)
- c. Minute No. 323 Implementation
- d. Salinity Control Program
- e. Climate and Hydrology Work Group
- f. Glen Canyon Dam Adaptive Management Program
- g. Lower Colorado River Multi-Species Conservation Program
- h. General Announcements

**6. Executive Session**

An Executive Session may be held by the Board pursuant to provisions of Article 9 (commencing with Section 11120) of Chapter 1 of Part 1 of Division 3 of Title 2 of the Government Code and Sections 12516 and 12519 of the Water Code to discuss matters concerning interstate claims to the use of Colorado River system waters in judicial proceedings, administrative proceedings, and/or negotiations with representatives from other states or the federal government.

**7. Other Business**

**8. Future Agenda Items/Announcements**

**Next Scheduled Board Meeting:** June 10, 2020  
10:00 a.m.  
Webinar





Minutes of Meeting  
COLORADO RIVER BOARD OF CALIFORNIA  
Wednesday, March 11, 2020

A meeting of the Colorado River Board of California (Board) was held on Wednesday, March 11, 2020 at the Imperial Irrigation District, 1285 Broadway Avenue, El Centro, CA 92243.

Board Members and Alternates Present:

David DeJesus (MWD Alternate)  
James Hanks (IID)  
Jeanine Jones (DWR Designee)  
Henry Kuiper (Public Member)

Jim Madaffer (SDCWA)  
Peter Nelson, Chairman (CVWD)  
Glen D. Peterson (MWD)  
David Vigil (DFW 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)

David R. Pettijohn (LADWP)  
John Powell, Jr. (CVWD Alternate)  
Jack Seiler (PVID Alternate)  
Mark Watton (SDCWA Alternate)

Others Present:

James Abatti  
Jose Ayon  
Nick Bahr  
Vince Brooke  
Tom Brundy  
Katie Burnworth  
Matt Dessert  
Gina Dockstader  
Mitchell Edgmon  
Craig Elmore  
Armando Galicia  
Brent Grizzle  
Kevin Grizzle  
JB Hamby  
Christopher Harris  
John Hernandez  
Miguel Hernandez

Joanna Smith Hoff  
Jessica Humes  
Sarai Jimenez  
Lisa Johansen  
Rich Juricich  
Carson Kalin  
Kathryn Lamb  
Ron Leimgruber  
Kirk Lyster  
Henry Martinez  
Kara Mathews  
Kathryn McCutcheon  
Aaron Mead  
Brea Mohamed  
Dylan Mohamed  
Edward Morales  
Jessica Neuwerth

Luis Olmedo  
Mike Pacheco  
Paula Pangle  
Josie Pizano  
Kay Pricola  
Jesse Puga  
Gil Rebollar  
Ivory Reyburn  
Eric Reyes  
David Schoneman  
Tina Shields

Ed Smith  
Gary Tavetian  
Quentin Tucker  
Cherrie Watte  
Jerry Zimmerman

## **CALL TO ORDER**

Chairman Nelson announced the presence of a quorum and called the meeting to order at 1:30 p.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. Mr. Ronnie Leimgruber from the Imperial Valley Farm Bureau brought up several concerns. Mr. Leimgruber expressed his concerns for the Salton Sea and interest in compensation for water conservation and additional storage for conserved water.

## **ADMINISTRATION**

Chairman Nelson asked for a motion to approve the February 12, 2020, meeting minutes. Mr. Madaffer 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. Harris reported that as of March 2<sup>nd</sup>, the water level at Lake Powell was 3,602.69 feet with 12 million-acre feet (MAF) of storage, or 49% of capacity. The water level at Lake Mead was 1,096.38 with 11.41 of storage, or 44% of capacity. Mr. Harris reported that the total system storage was 31 MAF, or 52% of capacity, which is about 4.29 MAF more than system storage at this time last year.

Mr. Harris reported that as of February 18<sup>th</sup>, the Water Year-2020 forecasted inflow to Lake Powell is 8.56 MAF, or 79% of normal and the Water Year-2020 forecasted April to July inflow to Lake Powell is 5.70, or 80% of normal. For Water Year-2020, the observed January inflow to Lake Powell was 0.28 MAF, or 77% of normal and the forecasted February inflow to Lake Powell is 0.31 MAF, or 79% of normal. The current Basin snowpack is 106% and precipitation to date is 90%. Mr. Harris reported the precipitation conditions in January and February were very dry, with exception of the Upper Green River basin with slightly above average conditions.

Mr. Harris reported that as of March 2<sup>nd</sup>, the Upper Colorado River basin reservoirs, excluding Lake Powell, ranged from 42% of capacity at Fontenelle Reservoir in Wyoming; 86% of capacity at Flaming Gorge Reservoir in Wyoming and Utah; 92% of capacity at Morrow Point

and 65% of capacity at Blue Mesa Reservoir in Colorado; and 76% of capacity at Navajo Reservoir in New Mexico.

Mr. Harris reported that as of March 5<sup>th</sup>, Brock and Senator Wash Reservoirs captured 29,572 AF and 13,450 AF, respectively. He also reported that the excess deliveries to Mexico through February 29<sup>th</sup>, were 7,119 AF. As of January 31st, the total bypassed to the Cienega de Santa Clara in Mexico was 16,755 AF.

### **State and Local Report**

Ms. Jones, representing the California Department of Water Resources (DWR), reported that precipitation conditions in northern California have set records for no measurable precipitation for February, which is usually one of the three wettest months on an average basis.

Ms. Jones reported on an experimental modeling project that NOAA is preparing for DWR on atmospheric ridging. She explained that ridging tends to prevent storms from reaching California and is a predictor of dry conditions. Ms. Jones reported that the model has shown the best predictive skill in California and the Colorado River Basin. Ms. Jones reported that the model has also forecasted very dry conditions for Water-Year 2020 in California. She noted, however, that last year's wet precipitation conditions and carry-over storage will be essential for the dry water year ahead. She noted that the more funding is needed to continue and advance forecasting research.

Mr. Peterson, representing the Metropolitan Water District of Southern California (MWD), reported that MWD has a record amount of nearly 3 MAF of water stored, which includes storage in Lake Mead, system reservoirs and various storage projects in the Central Valley and Coachella.

Mr. Harris, reporting for Board member Pettijohn of the Los Angeles Department of Water and Power (LADWP), reported that as of March 5<sup>th</sup>, the Eastern Sierra precipitation is 56% of normal.

## **STATUS OF COLORADO RIVER BASIN PROGRAMS**

### **Status of the Salinity Control Program**

Mr. Harris reported that the Board as well as many other California and Colorado River agencies submitted comments on the draft Paradox Valley Unit (PVU) EIS. Reclamation is developing a range of alternatives and potentially identifying a preferred alternative to continue operating PVU to prevent about one hundred thousand tons of salt per year from entering the Dolores River and then ultimately the mainstream. With declining reservoir levels reducing the

generation of hydropower, the revenues going into both the Upper and Lower Basin Development Funds have been declining over time. Mr. Harris explained that there is a need to implement a long-term funding fix while continuing to control salt at PVU. The Basin States submitted a letter to Reclamation in support of this effort.

Mr. Harris further explained that there is some consensus around evaporation ponds as the preferred alternative for the PVU. The Basin States are also suggesting continuation of the current deep injection well while evaluating other opportunities for controlling the hundred thousand tons of salt. The final EIS is scheduled to come out in April for cooperating agencies' review, with a final EIS in July and a Record of Decision in August. Mr. Harris reported that the Basin States and Reclamation still intend on doing their best efforts to control salt at the PVU, a point-source for salinity control.

### **Status of the Weather Modification Program**

Mr. Juricich reported that as of February, the state of Wyoming has accomplished 700 hours of cloud seeding, 4,000 hours in Utah, and around 4,000 to 5,000 hours in Colorado. A recent news article enclosed in the Board packet reported that some researchers were looking at strong evidence of the benefits of cloud seeding. Mr. Juricich explained that the researchers were able to find in the snowfall isotopic tracers placed in some of the silver iodide seeding material. Board members inquired about the contributions the Lower Basin States make to the program. Mr. Juricich responded that the states keep good records of their spending and have individual contracts that are within what the Six Agency Committee commits each year to the effort.

### **Minute No. 323 Implementation**

Mr. Harris reported that the Environmental Work Group (EWG) for Minute No. 323 met February 26<sup>th</sup> in Tijuana, Baja California, Mexico. Mr. Harris reported that approximately 22,000 acre-feet of water has so far been secured for environmental purposes under the Minute. Currently, no federal water has yet been made available for use under the Minute, although efforts are underway to make federal water available for use by the EWG within the next several years.

Mr. Harris noted that members of the EWG had been working to monitor the impacts of the recent disruption in water flow to the Cienega de Santa Clara, a large wetland complex in the Delta. The Cienega is sustained by saline drainage delivered from the Yuma area by the Main Outlet Drain Extension (MODE), which underwent repair work from September 2019 to January 2020. During this time, no surface water was delivered to the Cienega, and scientists reported a reduction in the extent of open water and a significant increase in salinity levels. Mr. Harris reported that scientists will continue to monitor the site as flows return.

In response to a question from Chairman Nelson, Mr. Harris noted that during the four months of repair work, water was rerouted to the main channel, resulting in surface flows that at times extended from the Northerly International Boundary past the Southerly International Boundary.

### **Glen Canyon Dam Adaptive Management Program**

Board Staff Ms. Neuwerth reported that the Adaptive Management Work Group (AMWG) for the Glen Canyon Dam Adaptive Management Program met February 12-13 in Phoenix, Arizona. Ms. Neuwerth reported that the group received an update from the U.S. Fish and Wildlife Service (USFWS) on the proposed downlisting of the endangered humpback chub. The proposal to reclassify the fish from endangered to threatened was released in January 2020, including slightly relaxed protections for the species which could allow for greater management flexibility. Ms. Neuwerth noted that the USFWS is also moving forward with a downlisting proposal for the endangered razorback sucker, which is actively stocked in both the Upper and Lower Colorado River Basins.

Ms. Neuwerth reported that the AMWG discussed several experimental releases from Glen Canyon Dam that could be conducted in 2020, including a spring high flow experiment (HFE) and low, steady weekend flows during summer months known as “bug flows.” Conditions did not support implementation of a spring HFE, but the group was considering recommending implementation of “bug flows,” which were also conducted in summer 2018 and summer 2019.

Ms. Neuwerth reported that funding for the program has been in flux in recent years, with a recent switch from Upper Colorado River Storage Project power revenues to Congressional appropriations. The program’s funding source in FY-2021 and out is still uncertain.

Finally, Ms. Neuwerth noted that the Technical Work Group for the program would meet April 15-16 in Phoenix.

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

Ms. Neuwerth reported that the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) Financial Work Group met via teleconference on February 20<sup>th</sup>. The LCR MSCP budget for FY-2019 was approximately \$38 million, including approximately \$10 million to secure an easement for a new conservation area in the Palo Verde Valley. Ms. Neuwerth reported that actual spending in FY-2019 was below budget due to delays in construction costs. The program budget for FY-2020 is \$33.2 million and the budget for FY-2021 is \$30.3. million.

Finally, Ms. Neuwerth reported that the LCR MSCP Work Group would be meeting in Yuma, Arizona on March 23<sup>rd</sup>, followed by the Program's 15-Year Anniversary tour from March 25-26.

## **ANNOUNCEMENTS**

### *Appreciation of Mr. Mark Watton*

Mr. Harris reported that the Colorado River Board's San Diego County Water Authority (SDCWA) Alternate Board member, Mr. Mark Watton, will be retiring from Otay Water District. Mr. Harris noted that Mr. Watton has served the water industry for 37 years; and that Mr. Watton has served two tours of service on the Colorado River Board of California representing the San Diego County Water Authority.

Mr. Madaffer, representing SDCWA, expressed his appreciation for Mr. Watton's service on the SDCWA and Colorado River Board and noted that Mr. Watton would be continuing as the SDCWA's Alternate Board member. Mr. Madaffer also noted SDCWA's close partnership with IID and his interest in reaching agreement on storage opportunities for the SDCWA in Lake Mead.

### *Salton Sea Management Program*

Mr. Harris reported that the California Natural Resources Agency released the Salton Sea Management Program (SSMP) 2020 Annual Report on February 24, 2020. Mr. Harris also stated that the State Water Resources Control Board will hold a SSMP public workshop at the Imperial Irrigation District's Board Room in El Centro, California, on March 18, 2020.

## **Washington, D.C. Updates**

Mr. Harris reported that the 2020 President's budget had been released and included \$200 million dollars to be shared between DOI and Reclamation for "science to sustain and enhance ground and surface water quality and quantity." The Presidential budget also included \$1.1 billion dollars for the Bureau of Reclamation to operate, maintain and rehabilitate existing water resources infrastructure in the western U.S.

Mr. Harris reported that the Government Accountability Office Report on Water Infrastructure and Climate Change issued a report telling Congress to consider requiring recipients of federal water infrastructure funding to account for climate change.

Mr. Harris reported on the Bureau of Reclamation's finalized permanent water delivery contracts with 75 cities and farm districts in California to receive water from the federal Central Valley Project (CVP).

Mr. Harris reported that the Environmental Protection Agency (EPA) had recently released the National Water Reuse Action Plan. The plan is intended to boost the country's use of grey water and, if fully implemented, could enable recycling up to 80% of all used water within 50 years.

#### **Next Scheduled Board Meeting**

Finally, Mr. Harris noted that the next meeting of the Colorado River Board would be April 15<sup>th</sup> and would be held at the Sheraton Ontario Airport Hotel, in Ontario, California.

#### **ADJOURNMENT**

With no further items to be brought before the Board, Chairman Nelson adjourned the meeting at 2:15 p.m.





**COLORADO RIVER BOARD OF CALIFORNIA**  
**FY 2020-21 BUDGET**  
**as of 04/20/2020**

[illegible]





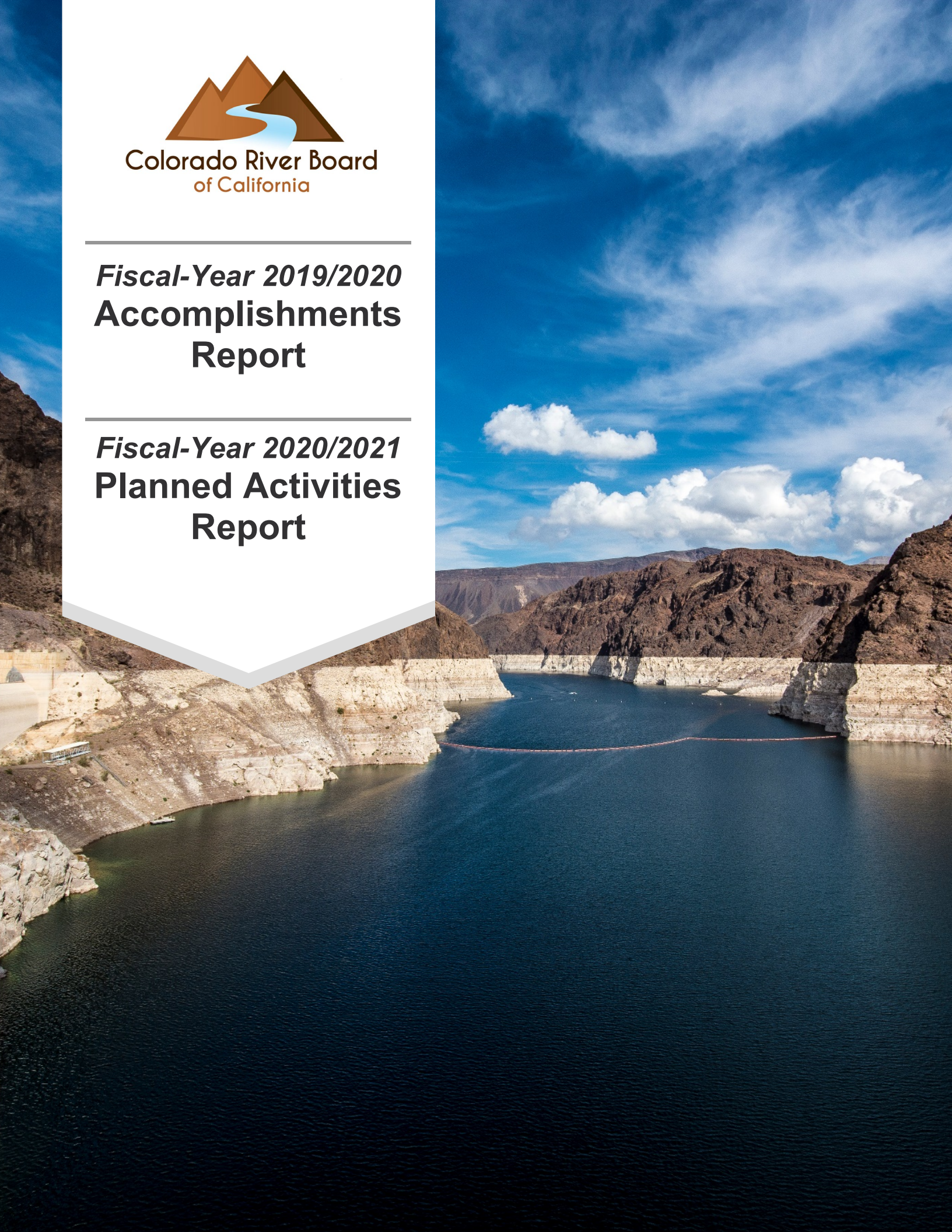


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***Fiscal-Year 2019/2020  
Accomplishments  
Report***

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***Fiscal-Year 2020/2021  
Planned Activities  
Report***





## **Fiscal-Year 2019/2020 Budget**

The budget for the Colorado River Board of California for Fiscal Year 2019/2020 was \$2,308,000, and was adopted by the Board at its June 12, 2019, regularly scheduled meeting.

