Colorado River Board of California

May 30, 2019

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, June 12, 2019
Time:	10:00 a.m.
Place:	Orchid Room Sheraton Ontario Airport Hotel 429 North Vineyard Avenue Ontario, CA 91764

The Colorado River Board of California welcomes any comments from members of the public pertaining to items included on this agenda and related topics. Oral comments can be provided at the beginning of each Board meeting; while written comments may be sent to Mr. Peter Nelson, Chairperson, Colorado River Board of California, 770 Fairmont Avenue, Suite 100, Glendale, California, 91203-1068.

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.

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, June 12, 2019
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.

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 May 15, 2019 (Action)
- b. Presentation of proposed Colorado River Board of California FY-2019/2020 Budget (Action)

4. Water Supply and Operations Reports
- a. Colorado River Basin Report
- b. State and Local Reports

5. Overview of the Improving Sub-Seasonal to Seasonal Precipitation Forecasting Workshop, Western States Water Council/DWR, May 22-24, 2019, San Diego, California (Jeanine Jones)

6. Staff Reports regarding Colorado River Basin Programs
- a. Status of Colorado River Basin Drought Contingency Plan and Minute No. 323
- b. Status of Salinity Control Program
- c. General announcements

7. 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.

8. Other Business

9. Future Agenda Items

Next Board Meeting: July 10, 2019 (If Necessary)
10:00 a.m.
Orchid Room - Sheraton Ontario Airport Hotel
429 North Vineyard Avenue, Ontario, CA 91764

Minutes of Meeting
COLORADO RIVER BOARD OF CALIFORNIA
Wednesday, May 15, 2019

A meeting of the Colorado River Board (Board) of California was held on Wednesday, May 15, 2019 at the Sheraton Ontario Airport Hotel, 429 North Vineyard Avenue, Ontario, California 91764 on Wednesday, May 15, 2019.

Board Members and Alternates Present:

Dana B. Fisher, Jr. (PVID)
James Hanks (IID)
Jeanine Jones (DWR Designee)
David R. Pettijohn (LADWP)
Doug Wilson (SDCWA)
Peter Nelson, Chairman (CVWD)
Glen D. Peterson (MWD)

Board Members and Alternates Absent:

David DeJesus (MWD Alternate)
Evelyn Cortez-Davis (LADWP Alternate)
Mark Watton (SDCWA Alternate)
David Vigil (DFW Alternate)
Nicole Neeman-Brady (Public Member)
Christopher Hayes (DFW Designee)
John Powell, Jr. (CVWD Alternate)
Norma Sierra Galindo (IID Alternate)
Jack Seiler (PVID Alternate)
Henry Kuiper (Public Member)

Others Present:

Steve Abbott
Joseph Avilz
Elsa Contreras
Roberto Gonzalez
Christopher Harris
Bill Hasencamp
Ned Hyduke
Rich Juricich
Laura Lamdin
Tom Levy
Lindia Liu
Sam Mannan
Henry Martinez
Kara Mathews
Rich Nagel
Jessica Neuwerth
Angela Rashid
Ivory Reyburn
Shanti Rosset
Eric Ruckdaschel
Tom Ryan
Maria Sheridan
Tina Shields
Gary Tavetian
Alina Tishchenko
Kimberlyn Velasquez
Jerry Zimmerman

CALL TO ORDER

Chairman Nelson announced the presence of a quorum and called the meeting to order at 10:06 a.m.

OPPORTUNITY FOR THE PUBLIC TO ADDRESS THE BOARD

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

ADMINISTRATION

Chairman Nelson asked for a motion to approve the March 18, 2019, Special Board meeting minutes. Mr. Fisher moved that the minutes be approved, seconded by Mr. Wilson. By roll-call vote, the minutes were unanimously approved.

Chairman Nelson asked for a motion to approve the April 10, 2019, meeting minutes. Mr. Fisher moved that the minutes be approved, seconded by Mr. Wilson. By roll-call vote, the minutes were unanimously approved.

COLORADO RIVER BASIN WATER REPORTS

Colorado River Basin Report

Ms. Rashid reported that as of May 5th, the water level at Lake Powell was 3,574.18 feet with 9.45 million-acre feet (MAF) of storage, or 39% of capacity. The water level at Lake Mead was 1,088.67 feet with 10.74 MAF of storage, or 41% of capacity. As of May 5th, the total system storage was 27.55 MAF, or 46% of capacity, which is about 2.88 MAF less than the system storage at this same time last year.