## **Fiscal-Year 2019/2020 Accomplishments**

In Fiscal Year 2019/2020 (July 2019 through June 2020), Colorado River Board of California staff participated in the following major programs and activities:

- Continued to provide California representation and coordination associated with the binational implementation of Minute No. 323 with Mexico, including participation in the Minute No. 323 Oversight Group, Salinity Work Group, Hydrology Work Group, Environmental Work Group, and Desalination Work Group;
- Represented California's interests in the ongoing implementation of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP), including ongoing discussions with Reclamation and the California Department of Fish and Wildlife regarding the implementation of habitat restoration activities pursuant to the terms and conditions of the California Endangered Species Act Section 2081 permit for California LCR MSCP participants. The CRB contributed approximately \$17,000 in FY-19/20 for LCR MSCP implementation;
- Represented California's interests in the ongoing implementation of the Glen Canyon Dam Adaptive Management Program, including annual decision-making regarding Glen Canyon Dam operational activities pursuant to implementation of the Long-Term Experimental Management Plan. Continued monitoring and review of activities related to the potential down-listing of the humpback chub and razorback sucker from endangered to threatened;
- Filled the Colorado River Basin Salinity Control Program Forum Chair and Work Group Chair positions with representatives from California agencies (William Hasencamp, MWD as the Forum Chair; and Rich Juricich, CRB as Work Group Chair); Developed and organized consensus comments between the basin states on the Draft EIS and Cooperating Agency Draft Final EIS for the Paradox Valley Unit Salinity Control Project; Organized and developed consensus comments among Board member agencies on the draft Total Maximum Daily Load (TMDL) recommendations for the Colorado River, which resulted in removal of TDS and Nitrate from the recommendations; Continued participation in and contributed annual cost-share funding of approximately \$45,000 for the Colorado River Basin Salinity Control Program and the monitoring of other important water quality programs

and initiatives including the Topock Hexavalent Chromium, Las Vegas Wash Perchlorate, and Moab Uranium Mill-Tailings remediation efforts;

- Participated in the planning and implementation of ongoing weather modification activities in Colorado, Utah, and Wyoming during the 2019/2020 winter season under the newly executed Basin States programmatic funding agreement. California's cost share in FY2019/2020 was approximately \$315,000 provided through the Six Agency Committee;
- Oversaw the ongoing development of a tamarisk management study to determine resources, schedule, and budget needed to implement a large-scale riparian restoration project in the Lower Colorado River basin, and implementation of a salt-cedar beetle monitoring program;
- Continued ongoing annual cost-sharing support for maintenance and operation of Lower Colorado River Basin stream gaging station network with the U.S. Geological Survey. FY-19/20 contributions totaled approximately \$6,500;
- Provided California representation on the Colorado River Climate and Hydrology Workgroup and participated in the review and development of the Colorado River Basin Climate and Hydrology: State of the Science (SOS) Report and various climate and hydrology research & modeling projects. The Final Climate and Hydrology SOS report was published on April 9, 2020, and is available at:  
<https://www.colorado.edu/publications/reports/CRBreport/>;
- Initiated development of Board strategy for updating the guidelines for lower basin shortages and coordinated operations for Lake Powell and Lake Mead; and
- Filled vacant Deputy Director, Staff Services Manager I, Staff Services Analyst, and Office Technician positions.

## **Fiscal-Year 2020/2021 Planned Activities**

In Fiscal Year 2020/2021 (July 2020 through June 2021), Colorado River Board of California staff anticipates participating in the following major programs and activities:

- Continue to participate in ongoing activities associated the implementation of Minute No. 323 and associated workgroups;
- Continue staff participation in programs and activities associated with Colorado River operations, including implementation of the 2007 Interim Guidelines and the Basinwide

Drought Contingency Plans; Reclamation's 7.D. Review of the 2007 Guidelines process; as well as monitoring and evaluating annual water use accounting of mainstream Colorado River water supplies in the Lower Basin;

- Continue participation in the ongoing implementation of the Glen Canyon Dam Adaptive Management Program;
- Continue participation in the Lower Colorado River Multi-Species Conservation Program, including a projected annual contribution of approximately \$17,000 for FY-20/21;
- Continue participation in and cost-share funding of the Colorado River Basin Salinity Control Program and the monitoring of other ongoing water quality programs and activities;
- Oversee completion of the Lower Colorado River Non-Native Vegetation Management Needs and Feasibility assessment;
- Continue participation in the Basin States cost-sharing of winter season weather modification efforts in Colorado, Utah, and Wyoming;
- Continue providing annual financial support to the U.S. Geological Survey to provide effective stream gaging stations in the Lower Colorado Basin;
- Continue participation in the Colorado River Climate and Hydrology Workgroup, which includes planning of the next Climate and Hydrology Symposium, and ongoing development of proposed climate and hydrology research projects;
- Continue to develop and provide effective Colorado River Simulation System modeling expertise, capability and support to the agencies;
- Continue providing effective participation and technical support related to the development of the next set of interim operating guidelines for the Colorado River System slated to begin at the end of 2020; and
- Continue participation by Board staff in advocating California positions at conferences and symposia.





5/4/2020

# LOWER COLORADO WATER SUPPLY REPORT

River Operations  
Bureau of Reclamation

Questions: [BCOOWaterops@usbr.gov](mailto:BCOOWaterops@usbr.gov)

(702) 293-8373

<http://www.usbr.gov/lc/region/q4000/weekly.pdf>

	PERCENT	Content 1000 ac-ft (kaf)	Elev. (Feet above mean sea level)	7-Day Release (CFS)
CURRENT STORAGE	FULL			
LAKE POWELL	48%	11,680	3,599.26	10,500
* LAKE MEAD	44%	11,388	1,096.08	16,900
LAKE MOHAVE	93%	1,684	642.45	17,400
LAKE HAVASU	92%	569	447.43	12,200
TOTAL SYSTEM CONTENTS **	51%	30,641		
As of 5/3/2020				
SYSTEM CONTENT LAST YEAR	46%	27,425		
* Percent based on capacity of 26,120 kaf or elevation 1,219.6 feet.				
** TOTAL SYSTEM CONTENTS includes Upper & Lower Colorado River Reservoirs, less Lake Mead exclusive flood control space.				
Salt/Verde System	98%	2,256		
Painted Rock Dam	0%	0	530.00	0
Alamo Dam	15%	153	1,128.65	350
Forecasted Water Use for Calendar Year 2020 (as of 5/4/2020) (values in kaf)				
NEVADA			243	
SOUTHERN NEVADA WATER SYSTEM				207
OTHERS				35
CALIFORNIA			4,166	
METROPOLITAN WATER DISTRICT OF CALIFORNIA				846
IRRIGATION DISTRICTS				3,305
OTHERS				15
ARIZONA			2,414	
CENTRAL ARIZONA PROJECT				1,394
OTHERS				1,021
TOTAL LOWER BASIN USE				6,823
DELIVERY TO MEXICO - 2020 (Mexico Scheduled Delivery + Preliminary Yearly Excess <sup>1</sup> )				1,558
OTHER SIGNIFICANT INFORMATION				
UNREGULATED INFLOW INTO LAKE POWELL - MID-MONTH FORECAST DATED 4/16/2020				
		MILLION ACRE-FEET	% of Normal	
FORECASTED WATER YEAR 2020		8.118	75%	
FORECASTED APRIL-JULY 2020		5.300	74%	
MARCH OBSERVED INFLOW		0.475	71%	
APRIL INFLOW FORECAST		0.550	52%	
		Upper Colorado Basin	Salt/Verde Basin	
WATER YEAR 2020 PRECIP TO DATE		86% (18.6")	105% (19.2")	
CURRENT BASIN SNOWPACK		81% (9.6")	NA% (NA)	

<sup>1</sup> Delivery to Mexico forecasted yearly excess calculated using year-to-date observed and projected excess.



— BUREAU OF —  
RECLAMATION  
LOWER COLORADO BASIN REGION  
CY 2020

ARIZONA, CALIFORNIA, NEVADA, MEXICO

FORECAST OF END OF YEAR CONSUMPTIVE USE

FORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS <sup>1</sup>

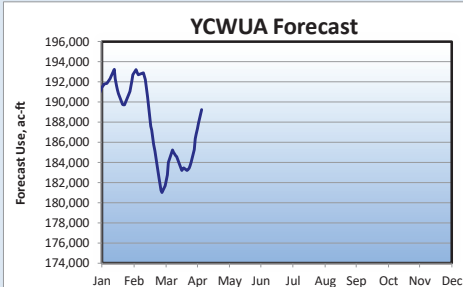
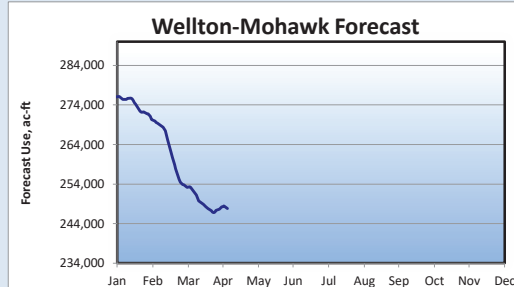
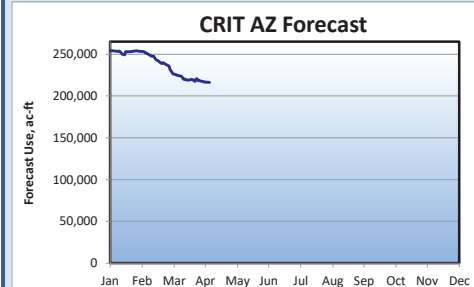
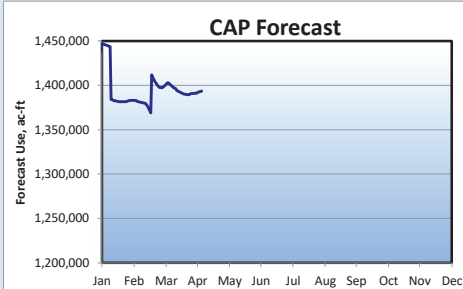
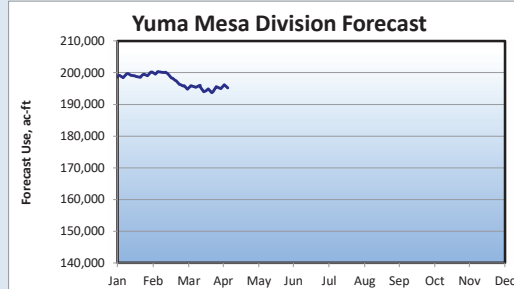
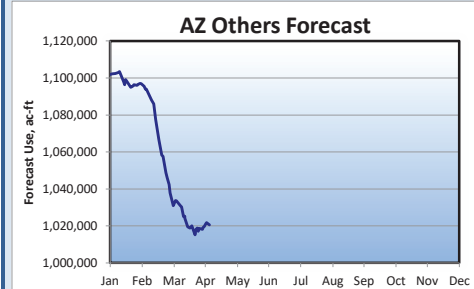
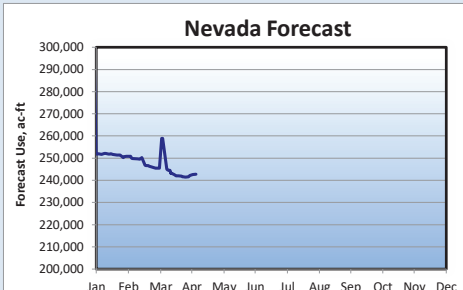
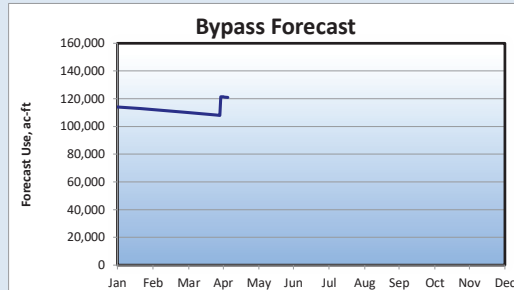
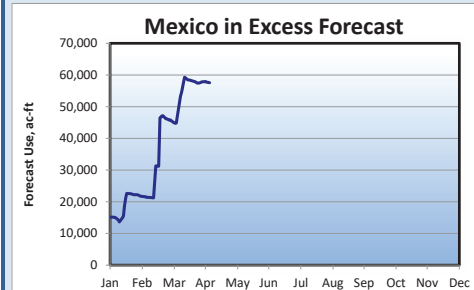
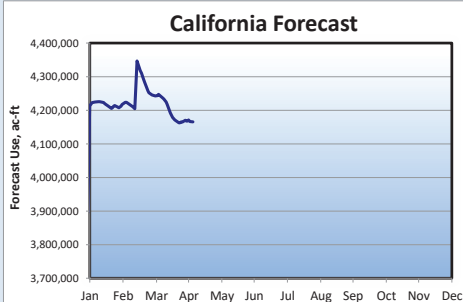
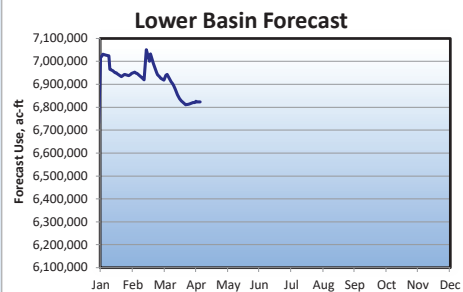
(ACRE-FEET)

**WATER USE SUMMARY**

	Use To Date CY 2020	Forecast Use CY 2020	Approved Use <sup>2</sup> CY 2020	Excess to Approval CY 2020
ARIZONA	679,372	2,414,253	2,411,515	2,738
CALIFORNIA	975,973	4,165,890	4,165,890	0
NEVADA	45,690	242,749	242,749	0
<b>STATES TOTAL <sup>3</sup></b>	<b>1,701,035</b>	<b>6,822,892</b>	<b>6,820,154</b>	<b>2,738</b>
ACCOUNTABLE DELIVERIES TO MEXICO	612,845	1,557,566	1,500,000	57,566
TO MEXICO IN SATISFACTION OF TREATY (including downward delivery) <sup>4</sup>	567,705	1,500,000		
TO MEXICO IN EXCESS OF TREATY <sup>5</sup>	45,140	57,566		
WATER BYPASSED PURSUANT TO IBWC MINUTE NO. 242 <sup>6</sup>	46,568	121,031		
<b>TOTAL LOWER BASIN &amp; MEXICO</b>	<b>2,360,448</b>	<b>8,501,489</b>		

<sup>1</sup> Incorporates 80 daily reporting stations which may be revised after provisional data reports are distributed by the USGS.

Use to date estimated for users reporting monthly and annually.

<sup>2</sup> These values reflect adjusted apportionments. See Adjusted Apportionment calculation on each state page.<sup>3</sup> Includes unmeasured returns based on estimated consumptive use/diversion ratios by user from studies provided by Arizona Department of Water Resources, Colorado River Board of California, and Reclamation.<sup>4</sup> Includes downward adjustment(s) to Mexico's annual delivery schedule for the creation of Mexico's Recoverable Water Savings and/or Mexico's Water Reserve.<sup>5</sup> Mexico excess forecast is based on the 5-year average for the period 2014-2018.<sup>6</sup> Bypass forecast is based on the average for the period 1990-2018.

Graph notes: January forecast use is scheduled use in accordance with the Annual Operating Plan's state entitlements, available unused entitlements, and over-run paybacks. A downward sloping line indicates use at a lower rate than scheduled, upward sloping is above schedule, and a flat line indicates a use rate equal to schedule. Lower priority users such as CAP, MWD, and Robert B. Griffith may adjust use rates to meet state entitlements as higher priority use deviates from schedule. Abrupt changes in the forecast use line may be due to a diversion schedule change or monthly updating of provisional realtime diversions.



**BUREAU OF  
RECLAMATION**  
**LOWER COLORADO BASIN REGION**  
**CY 2020**

**NOTE:**

• Diversions and uses that are pending approval are noted in **red italics**.  
 • Water users with a consumptive use entitlement - **Excess to Estimated Use** column indicates overrun/underrun of entitlement. Dash in this column indicates water user has a diversion entitlement.  
 • Water user with a diversion entitlement - **Excess to Approved Diversion** column indicates overrun/underrun of entitlement. Dash in this column indicates water user has a consumptive use entitlement.

**ARIZONA WATER USERS****FORECAST OF END OF YEAR CONSUMPTIVE USE****FORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS**[Arizona Schedules and Approvals](#)[Historic Use Records \(Water Accounting Reports\)](#)

<b>WATER USER</b>	<b>Use To Date CY 2020</b>	<b>Forecast Use CY 2020</b>	<b>Estimated Use CY 2020</b>	<b>Excess to Estimated Use CY 2020</b>	<b>Diversion To Date CY 2020</b>	<b>Forecast Diversion CY 2020</b>	<b>Approved Diversion CY 2020</b>	<b>Excess to Approved Diversion CY 2020</b>
ARIZONA PUMPERS	4,827	14,074	14,074	---	7,426	21,654	21,654	0
LAKE MEAD NRA, AZ - Diversions from Lake Mead	14	82	82	---	14	82	82	0
LAKE MEAD NRA, AZ - Diversions from Lake Mohave	71	211	211	---	71	211	211	0
DAVIS DAM PROJECT	1	2	2	---	5	15	15	0
BULLHEAD CITY	2,044	7,886	8,122	---	3,238	12,351	12,720	-369
MOHAVE WATER CONSERVATION DISTRICT	225	656	656	---	336	979	979	0
BROOKE WATER LLC	98	322	323	---	146	482	484	-2
MOHAVE VALLEY IDD	4,385	16,397	16,516	---	8,121	30,366	30,585	-219
FORT MOJAVE INDIAN RESERVATION, AZ	7,424	39,301	44,550	---	13,748	72,780	82,500	-9,720
GOLDEN SHORES WATER CONSERVATION DISTRICT	95	278	278	---	143	417	417	0
HAVASU NATIONAL WILDLIFE REFUGE	192	2,577	3,563	---	1,596	29,587	41,820	-12,233
LAKE HAVASU CITY	2,359	8,704	8,928	---	3,806	14,040	14,400	-360
CENTRAL ARIZONA PROJECT (CAP)	410,513	1,393,640	---	---	410,513	1,393,640	---	---
TOWN OF PARKER	97	426	433	---	235	900	916	-16
COLORADO RIVER INDIAN RESERVATION, AZ	38,542	216,113	246,946	---	112,347	467,158	512,102	-44,944
EHRENBURG IMPROVEMENT ASSOCIATION	78	228	228	---	109	319	319	0
CIBOLA VALLEY <sup>1</sup>	3,949	14,667	15,219	---	5,520	20,501	21,270	-769
CIBOLA NATIONAL WILDLIFE REFUGE	2,541	14,264	14,264	0	4,098	23,005	23,005	0
IMPERIAL NATIONAL WILDLIFE REFUGE	1,278	3,799	3,799	0	2,061	6,128	6,128	0
BLM PERMITEES (PARKER DAM to IMPERIAL DAM)	259	756	756	0	399	1,163	1,163	0
CHA CHA, LLC	314	1,328	1,365	---	485	2,045	2,100	-55
BEATTIE FARMS	187	723	722	---	286	1,112	1,110	2
YUMA PROVING GROUND	103	470	474	---	103	470	474	-4
GILA MONSTER FARMS	1,430	4,803	5,257	---	2,361	8,176	9,156	-980
WELLTON-MOHAWK IDD	62,376	247,786	278,000	-30,214	99,697	374,540	412,965	-38,425
BLM PERMITEES (BELOW IMPERIAL DAM)	23	66	66	0	35	102	102	0
CITY OF YUMA	3,350	14,414	16,401	-1,987	6,754	25,241	27,500	-2,259
MARINE CORPS AIR STATION YUMA	349	1,310	1,360	---	349	1,310	1,360	-50
UNION PACIFIC RAILROAD	8	29	29	---	16	48	48	0
UNIVERSITY OF ARIZONA	240	894	896	---	240	894	896	-2
YUMA UNION HIGH SCHOOL DISTRICT	29	143	150	---	38	191	200	-9
DESERT LAWN MEMORIAL	7	20	20	---	10	28	28	0
NORTH GILA VALLEY IRRIGATION DISTRICT	2,208	10,653	12,165	---	10,668	40,836	44,200	-3,364
YUMA IRRIGATION DISTRICT	11,226	36,885	38,701	---	20,034	67,231	71,700	-4,469
YUMA MESA IDD	35,835	147,680	143,893	---	48,420	223,031	239,280	-16,249
UNIT "B" IRRIGATION DISTRICT	4,001	20,369	20,888	---	4,734	26,369	29,400	-3,031
FORT YUMA INDIAN RESERVATION	513	1,497	1,497	---	788	2,298	2,298	0
YUMA COUNTY WATER USERS' ASSOCIATION	77,657	189,244	186,507	---	114,632	286,632	282,000	4,632
COCOPAH INDIAN RESERVATION	489	1,453	1,651	---	540	2,012	2,530	-518
RECLAMATION-YUMA AREA OFFICE	35	103	103	---	35	103	103	0
RETURN FROM SOUTH GILA WELLS	---	---	---	---	---	---	---	---
<b>TOTAL ARIZONA</b>	<b>679,372</b>	<b>2,414,253</b>	<b>2,474,095</b>		<b>884,157</b>	<b>3,158,447</b>	<b>3,283,220</b>	
CAP	410,513	1,393,640	---	---	---	1,393,640	---	---
ALL OTHERS	268,859	1,020,613	1,089,095	---	---	1,764,807	1,898,220	---
YUMA MESA DIVISION, GILA PROJECT	49,269	195,218	171,610	23,608	---	331,098	---	---

**ARIZONA ADJUSTED APPORTIONMENT CALCULATION**

Arizona Basic Apportionment	2,800,000
System Conservation Water - Pilot System Conservation Program <sup>2</sup>	(400)
System Conservation Water - Colorado River Indian Tribes (CRIT) <sup>3</sup>	(50,000)
System Conservation Water - Fort McDowell Yavapai Nation (FMYN) <sup>4</sup>	(10,000)
Creation of Extraordinary Conservation ICS - CRIT (Estimated) <sup>5,7</sup>	(3,736)
Creation of Extraordinary Conservation ICS - MVIDD (Estimated) <sup>6,7</sup>	(6,137)
Arizona DCP Contribution <sup>8</sup>	(192,000)
CAWCD -Voluntary Contribution to Lake Mead (Estimated)	(126,212)
Total State Adjusted Apportionment	2,411,515
Excess to Total State Adjusted Apportionment	2,738

**Estimated Allowable Use for CAP****1,519,852**

<sup>1</sup> Includes the following water users within the Cibola Valley: Cibola Valley IDD, Arizona Game and Fish Commission, GSC Farm, LLC, Red River Land Company, LLC, Western Water, LLC, and the Hopi Tribe.

<sup>2</sup> The estimated amount of System Conservation Water that will be created by the City of Bullhead City pursuant to System Conservation Implementation Agreement (SCIA) No. 15-XX-30-W0587, as amended. This System Conservation Water will remain in Lake Mead to benefit system storage.

<sup>3</sup> System Conservation Water to be created by CRIT pursuant to the *Agreement Among the United States of America, Through the Department of the Interior, Bureau of Reclamation, the State of Arizona, Through the Arizona Department of Water Resources, the Central Arizona Water Conservation District, and the Colorado River Indian Tribes to Fund the Creation of Colorado River System Water Through Voluntary Water Conservation and Reductions in use During Calendar Years 2020-2022*. This System Conservation Water will remain in Lake Mead to benefit system storage.

<sup>4</sup> CAP water being conserved by FMYN pursuant to SCIA No. 19-XX-30-W0658, which will remain in Lake Mead to benefit system storage. In accordance with this SCIA and Section 3.b of the *Lower Basin Drought Contingency Plan Agreement*, the Bureau of Reclamation intends to apply this water towards the Secretary of the Interior's commitment to create or conserve 100,000 AF per annum or more of Colorado River System water to contribute to conservation of water supplies in Lake Mead and other Colorado River reservoirs in the Lower Basin.

<sup>5</sup> CRIT has been approved to create up to 3,736 AF of Extraordinary Conservation (EC) ICS in 2020. The actual amount of EC ICS created by CRIT will be based on final accounting and verification.

<sup>6</sup> MVIDD has been approved to create up to 6,137 AF of EC ICS in 2020. The actual amount of EC ICS created by MVIDD will be based on final accounting and verification.

<sup>7</sup> When combined with the approved EC ICS creation amounts of other ICS creators in the state of Arizona, the total amount of EC ICS approved for creation in the state of Arizona is approximately 153,000 AF, which exceeds the state's annual creation limit set forth in Section XI.G.3.B.4 of the 2007 Interim Guidelines. In accordance with Section XI.G.3.B.4 and Section IV.B of the Lower Basin Drought Contingency Operations (LBOPs), the total amount of EC ICS that may be created by the states of Arizona, California, and Nevada in 2020 will be limited to 625,000 AF.

<sup>8</sup> In accordance with Section III.B.1.a of LBOPs, the state of Arizona shall make an annual DCP Contribution in the total amount of 192,000 AF. In accordance with the Agreement Regarding Lower Basin Drought Contingency Plan Obligations, it is currently anticipated that the required DCP Contribution will be made through reductions in consumptive use by the Central Arizona Water Conservation District.

NOTES: Click on Arizona Schedules and Approvals above for incoming diversion schedules and approvals.

LOWER COLORADO BASIN REGION  
CY 2020

## NOTE:

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CALIFORNIA WATER USERS  
FORECAST OF END OF YEAR CONSUMPTIVE USE  
FORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS

[California Schedules and Approvals](#)
[Historic Use Records \(Water Accounting Reports\)](#)

WATER USER	Use To Date CY 2020	Forecast Use CY 2020	Estimated Use CY 2020	Excess to Estimated Use CY 2020	Diversion To Date CY 2020	Forecast Diversion CY 2020	Approved Diversion CY 2020	Excess to Approved Diversion CY 2020
CALIFORNIA PUMPERS	582	1,697	1,697	---	1,057	3,081	3,081	0
FORT MOJAVE INDIAN RESERVATION, CA	1,538	6,798	8,996	---	2,859	12,637	16,720	-4,083
CITY OF NEEDLES (includes LCWSP use)	366	1,516	1,605	-89	621	2,241	2,261	-20
METROPOLITAN WATER DISTRICT	126,810	846,192	---	---	127,814	848,983	---	---
COLORADO RIVER INDIAN RESERVATION, CA	1,109	3,233	3,233	---	1,837	5,355	5,355	0
PALO VERDE IRRIGATION DISTRICT	67,723	375,747	419,768	---	195,283	805,573	856,000	-50,427
YUMA PROJECT RESERVATION DIVISION	10,956	41,385	50,582	---	23,298	84,021	96,858	-12,837
YUMA PROJECT RESERVATION DIVISION - INDIAN UNIT	---	---	---	---	11,569	39,075	46,058	-6,983
YUMA PROJECT RESERVATION DIVISION - BARD UNIT	---	---	---	---	11,729	44,945	50,800	-5,855
YUMA ISLAND PUMPERS	750	2,188	2,188	---	1,356	3,954	3,954	0
FORT YUMA INDIAN RESERVATION - RANCH 5	285	790	832	---	513	1,424	1,501	-77
IMPERIAL IRRIGATION DISTRICT <sup>1</sup>	673,801	2,512,570	2,640,300	-127,730	677,102	2,568,429	2,715,352	---
SALTON SEA SALINITY MANAGEMENT	0	0	0	0	0	0	0	---
COACHELLA VALLEY WATER DISTRICT	91,743	372,872	394,000	-21,128	96,947	387,049	406,654	---
OTHER LCWSP CONTRACTORS	220	642	642	---	361	1,054	1,054	0
CITY OF WINTERHAVEN	22	63	63	---	33	97	97	0
CHEMEHUEVI INDIAN RESERVATION	68	197	197	---	3,889	11,340	11,340	0
<b>TOTAL CALIFORNIA</b>	<b>975,973</b>	<b>4,165,890</b>			<b>1,132,970</b>	<b>4,735,238</b>	<b>4,981,968</b>	

## CALIFORNIA ADJUSTED APPORTIONMENT CALCULATION

California Basic Apportionment	4,400,000
System Conservation Water - Pilot System Conservation Program <sup>2</sup>	(145)
IID Creation of Extraordinary Conservation ICS - Stored in Lake Mead (Estimated) <sup>3</sup>	(1,579)
IID Creation of Additional Conserved Water (Estimated) <sup>4</sup>	(23,421)
MWD Creation of Extraordinary Conservation ICS (Estimated) <sup>5</sup>	(208,965)
<b>Total State Adjusted Apportionment</b>	<b>4,165,890</b>
Excess to Total State Adjusted Apportionment	0

## Estimated Allowable Use for MWD

1,055,157

<sup>1</sup> As shown here, IID's Approved Diversion and Estimated Use values reflect the maximum amount of Colorado River water available to IID in 2020.

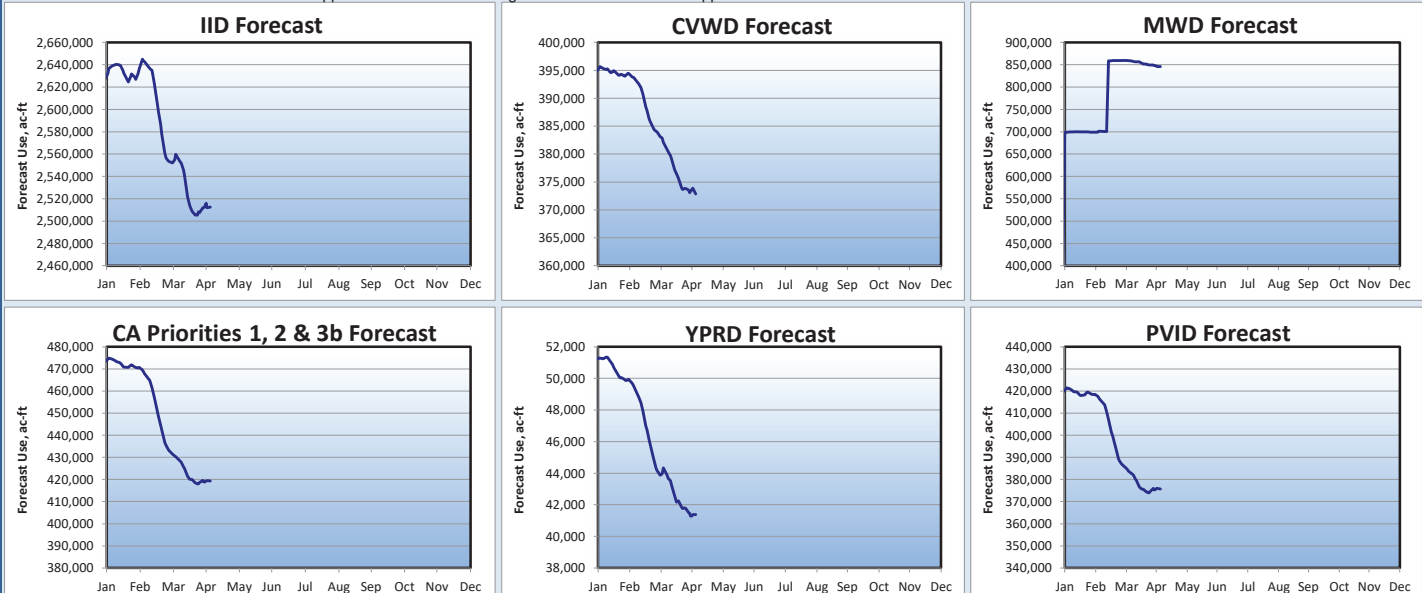
<sup>2</sup> System Conservation Water to be conserved by the City of Needles pursuant to System Conservation Implementation Agreement No. 15-XX-30-W0596, executed under the Pilot System Conservation Program. This water will remain in Lake Mead to benefit system storage.