Ms. Rashid reported that the forecasted Water Year-2019 inflow into Lake Powell is 12.1 MAF, or 112% of normal. The forecasted April-July 2019 runoff into Lake Powell is projected to be 9.2 MAF, or 129% of normal. The April 2019 observed Lake Powell inflow was 1.24 MAF (118% of normal), and the May Lake Powell inflow forecast is 3.0 MAF (128% of normal). To date, the WY-2019 precipitation is 119% of normal and the current basin snowpack is 138% of normal.

Chairman Nelson noted that despite above average snowpack in the Upper Basin the runoff into Lake Powell appeared lower than anticipated. Mr. Harris reported that dry soil conditions in

the Upper Basin tend to retain much of the precipitation impacting runoff into local and larger stream systems. He added that sublimation can also contribute to reduced runoff into Lake Powell. Ms. Rashid added the Colorado Basin River Forecast Center (CBRFC) has been monitoring and reporting on the dry soil conditions in the Upper Basin since the beginning of Water Year 2019. She noted that some lower elevation areas in the Upper Basin have rebounded due to the season's above average precipitation conditions.

Ms. Rashid reported that precipitation conditions in March were above average. Aprilstarted off with above average precipitation conditions but as the month progressed the conditions became drier.

Ms. Rashid reported that as of May 6th, the Upper Colorado River basin reservoirs, excluding Lake Powell, ranged from 41% of capacity at Fontenelle Reservoir in Wyoming; 88% of capacity at Flaming Gorge Reservoir in Wyoming and Utah; 98% of capacity at Morrow Point and 44% of capacity at Blue Mesa Reservoirs in Colorado; and 66% of capacity at Navajo Reservoir in New Mexico.

Ms. Rashid reported that as of April 25th, Brock and Senator Wash Reservoirs captured 45,079 AF and 37,571 AF, respectively. She also reported that excess deliveries to Mexico through May 1st, were 2,425 AF. As of May 7th, the total bypassed to the Cienega de Santa Clara in Mexico is 31,307 AF.

Mr. Harris reported that the Bureau of Reclamation (Reclamation) is finalizing the 2018 Accounting and Water Use Report for Arizona, California, and Nevada. He noted that the California section of the report was released for agency review and comment on March 29th, and the final report is expected to be posted on Reclamation's website on May 15th. Mr. Harris reported that Mr. Paul Matuska, manager of the Water Accounting and Verification Group in Reclamation's Boulder Canyon Operations office will be retiring by the end of June and notedMr. Matuksa's great contributions to the Boulder Canyon Operations office.

State and Local Report

Ms. Jones, representing the California Department of Water Resources (CDWR), reported that the snow accumulation season has concluded and hydrologic conditions throughout the State were above average, particularly, in the Sacramento Valley and major Central Valley watersheds. She also reported that a late season storm would bring about one foot of snow to parts of the Sierra Nevada.

Ms. Jones reported that the Western States Water Council and the CDWR were holding a Sub-Seasonal to Seasonal (S2S) Precipitation Forecasting Workshop in San Diego on May 22-24, 2019. She noted that the National Oceanic and Atmospheric Administration (NOAA) Boulder

office will present on its statistical snowpack research aimed at improving forecasting in California.

Board member Peterson, representing The Metropolitan Water District of Southern California (MWD), stated that the MWD's storage facilities are near capacity. As of May 1st, the combined reservoir storage is 94% of capacity. He reported that the Colorado River Aqueduct is currently being operated on a 3-pump flow but may move to a 4-pump flow by the end of the year. He also reported that MWD is continuing to deliver water to the Coachella groundwater basin.

Board member Pettijohn, representing the Los Angeles Department of Water and Power (LADWP), reported that as of April 1st, the Eastern Sierra snowpack peaked at 165% of normal. He stated that the Los Angeles Aqueduct will produce close to 500,000 AF of water. He noted that LADWP will purchase about 70,000 from MWD and pump groundwater to meet the remainder of its demands. Mr. Pettijohn stated that LADWP will also deliver water to the Owens Valley groundwater basin.

Los Angeles Department of Water and Power Presentation: Boulder Canyon Pumped Storage Project

Mr. Joseph Avila, Staff Assistantto the Office of the COO, Mr. Sam Mannan, Project Manager, and Roberto Gonzalez, Engineering Lead of LADWP's Boulder Canyon Pumped Storage Project presented on LADWP's Boulder Canyon Pumped Storage Project. Mr. Avila stated that this presentation is part of LADWP's technical outreach efforts. He explained the City of Los Angeles has a goal to produce energy from cleaner and more sustainable sources. He noted that the in the past, the City has experienced several days of hot weather and about 75% of the power produced during this time came from fossil fuels. He explained that the City's legislators have a goal to drastically cut its dependence on fossil fuels. By 2030, 60% of the City's power will be sourced from renewables and by 2045, the goal is to be 100% reliant on renewable sources of energy. Mr. Avila added that previously recognized renewable energy sources, such as biomass and large hydro-electrical dams are no longer considered renewable energy sources. He explained that the impetus for the project was to increase the production and storage of energy from renewables.