<sup>3</sup> IID has been approved to create up to 62,000 AF of Extraordinary Conservation (EC) ICS in 2020; however, due to limitations set forth in the California ICS Agreement, may only store up to 1,579 AF in its Lake Mead ICS Account. Creation and storage of EC ICS by IID in excess of 1,579 AF will require an executed amendment to the California ICS Agreement, which has not occurred as of the date of this forecast. The actual amount of EC ICS created by IID and stored in its Lake Mead ICS Account will be based on final accounting and verification.

<sup>4</sup> In its CY 2020 water order, IID has indicated that it intends to create up to a total of 25,000 AF of "Additional Conserved Water" for purposes including, but not limited to, the creation of ICS for storage in Lake Mead. As noted above, IID may only use up to 1,579 AF of "Additional Conserved Water" for the creation and storage of EC ICS in its Lake Mead ICS Account. Storage of "Additional Conserved Water" as EC ICS in excess of this amount will require an executed amendment to the California ICS Agreement, which has not occurred as of the date of this forecast. The actual amount of "Additional Conserved Water" created by IID in 2020 will be based on final accounting and verification.

<sup>5</sup> MWD has been approved to create up to 450,000 AF of EC ICS in 2020, less the amount of EC ICS created by IID, and further limited to the amount that, when added to the EC ICS created by the states of Arizona and Nevada, does not exceed 625,000 AF. The actual amount of EC ICS created by MWD will be based on final accounting and verification.

NOTES: Click on California Schedules and Approvals above for incoming diversion schedules and approvals.





**BUREAU OF  
RECLAMATION**  
**LOWER COLORADO BASIN REGION**  
**CY 2020**

**NOTE:**

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- Water user with a diversion entitlement - **Excess to Approved Diversion** column indicates overrun/underrun of entitlement. Dash in this column indicates water user has a consumptive use entitlement.

**NEVADA WATER USERS****FORECAST OF END OF YEAR CONSUMPTIVE USE****FORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS**
[Nevada Schedules and Approvals](#)
[Historic Use Records \(Water Accounting Reports\)](#)

<b>WATER USER</b>	<b>Use To Date CY 2020</b>	<b>Forecast Use CY 2020</b>	<b>Estimated Use CY 2020</b>	<b>Excess to Estimated Use CY 2020</b>	<b>Diversion To Date CY 2020</b>	<b>Forecast Diversion CY 2020</b>	<b>Approved Diversion CY 2020</b>	<b>Excess to Approved Diversion CY 2020</b>
ROBERT B. GRIFFITH WATER PROJECT (SNWS)	120,876	438,082		---	120,876	438,082		---
LAKE MEAD NRA, NV - Diversions from Lake Mead	301	1,369	1,500	---	301	1,369	1,500	-131
LAKE MEAD NRA, NV - Diversions from Lake Mohave	114	437	500	---	114	437	500	-63
BASIC MANAGEMENT INC.	1,890	7,844	8,208	---	1,890	7,844	8,208	-364
CITY OF HENDERSON (BMI DELIVERY)	5,322	16,963	15,878	---	5,322	16,963	15,878	<b>1,085</b>
NEVADA DEPARTMENT OF WILDLIFE	4	12	12	0	331	1,038	1,000	---
PACIFIC COAST BUILDING PRODUCTS INC.	284	948	928	---	284	948	928	<b>20</b>
BOULDER CANYON PROJECT	59	172	172	---	103	300	300	0
BIG BEND WATER DISTRICT	880	4,505	4,822	---	2,061	9,245	10,000	-755
FORT MOJAVE INDIAN TRIBE	321	3,150	4,020	---	480	4,702	6,000	-1,298
LAS VEGAS WASH RETURN FLOWS	-84,361	-230,733	-226,075	---				
<b>TOTAL NEVADA</b>	<b>45,690</b>	<b>242,749</b>	<b>253,997</b>	<b>0</b>	<b>131,762</b>	<b>480,928</b>	<b>488,346</b>	<b>-1,506</b>
SOUTHERN NEVADA WATER SYSTEM (SNWS)	36,515	207,349				438,082		
ALL OTHERS	9,175	35,400				42,846		
NEVADA USES ABOVE HOOVER	44,489	235,094				466,981		
NEVADA USES BELOW HOOVER	1,201	7,655				13,947		

**Tributary Conservation Intentionally Created Surplus (ICS)**Southern Nevada Water Authority (SNWA) Creation of Tributary Conservation ICS (Approved) <sup>1</sup>

43,000

**NEVADA ADJUSTED APPORTIONMENT CALCULATION**

Nevada Basic Apportionment

300,000

SNWA Creation of Extraordinary Conservation (EC) ICS (Estimated) <sup>2</sup>

(57,251)

Total State Adjusted Apportionment

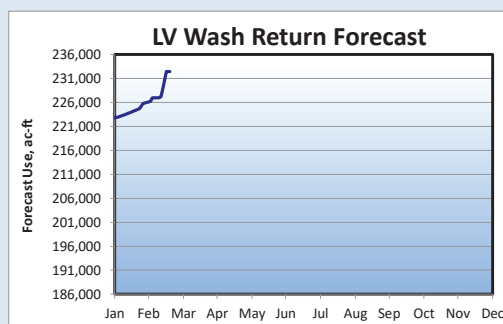
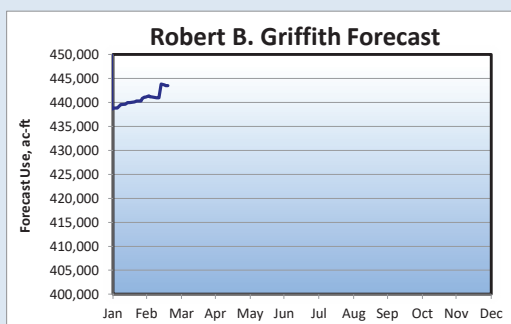
242,749

Excess to Total State Adjusted Apportionment

0

<sup>1</sup> SNWA has been approved to create up to 43,000 AF of TC ICS in 2020. The actual amount of TC ICS created by SNWA will be based on final accounting and verification.<sup>2</sup> SNWA has been approved to create up to 100,000 AF of EC ICS in 2020. The actual amount of EC ICS created by SNWA will be based on final accounting and verification.

NOTES: Click on Nevada Schedules and Approvals above for incoming diversion schedules and approvals.

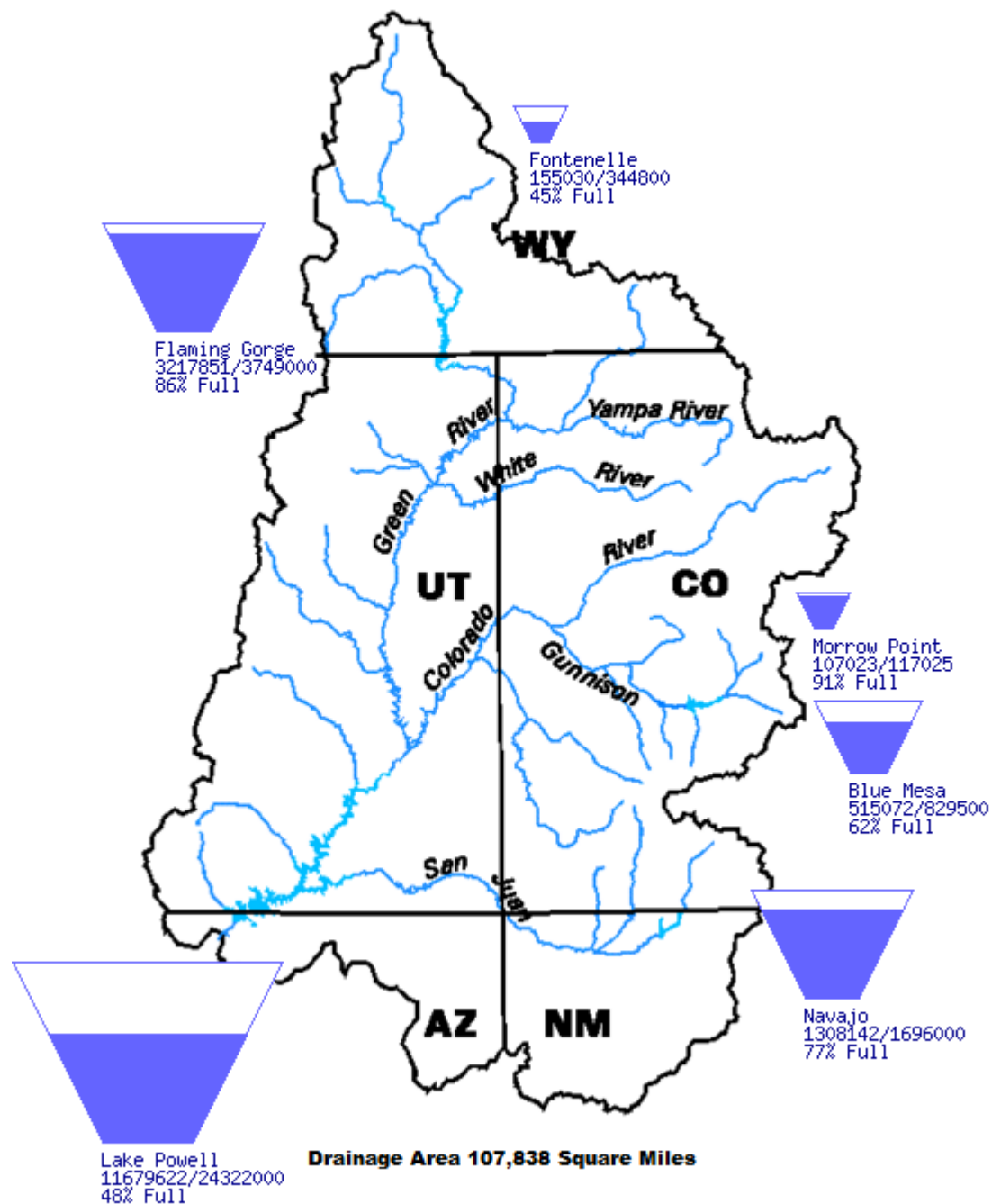


# Upper Colorado Region Water Resources Group

## River Basin Tea-Cup Diagrams

Data Current as of:  
05/03/2020

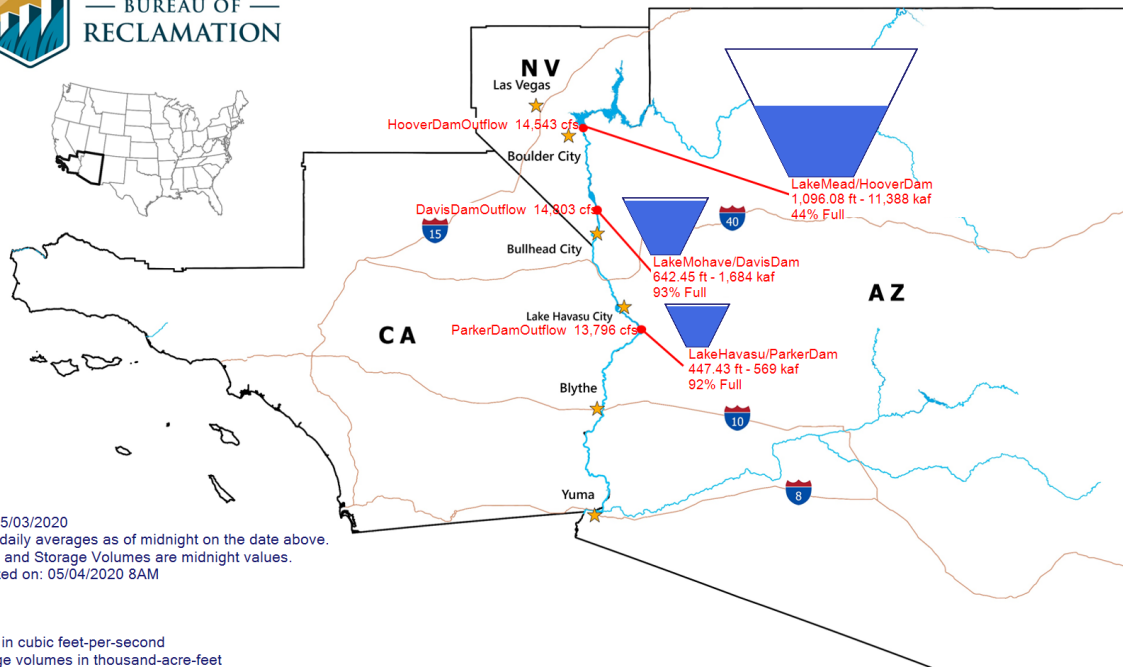
### Upper Colorado River Drainage Basin



# Lower Colorado River Teacup Diagram



BUREAU OF  
RECLAMATION

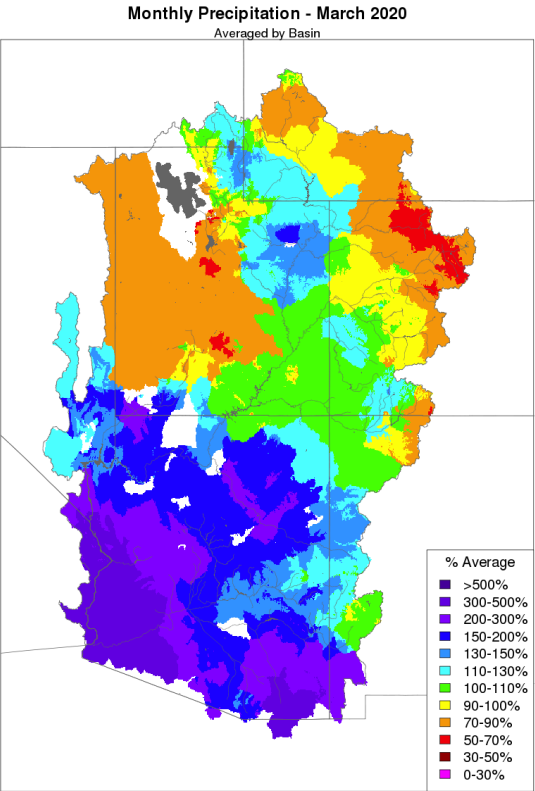


Data for: 05/03/2020  
Flows are daily averages as of midnight on the date above.  
Elevations and Storage Volumes are midnight values.  
Last updated on: 05/04/2020 8AM

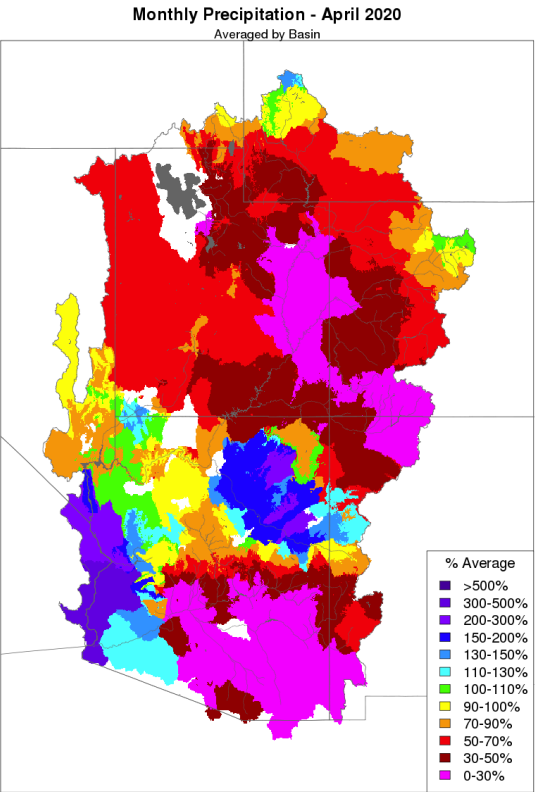
LEGEND:  
cfs: Flows in cubic feet-per-second  
kaf: Storage volumes in thousand-acre-feet  
ft: Elevations in feet above mean-sea-level



NOAA National Weather Service Monthly Precipitation Map March and April 2020



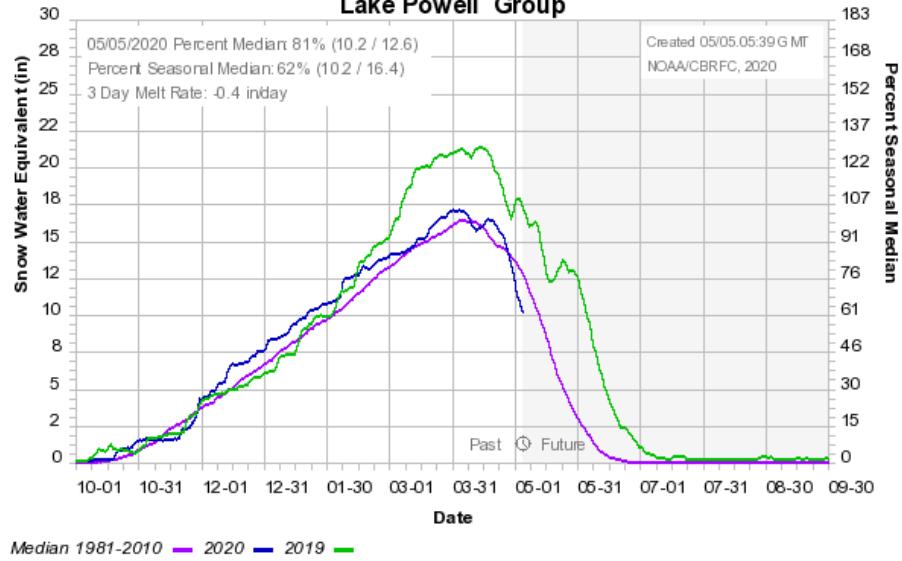
Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)



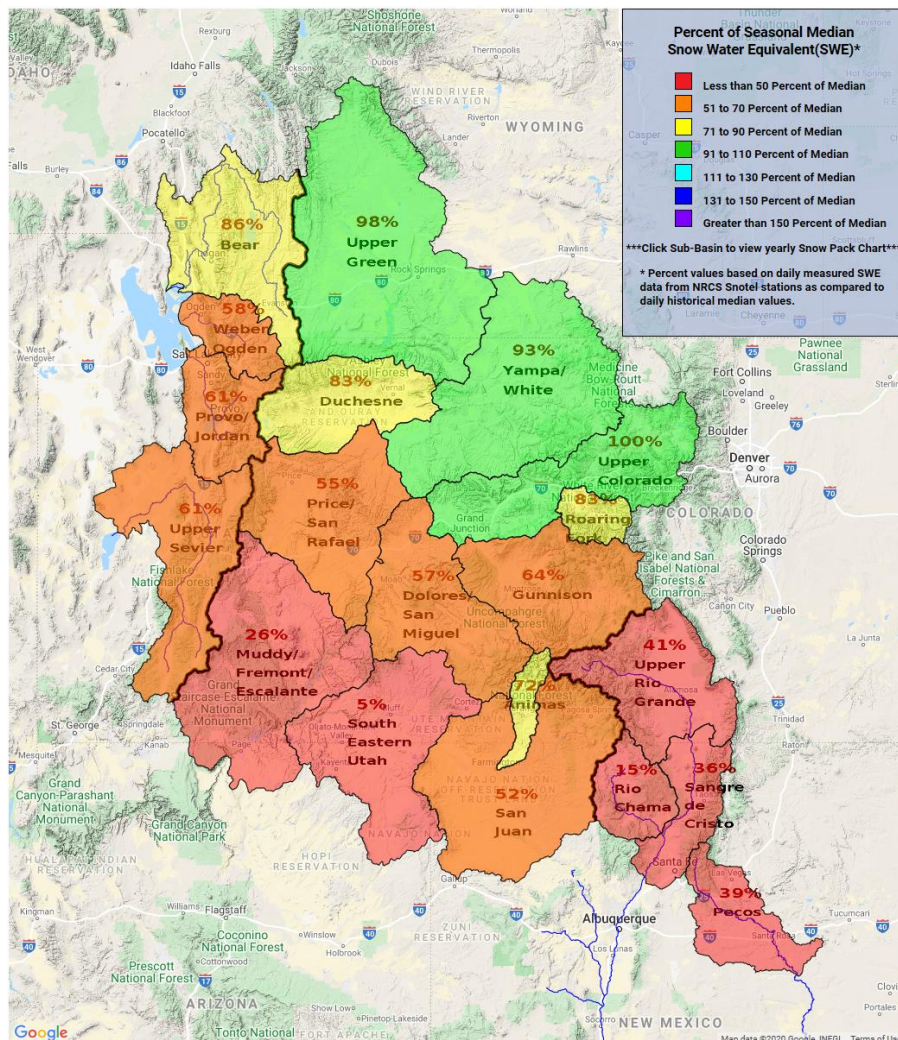
Prepared by NOAA, Colorado Basin River Forecast Center  
Salt Lake City, Utah, [www.cbrfc.noaa.gov](http://www.cbrfc.noaa.gov)



## Colorado Basin River Forecast Center Lake Powell Group



## Snow Pack Conditions Map Upper Colorado Region



# U.S. Drought Monitor West

**April 28, 2020**

(Released Thursday, Apr. 30, 2020)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	49.94	50.06	29.95	11.91	0.81	0.00
<b>Last Week</b> 04-21-2020	51.39	48.61	28.64	10.92	0.81	0.00
<b>3 Months Ago</b> 01-28-2020	55.43	44.57	18.96	3.08	0.00	0.00
<b>Start of Calendar Year</b> 12-31-2019	59.17	40.83	18.17	7.12	0.00	0.00
<b>Start of Water Year</b> 10-01-2019	68.40	31.60	16.32	3.16	0.00	0.00
<b>One Year Ago</b> 04-30-2019	83.39	16.61	3.64	0.69	0.00	0.00

## Intensity:

None	D2 Severe Drought
D0 Abnormally Dry	D3 Extreme Drought
D1 Moderate Drought	D4 Exceptional Drought

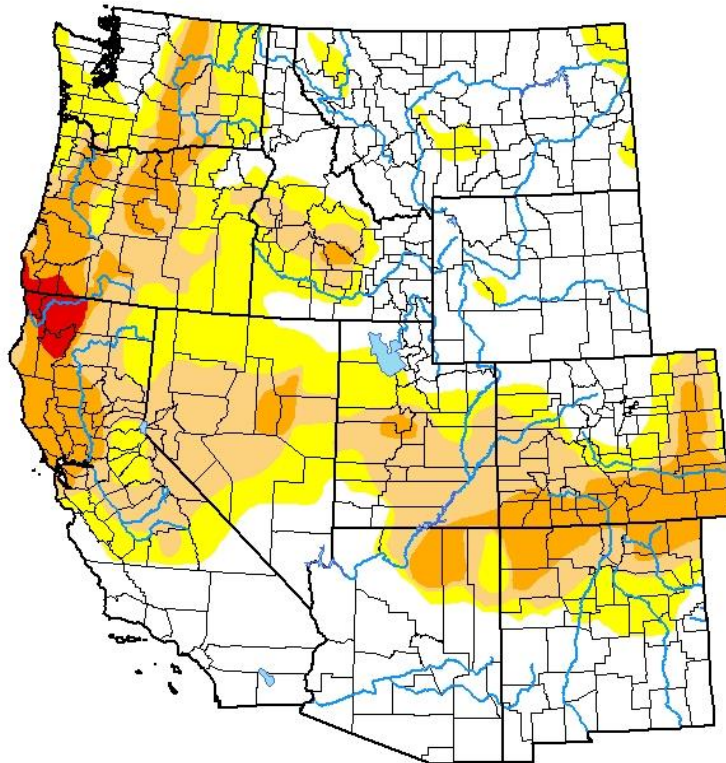
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

## Author:

Deborah Bathke  
National Drought Mitigation Center



[droughtmonitor.unl.edu](https://droughtmonitor.unl.edu)

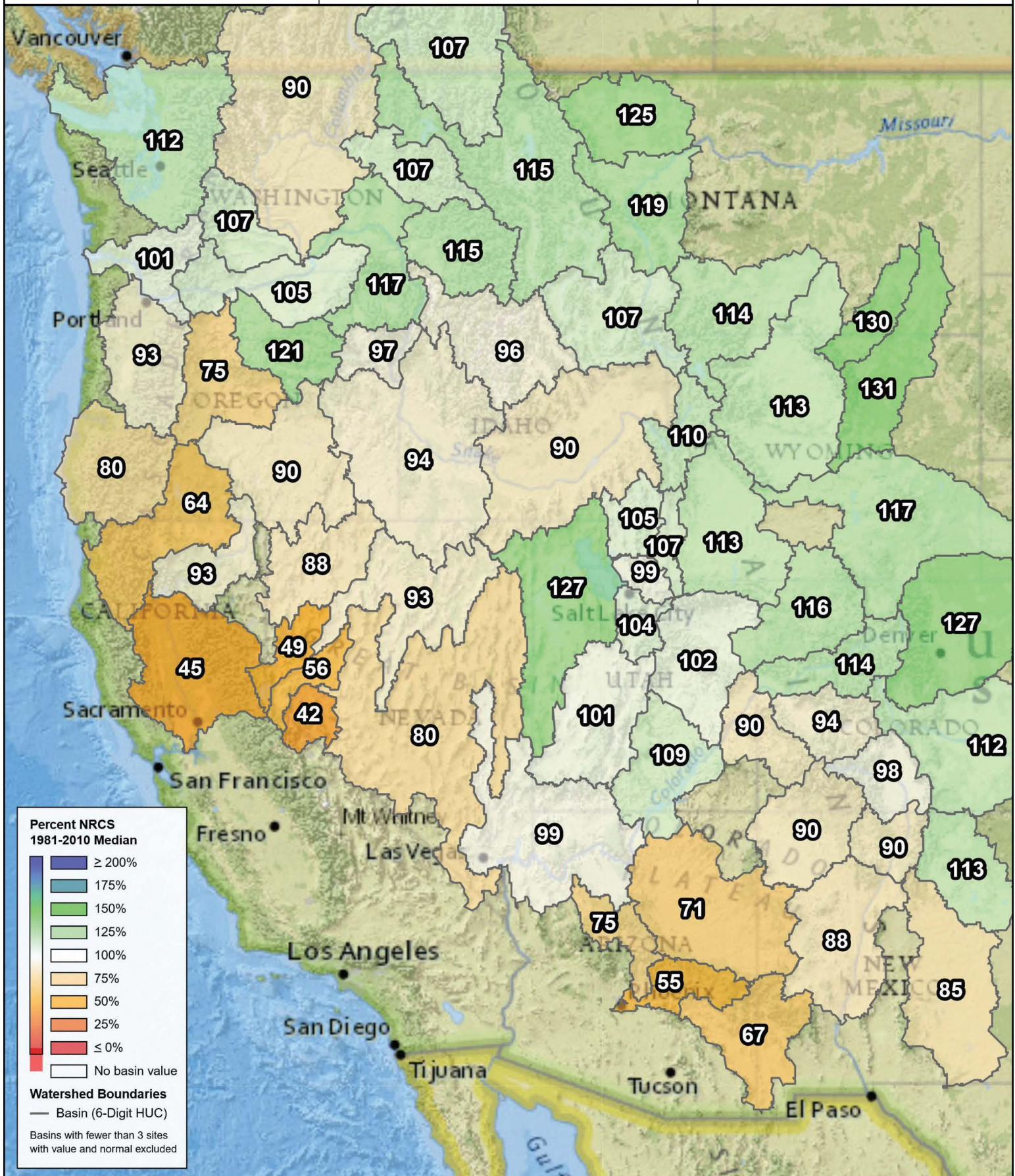




Snow Water Equivalent

Percent NRCS 1981-2010 Median

March 1st, 2020

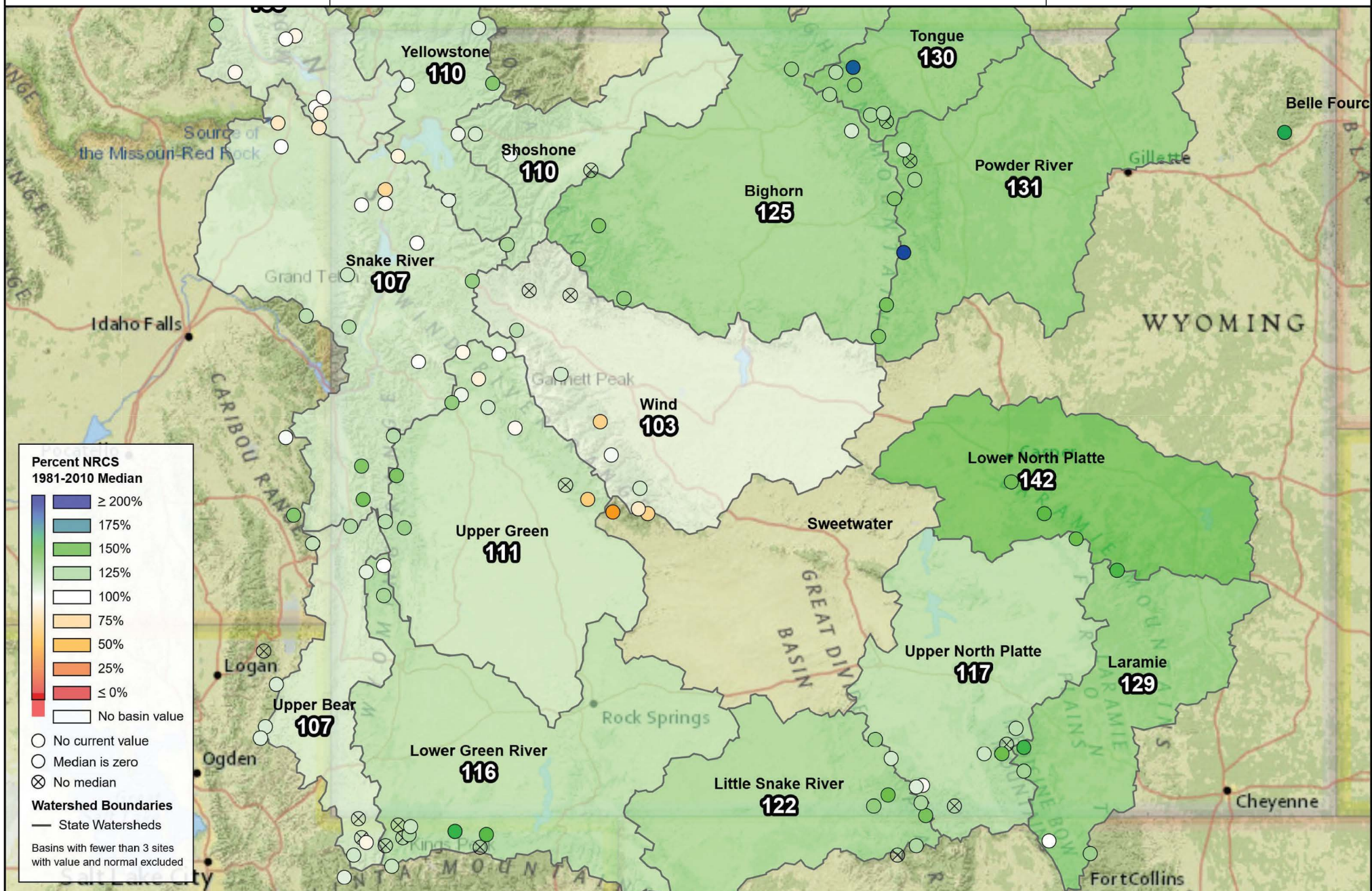


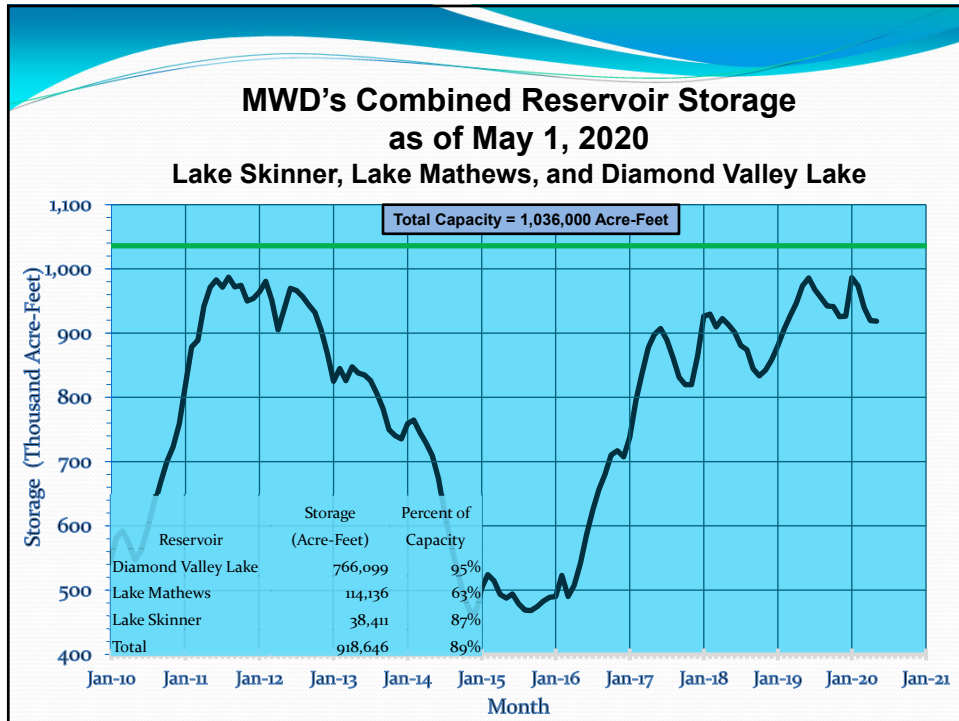


Snow Water Equivalent

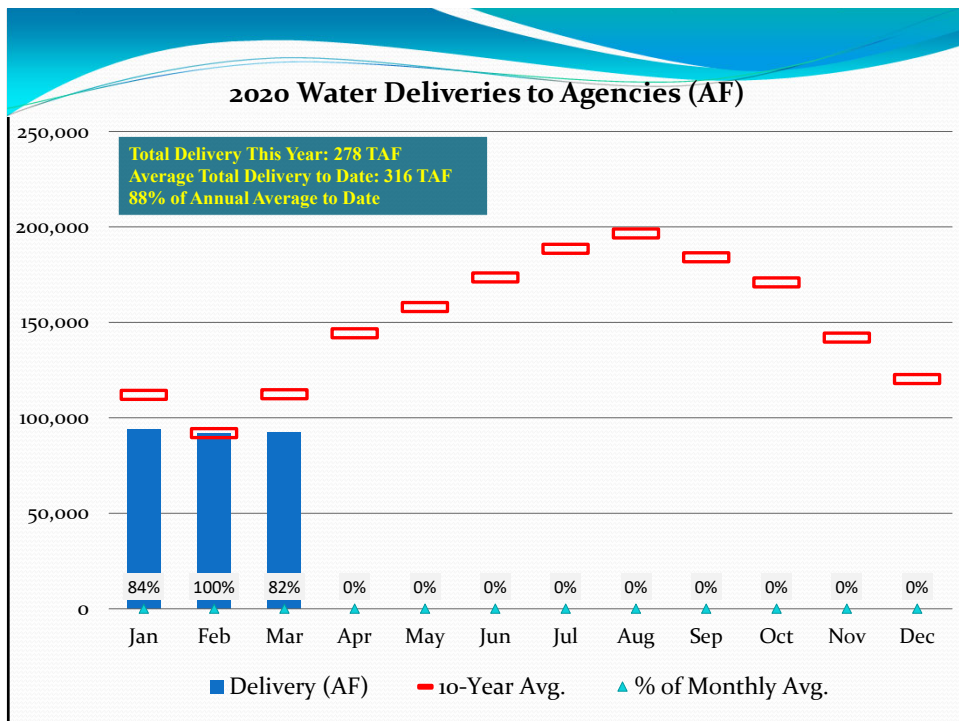
Percent NRCS 1981-2010 Median

March 1st, 2020



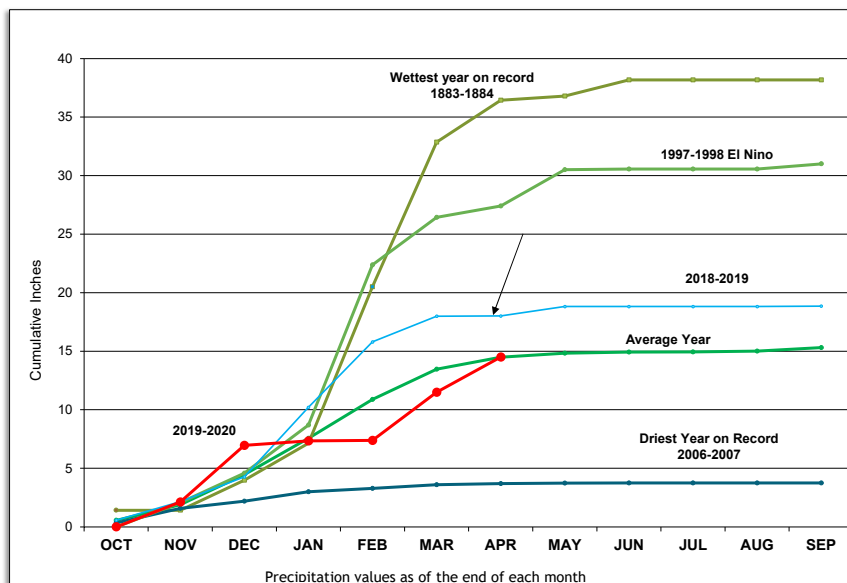


1



2

## Los Angeles Civic Center Precipitation



1

## Precipitation at Six Major Stations in Southern California

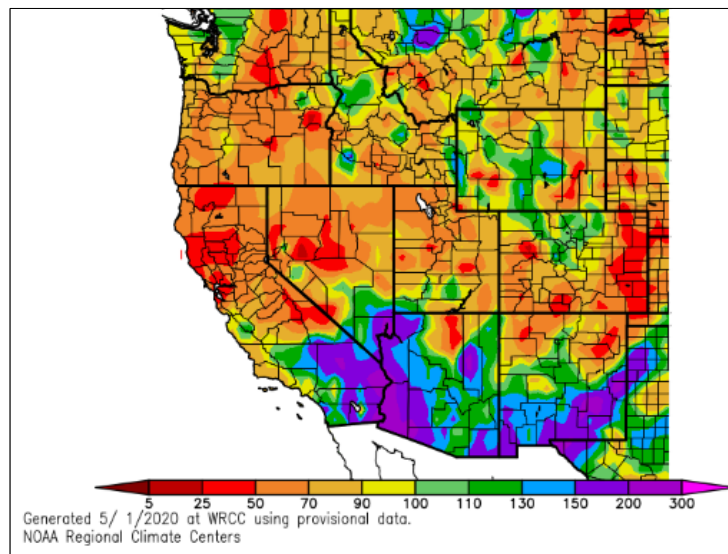
From October 1, 2019 to April 30, 2020

Station	Precipitation in inches		Average to Date	Percent of Average
	Apr	Oct 1 to Apr 30		
San Luis Obispo	1.24	9.50	21.57	44%
Santa Barbara	2.06	11.13	17.07	65%
Los Angeles	3.02	14.51	14.49	100%
San Diego	3.68	13.44	9.64	139%
Blythe	0.48	2.92	2.54	115%
Imperial	0.00	2.00	2.16	93%

2



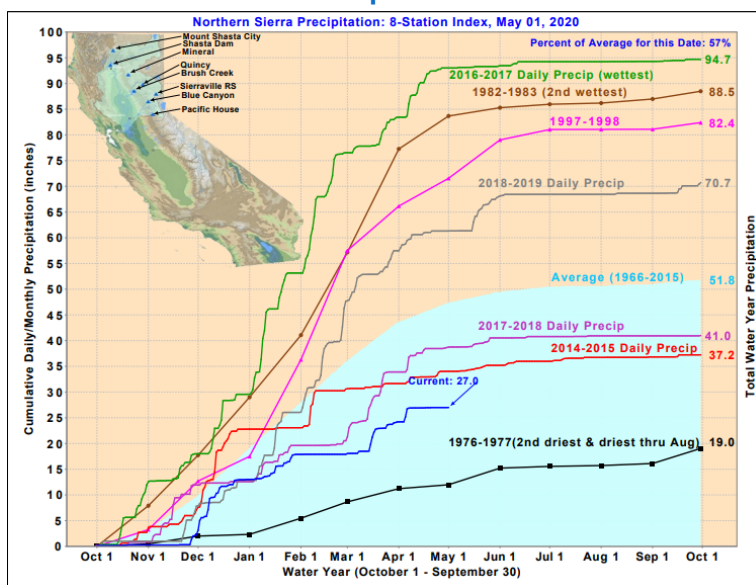
### Percent of Average Precipitation (%) October 1, 2019 - April 30, 2020



Western Regional Climate Center  
<https://wrcc.dri.edu/cgi-bin/anomimage.pl?wrcOctPpct.png>

3

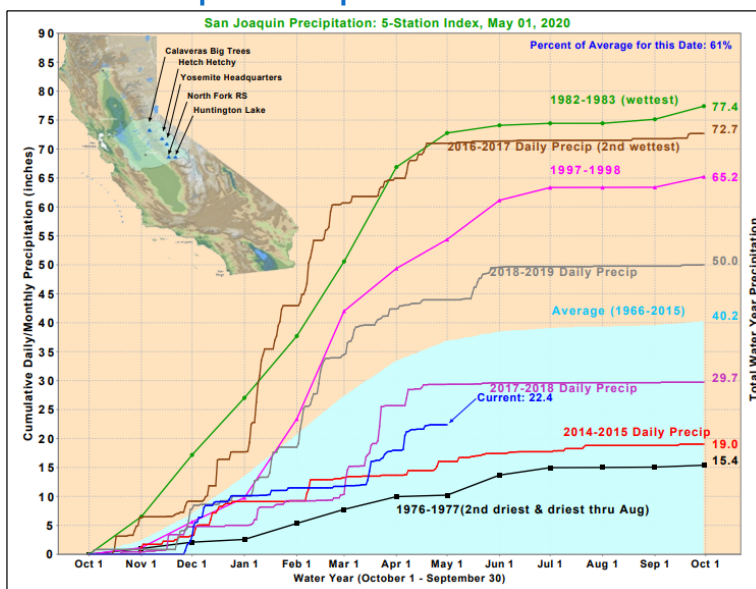
### Northern Sierra Precipitation: 8 Station Index



California Data Exchange Center  
[http://cdec.water.ca.gov/cgi-progs/products/PLOT\\_ESI.pdf](http://cdec.water.ca.gov/cgi-progs/products/PLOT_ESI.pdf)

4

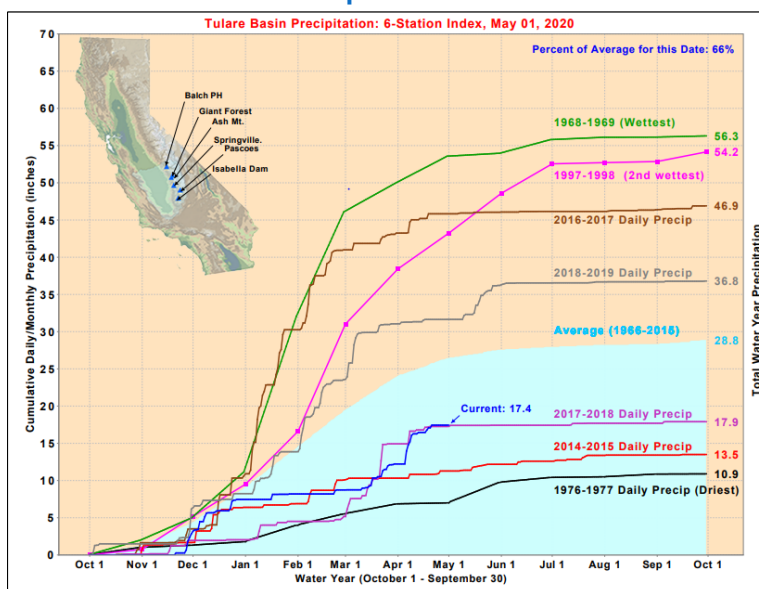
## San Joaquin Precipitation: 5 Station Index



California Data Exchange Center  
[http://cdec.water.ca.gov/cgi-progs/products/PLOT\\_FSI.pdf](http://cdec.water.ca.gov/cgi-progs/products/PLOT_FSI.pdf)

5

## Tulare Basin Precipitation: 6 Station Index



California Data Exchange Center  
[http://cdec.water.ca.gov/cgi-progs/products/PLOT\\_TSI.pdf](http://cdec.water.ca.gov/cgi-progs/products/PLOT_TSI.pdf)

6



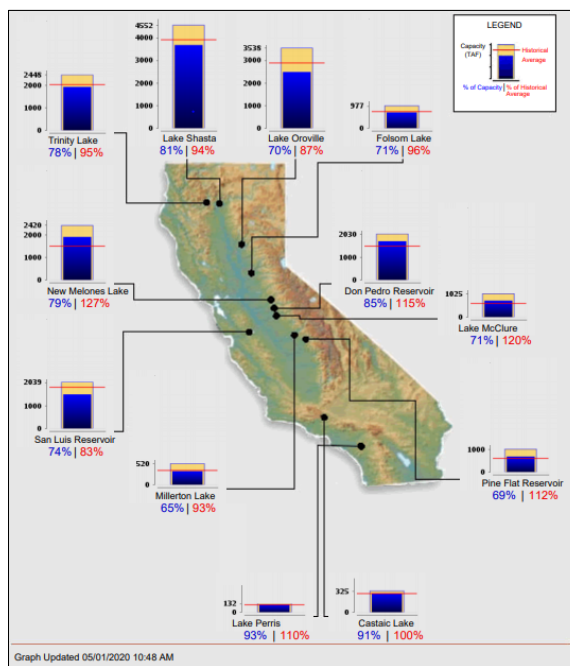
## Comparison of SWP Water Storage

Reservoir	Capacity	2019 Storage (acre-feet)		2020 Storage (acre-feet)	
		As of May 1	% of Cap.	As of May 1	% of Cap.
Frenchman	55,475	57,344	103%	47,381	85%
Lake Davis	84,371	83,130	99%	64,718	77%
Antelope	22,564	23,876	106%	23,050	102%
Oroville	3,553,405	3,296,054	93%	2,490,006	70%
<b>TOTAL North</b>	<b>3,715,815</b>	<b>3,460,404</b>	<b>93%</b>	<b>2,625,155</b>	<b>71%</b>
Del Valle	39,914	39,288	98%	33,939	85%
San Luis	2,027,835	1,733,489	85%	1,505,960	74%
Pyramid	169,901	165,549	97%	166,299	98%
Castaic	319,247	302,121	95%	294,283	92%
Silverwood	74,970	66,155	88%	68,242	91%
Perris	132,164	107,733	82%	122,220	92%
<b>TOTAL South</b>	<b>2,764,031</b>	<b>2,414,335</b>	<b>87%</b>	<b>2,190,943</b>	<b>79%</b>
<b>TOTAL SWP</b>	<b>6,479,846</b>	<b>5,874,739</b>	<b>91%</b>	<b>4,816,098</b>	<b>74%</b>

As of January 24, 2020, the Table A allocations for SWP contractors is 15%.

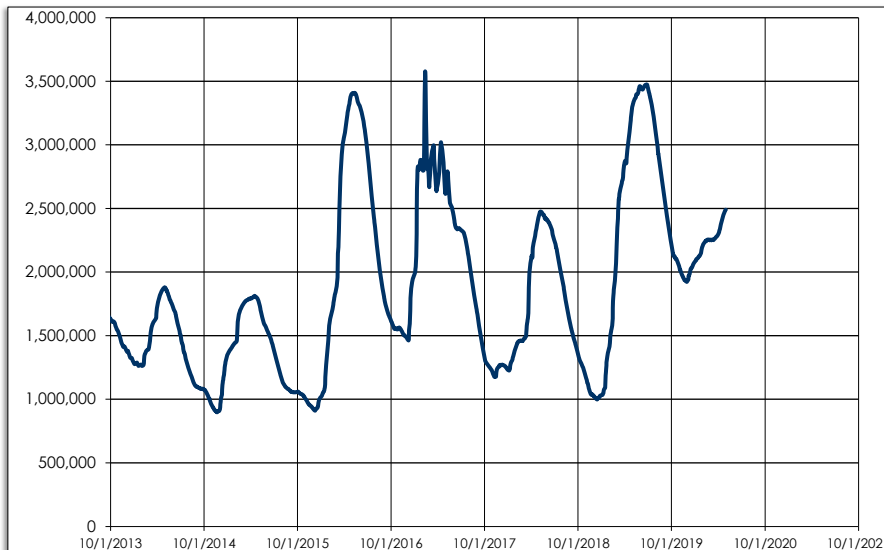
7

## Reservoir Current Conditions as of 05/01/2020



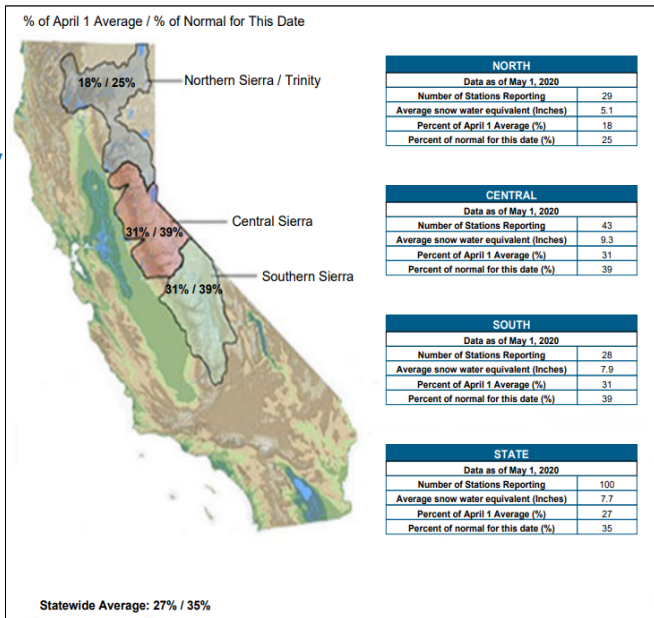
8

### Oroville Storage (acre-feet) October 1, 2013 - May 1, 2020



9

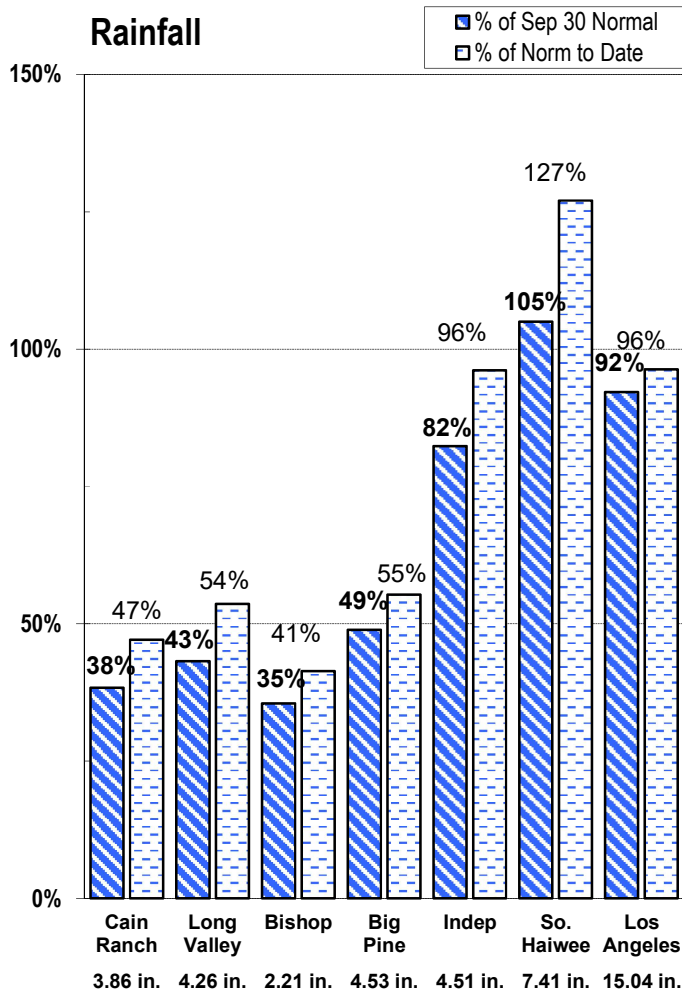
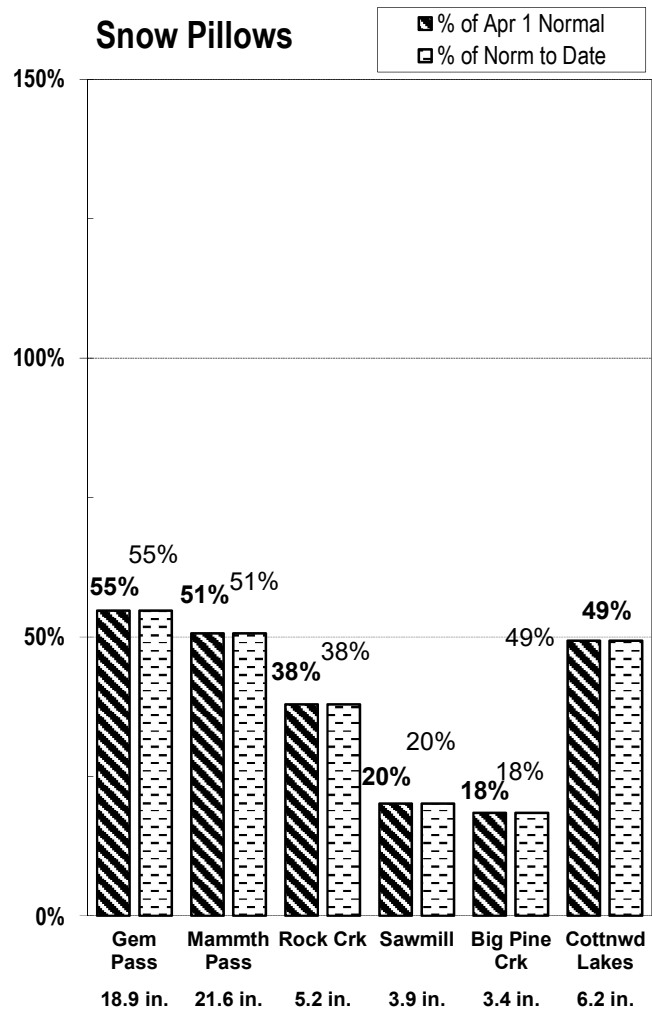
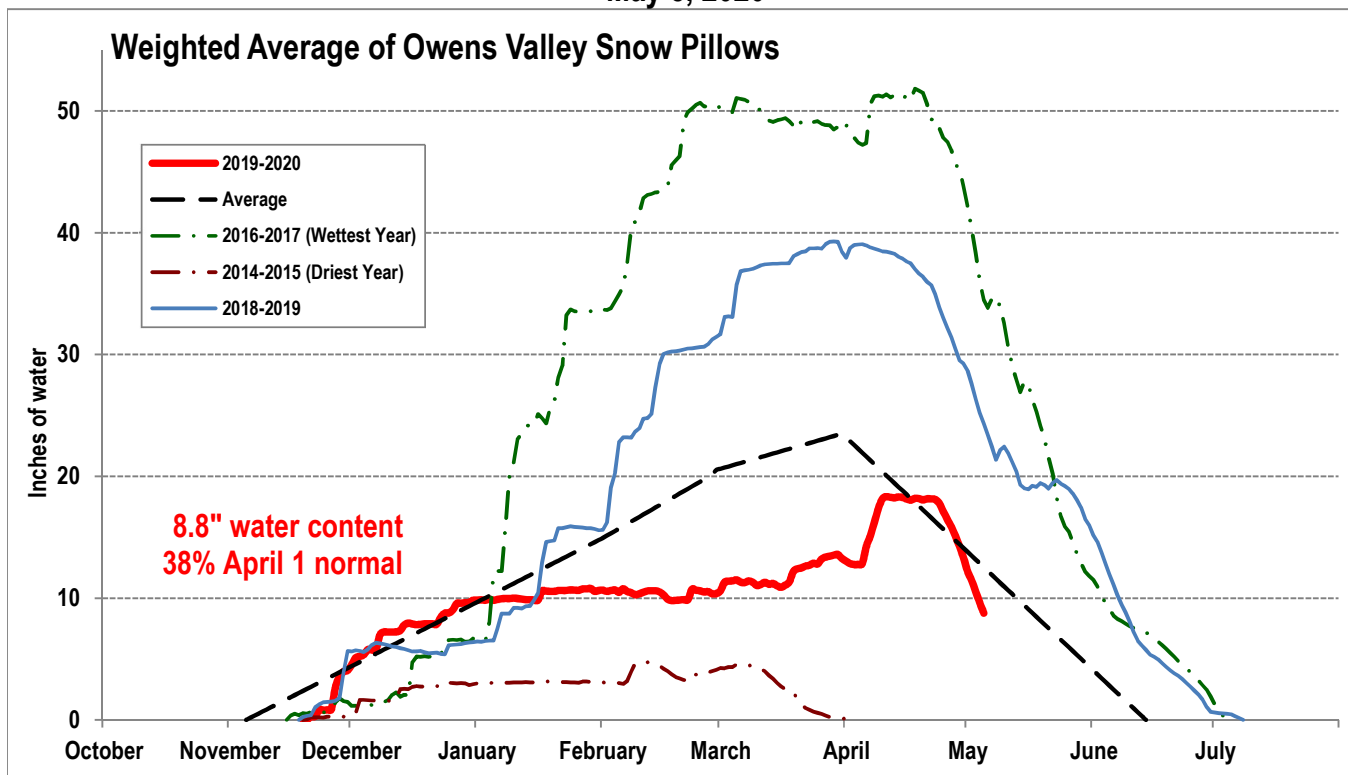
### Statewide Summary of Snow Water Content as of 05/01/2020



California Data Exchange Center  
<http://cdec.water.ca.gov/cgi-progs/products/swccond.pdf>

10

# EASTERN SIERRA CURRENT PRECIPITATION CONDITIONS May 5, 2020



*Measurement as Inches Water Content; Precipitation totals are cumulative for water year beginning Oct 1*



Draft Basin States Letter to the Secretary of the Interior Regarding Comments on Reclamation's Proposed Scope for the Review of the Effectiveness of the 2007 Interim Guidelines – the so-called 7.D Review

Dear Secretary Bernhardt,

Section XI.G.7.D of the 2007 *Colorado River Interim Guidelines for Lower Basin Shortages and the Coordinated Operations for Lake Powell and Lake Mead* (Guidelines) requires the Secretary of the Interior (Secretary) to initiate a formal review of the effectiveness of the Guidelines on or before December 31, 2020 (7.D Review). You announced at the Colorado River Water Users Association conference last December that the Department of the Interior, through its Bureau of Reclamation (Reclamation), would use 2020 for that purpose. In March 2020, Reclamation hosted two public webinars during which it discussed, and solicited comments on, the proposed scope, approach, process and schedule of the 7.D Review. By this letter, the seven Colorado River Basin States respond to Reclamation's request.

In commenting on the 7.D Review proposed process, we are mindful that the Guidelines were promulgated at a time of uncertainty in the Colorado River Basin, reflecting both historically poor hydrology and resulting disagreements arising among the states and federal government regarding various elements of the Law of the River. In January 2000, the combined storage in Lakes Powell and Mead was 46.7 million acre-feet. After the worst five-year period of inflow on record, that storage level fell to 23.1 million acre-feet – a striking loss of more than half the river's stored water. Plummeting levels in both reservoirs threatened profound economic and way-of-life dislocations for the tens of millions of people dependent on Colorado River water and potentially imperiled a host of rights and obligations related to releases from Lakes Powell and Mead, as well as deliveries to Mexico by the United States. These concerns were so acute that several Basin States began appropriating funds to litigate different interpretations of the Law of the River.

Rather than pursuing litigation, however, and with the urging of Secretary Norton, the States negotiated a preferred alternative for coordinated river management that would benefit both basins. The Secretary largely adopted the States' alternative in the Guidelines' Record of Decision issued December 13, 2007 (ROD). The Basin States' participation in the development of, and agreement to, the terms of the Guidelines was essential to their adoption and subsequent implementation. The States entered into a

Seven States Agreement on April 23, 2007 (Seven States Agreement) in which they requested the Secretary to include the material terms of the Seven States Agreement as the recommended preferred alternative in the Guidelines themselves. The States agreed in Section 7 of the Seven States Agreement to initiate consultations with one another before December 31, 2020, to determine whether to recommend that the Secretary continue operations under the Guidelines beyond 2026, modify the Guidelines, or discontinue operations under the Guidelines after 2026. The 7.D Review arose directly from the States' interest in taking stock of the effectiveness, equity, and utility of the Guidelines beginning in 2020, and will be a helpful resource as the next negotiation process develops.

Collaboration and cooperation proved to be a very successful approach in negotiating the Guidelines. Today, climate change, on-going drought, and warming temperatures put tremendous pressure on our limited hydrologic resources, add an ever-evolving element of uncertainty, and increase the level of awareness and interest in Colorado River management both nationally and internationally. The array of issues challenging the Colorado River and its users has significantly evolved since 2007, as the growing number of stakeholder groups reflects. Accordingly, as the Basin States begin the renegotiation as contemplated by the Seven States' Agreement, we envision a process that invites input and perspective from a broader group of stakeholders than that which occurred in the lead up to adoption of the Guidelines. Our prospects of success depend on working with those invested in the outcomes of effective river management.

Collaboration will continue to be important to charting the course of river management post-2026. Accordingly, the Basin States support Reclamation's efforts to inform Mexico, with whom we have developed and deepened our relationship over the years, about the 7.D Review, and we encourage Reclamation to continue to undertake appropriate efforts to keep Mexico informed as the 7.D Review process continues. Likewise, we encourage Reclamation to keep the various water users, tribes and NGOs, all of whom have played an increasingly prominent and collaborative role, informed as the 7.D Review moves forward.

With regard to the proposed scope of the 7.D Review, we note that Reclamation has outlined a list of common themes and purposes from the Guidelines. The consideration of all themes and purposes contained in the Guidelines is essential to Reclamation's proposed "effectiveness" evaluation. Minimizing shortages in the Lower Basin and avoiding risk of curtailments in the Upper Basin should be examined, along with other themes and purposes, when assessing effectiveness. Reclamation's analysis should also include the operational elements set forth in the ROD and identify how the Guidelines performed to achieve those intended purposes. Indeed, one of the stated purposes of the ROD is to "improve Reclamation's management of the Colorado River...considering the

effects on water storage in Lake Powell and Lake Mead, and on water supply, power production, recreation, and other environmental resources.” The 7.D Review should describe and quantify, to the extent possible, the effectiveness of the Guidelines with respect to such management.

The Basin States support Reclamation’s position that the 7.D Review is retrospective, with a focus on past operations and actions under the Guidelines, and is not intended to evaluate post-2026 operations. However, the 7.D review should recognize the individual and collective results of river management arrangements adopted subsequent to the Guidelines, such as Minutes 319 and 323 to the 1944 Water Treaty and the Upper and Lower Basin Drought Contingency Plans, when assessing the effectiveness of the Guidelines.

As you know, the Colorado River provides a vital and irreplaceable resource to communities across the seven Basin States and the Republic of Mexico. We look forward to continuing our unique partnership with you in the completion of the 7.D Review and as we move forward in managing this critical resource.

Sincerely,







# United States Department of the Interior

OFFICE OF THE SECRETARY

Washington, DC 20240

## MEMORANDUM

To: Brent Esplin, Regional Director  
Upper Colorado Basin - Interior Region 7, Bureau of Reclamation

From: Dr. Timothy R. Petty  
Chair, Glen Canyon Leadership Team  
Assistant Secretary for Water & Science *Timothy R. Petty*  
(April 24, 2020)

Subject: Approval of Recommendation for Macroinvertebrate Production Flow Releases at Glen Canyon Dam, May 1 through August 31, 2020

On April 20, 2020, the Glen Canyon Planning/Implementation Team (Team) recommended conducting Experimental Macroinvertebrate Production Flow releases (Bug Flows) at Glen Canyon Dam from May 1 through August 31, 2020 (Attachment - *Final Recommendation to Implement Macroinvertebrate Production Flow Releases at Glen Canyon Dam May – August 2020*). The recommendation was developed to implement the provisions of the 2016 *Record of Decision for the Glen Canyon Dam Long Term Experimental and Management Plan Final Environmental Impact Statement* (LTEMP ROD) concerning annual planning for flow-based experiments.

The LTEMP ROD specifies the representation requirements for planning experiments at Glen Canyon Dam and is based on past successful planning and implementation of flow-based experiments. The Team includes technical representatives from the Bureau of Reclamation (Reclamation), the National Park Service (NPS), the U.S. Fish and Wildlife Service (FWS), the Bureau of Indian Affairs (BIA), the U.S. Geological Survey's (USGS) Grand Canyon Monitoring and Research Center (GCMRC), Western Area Power Administration (WAPA), the Arizona Game and Fish Department (AZGFD), the seven Colorado River Basin States (States), and the Upper Colorado River Commission (UCRC). The Glen Canyon Leadership Team (Leadership Team) is made up of decision makers from these same agencies.

The LTEMP ROD specifies that Reclamation will notify Traditionally Associated Tribes (Tribes) at least 30 days in advance of planned experimental flows. On March 31, 2020, notification of the possible Bug Flow experiment and offer for consultation was emailed to the Tribes and parties to the LTEMP National Historic Preservation Act Section 106 Programmatic Agreement. It is my understanding that, to date, no input from the Tribes or requests for consultation have been received by Reclamation.

The evolving COVID-19 Pandemic and response may affect GCMRC's ability to monitor the experiment. The Team has outlined potential impacts and continues to evaluate monitoring contingencies for the duration of the experiment. Let me be clear, the safety of our Federal employees remains the Department's top priority. I expect that any decisions regarding field work, including monitoring, will be carefully considered in the context of the most current guidance from the Secretary

of the Interior, the U.S. Office of Personnel Management, the Office of Management and Budget, the Centers for Disease Control and Prevention, and relevant State and local authorities.

The Leadership Team has also reviewed and considered the Team's recommendation, including the assessment of key resources that may be impacted or affected by Bug Flows and the experiment monitoring plan. The Leadership Team met via webinar on April 22, 2020 and members voiced their support for proceeding with the recommended Bug Flow experiment. Based on support from the Leadership Team and on the Planning/Implementation Team recommendation, I have decided to approve the recommendation to conduct a Bug Flow experiment starting on May 1 and running through August 31, 2020.

This Bug Flow experiment will be the fourth experiment conducted under the 2016 LTEMP ROD and demonstrates the utility of the LTEMP in allowing for experiments when conditions warrant and there would not be unacceptable adverse impacts to key resources. The approved Bug Flows will consist of steady weekend releases from Glen Canyon Dam that provide favorable conditions for insects to lay eggs along the Colorado River margins, and slightly higher fluctuating releases during the weekdays designed to prevent the eggs from drying out. This experiment is expected to have positive benefits to the food base of the aquatic and terrestrial ecosystems downstream of Glen Canyon Dam. The recommended Bug Flow experiment will provide resource benefits in the near term and will also provide important scientific information to be used in future decision making. The Bug Flow experiment is consistent with applicable laws concerning the operation of Glen Canyon Dam and will satisfy the Department of the Interior's (Department) goal to ensure effective and coordinated implementation of important research that the Department is undertaking as part of the Glen Canyon Dam Adaptive Management Program.

This is the third full year of implementing the process for annual experimental planning under the LTEMP ROD, which requires the Department to "schedule implementation / planning meetings or calls with Interior bureaus (USGS, NPS, FWS, BIA, and Reclamation), WAPA, AZGFD, and one liaison from each Basin State and from the UCRC, as needed or requested by the participants." At the conclusion of the experiment, the Team will review the planning process, implementation, and monitoring activities and develop a list of "lessons learned" to inform potential future experiments and experimental planning. In accordance with the LTEMP, the Department may make the decision to conduct future flow-based experiments (e.g., High Flow Experiments, Bug Flows, Trout Management Flows, and Low Summer Flows) at Glen Canyon Dam if it is determined that there are no unacceptable adverse impacts on other resource conditions. For future experimental planning, the Department welcomes input from you and other Leadership Team members as to whether this or another process should be used to satisfy the coordination and communication process of the LTEMP ROD.

I would like to personally thank both the Leadership and the Planning/Implementation Teams for their dedication and continued work that has resulted in this recommendation. The individual efforts of the team members is greatly appreciated. The coordination among the team members has been instrumental in making this process a success and has allowed the Department to continue its commitment to protect and improve the irreplaceable resources at and below Glen Canyon Dam.

Attachment - Final Recommendation to Implement Macroinvertebrate Production Flow (Bug Flows) Releases at Glen Canyon Dam May – August 2020

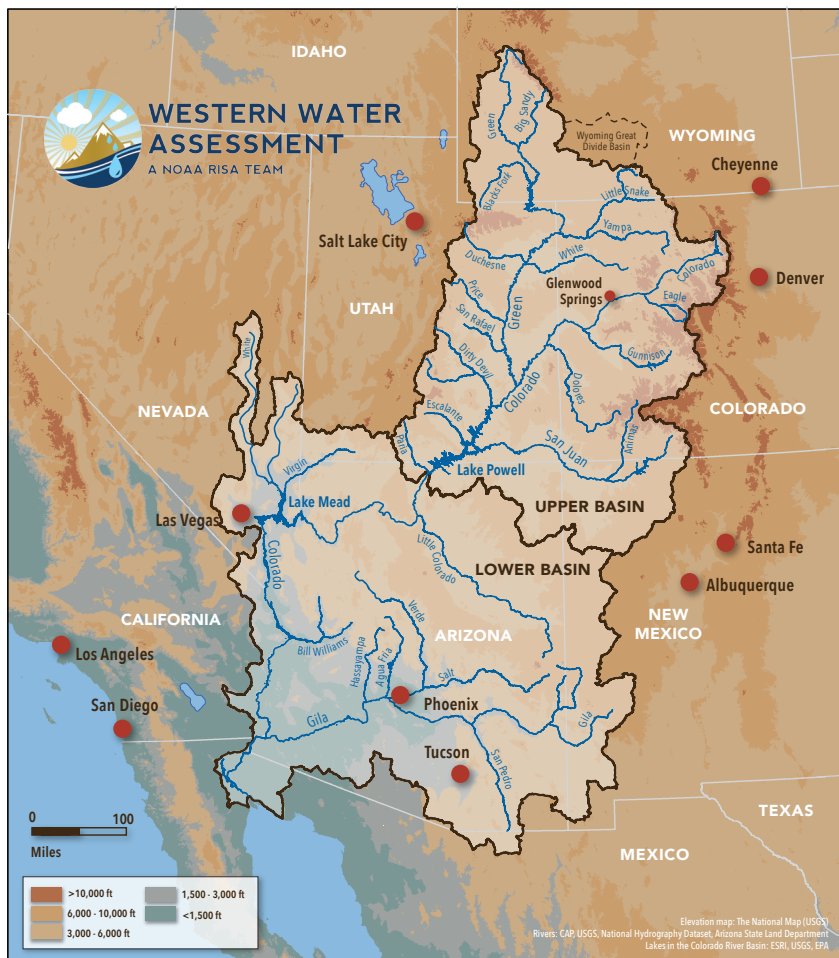


# Navigating a river of knowledge

## *Researchers publish state-of-the-science assessment for Colorado River water resource managers and planners*

In recent decades, increasing water demand, dry conditions and warming temperatures have impacted the Colorado River, creating greater uncertainty about the future of the basin's water supply. With support and guidance from more than a dozen federal, state and local water agencies, researchers from the University of Colorado Boulder's Western Water Assessment teamed up with leading experts to integrate nearly 800 peer-reviewed studies, agency reports and other sources to assess the state of the science and the technical methods relevant to water resources in the Colorado River Basin.

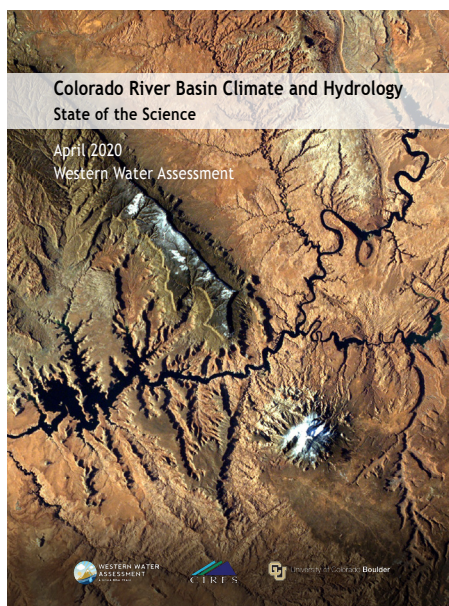
**Colorado River Basin Climate and Hydrology: State of the Science** aims to create a shared understanding of the physical setting and the latest data, tools and research underpinning the management of Colorado River water resources. In identifying both challenges and opportunities, the report will guide water resource managers and researchers in efforts to improve the short-term and mid-term forecasts and long-term projections for the basin's water system. By serving as a common knowledge base, the report will help readers navigate the future of the Colorado River Basin—which so critically supports the seven basin states, 29 tribes and Mexico.



### FUNDING PARTNERS AND COLLABORATORS







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# What's in the report

Get a high-level overview with the **Executive Summary**, which features key points, challenges, and opportunities from each chapter—or dive into the full report for comprehensive supporting content.

## Current Understanding of the Colorado River Basin Climate and Hydrology

*How does the climate and hydrology of the basin vary over space and time, and what are the recent trends and their causes?*

## Primary Planning Tools

*How do Reclamation's operations and planning models translate the many data inputs into forecasts of reservoir levels and other system conditions?*

## Observations—Weather and Climate

*How are climate datasets created from underlying weather observations, and how managers, forecasters, and researchers best use them?*

## Observations—Hydrology

*What are the current and emerging methods used to quantify snowpack, streamflow, soil moisture and evaporation in the basin?*

## Hydrologic Models

*How do hydrologic models—from simple to complex—contribute to our understanding and forecasting of streamflow, and how can these models be improved?*

## Weather and Climate Forecasting

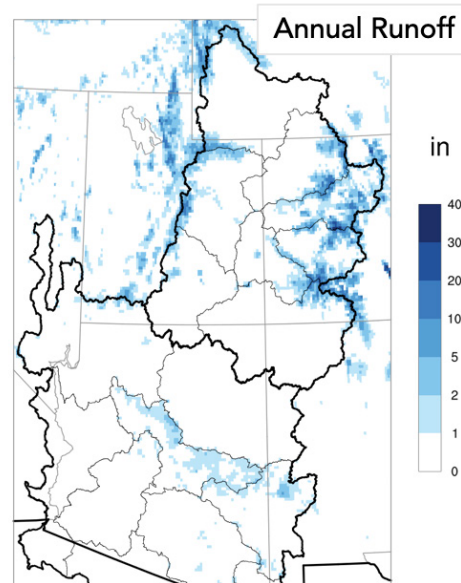
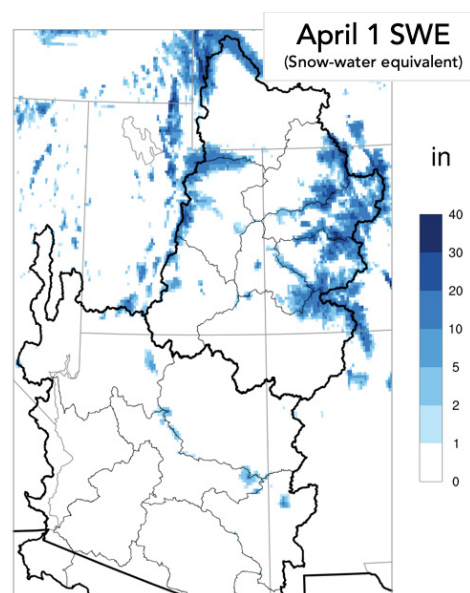
*What are the pathways to improving the relatively low skill of seasonal climate forecasts, and how can they be better put to use?*

## Streamflow Forecasting

*Can the seasonal streamflow forecasts be made better by harnessing new data and new approaches?*

## Historical Hydrology

*Given the recent and expected trends in climate and hydrology, how can we harness the historical streamflow record to project the future?*



**About 85% of the annual runoff in the Colorado River Basin comes from only 15% of the basin's area, in the mountain headwaters where it is cool and wet enough to build a seasonal snowpack (April 1 SWE).**

## Paleohydrology

*What do tree-ring reconstructions of streamflow tell us about the basin's hydrologic variability over the past 1200 years that can inform our expectations of the future?*

## Climate Change-Informed Hydrology

*What do projections based on global climate models add to our understanding of the likely future basin hydrology, and how can we best use them in planning?*





MENU

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## News & Multimedia

*Reclamation / News & Multimedia / News Releases / Funding opportunity available to build drought resiliency through WaterSMART*

NEWS & MULTIMEDIA

# Funding opportunity available to build drought resiliency through WaterSMART

Media Contact: Peter Soeth, 303-445-3615, [psoeth@usbr.gov](mailto:psoeth@usbr.gov)

For Release: May 04, 2020



A dry riverbed in the western United States.

WASHINGTON - The Bureau of Reclamation has released a funding opportunity for communities to take a proactive approach to drought through building projects that increase water supply reliability, improve water management, or provide benefits for fish, wildlife and the environment. The drought resiliency projects funding opportunity is available at [www.grants.gov](http://www.grants.gov) by searching funding opportunity number BOR-DO-20-F002.

"We are looking for applicants that are working to implement projects that are identified in their drought response plans to avoid future crises and reduce the need for emergency response actions," said Reclamation's Acting Drought Response Program Manager John Whitler.

Eligible applicants for funding include states, tribes, irrigation districts, water districts or other organizations with water or power delivery authority located in the western United States or U.S. territories. It also includes Alaska and Hawaii, which are now eligible.

Up to \$300,000 per agreement is available for a project that can be completed within two years. Up to \$750,000 per agreement is available for a project that can be completed within three years. Recipients must match the funding with a minimum of 50% non-federal cost-share.

Applications are due on July 8, 2020, at 4 p.m. MDT.

Visit Reclamation's WaterSMART program at [www.usbr.gov/watersmart](http://www.usbr.gov/watersmart) and the Drought



Response Program at [www.usbr.gov/drought](http://www.usbr.gov/drought) to learn more about this and other opportunities.

###

The Bureau of Reclamation is a federal agency under the U.S. Department of the Interior and is the nation's largest wholesale water supplier and second largest producer of hydroelectric power. Our facilities also provide substantial flood control, recreation opportunities, and environmental benefits. Visit our website at <https://www.usbr.gov> and follow us on Twitter @USBR.

Relevant Link:

Funding Opportunity on [grants.gov](http://grants.gov)

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