Mr. Avila stated that LADWP has experience operating a pumped storage facility at Castaic Pumped Storage Plant, noting that it has been in operation for close to fifty years. He stated that facility recently underwent an upgrade and is expected to produce power for another fifty years. He added the facility's O&M has increased over the years as demands have increased, noting that the facility also stores and utilizes excess energy created from renewable energy sources. He added that this action has allowed LADWP to mitigate issues related to renewable energy curtailment. Mr. Avila explainted that renewable energy curtailment is an ongoing issue that other California utilities such as Southern California Edison and PG&E are dealing with. He explained

that agencies have had to cut back on producing energy from renewables because the energy becomes a burden to the utility if it cannot be utilized or stored during off-peak demand hours. He referred to the "Duck Curve" which displays the imbalance between peak demand and renewable energy production.

Mr. Avila explained that in most cases the energy produced by renewables such as solar needs to be stored in battery facilities but noted that these facilities are large and, in some communities, there has been push back about the placement of these facilities, particularly from California desert communities.

He added that LADWP's mandate to produce more energy from renewables could exacerbate this imbalance. Mr. Avilla stated if the excess energy produced by wind and solar could not be stored in the Castaic facility or consumed it would have to be dumped onto neighboring utilities, incurring additional costs to LADWP customers.

Mr. Avila stated that the Boulder Canyon Pumped Storage Project would be a great asset to LADWP and to others, as it would store and utilize the energy generated from LADWP's, various renewable energy sources. He stated that the Boulder Canyon Pumped Storage facility will also have a greater generation and transmission capacity than the Castaic facility.

Mr. Avila explained that LADWP initiated the project but needs the support and participation of the forty-seven power contractors, which includes thirty-two tribes that receive power from Hoover Dam. He explained that LADWP has been doing technical outreach for this project over the last two years. Mr. Avila added that he believes that the project with gain strong support from contractors and utilities because it may be a solution to the on-going issue of renewable curtailment.

Mr. Mannan reiterated LADWP's commitment to working with the other Hoover power contractors to develop a mutual partnership. He added that LADWP is committed to providing support for the Lower Basin Multi-Species Conservation Project (LB MSCP) over the next fifty years and will continue to pay its share of the $645 million project.

Mr. Mannan explained that the project will use the excess power generated from renewable energy sources to pump water from a lower elevation reservoir to Lake Mead, which is located at a higher elevation. Further, he explained that the pumped water in Lake Mead serves as stored energy which can be released at any given time depending on the system demands. Mr. Mannan reported that the Hoover Dam's hydroelectric turbines are currently operating at twenty percent of capacity due to Lake Mead's declining reservoir elevations and the pumped water would help improve the dam's efficiency. He noted that the pumped water will have a small evaporative factor.

Mr. Mannan showed a video animation of the proposed routes and location of the pumping facilities. Mr. Avila stated that the preliminary engineering design work will be completed by Stantec. HDR and E3 will provide a financial analysis of the project and the engineering hydrologic study will be performed by LADWP.

Mr. Mannan reiterated that the project's public affairs office has spent the last two years reaching out to stakeholders to ensure they understand the various parts of the project in terms of engineering, financial and legal. Mr. Gonzalez, the project's lead engineer, provided additional information about the project's consultants and how the project's legal, environmental and financial issues would be analyzed. He added that the firm, VFM, will assist with the project's funding and risk analysis. The Los Angeles City Attorney, in conjunction with an outside legal consultant, will address legal matters such land ownership. He added that environmental issues will be analyzed by LADWP's internal environmental group.

Mr. Gonzalez stated that Stantec's engineering work will focus on three tasks: conducting a hydraulic study using bathometric measurements of the upper and lower basin reservoirs and the Colorado River; selecting locations and routing of the conveyance systems and pump stations; and developing detailed engineering layouts and specification of the conveyance system and pump station. It is expected that the preliminary engineering work should completed in a year.

Mr. Gonzalez explained that the financial analysis will be conducted by HDR and consist of a comprehensive financial analysis, with an emphasis on renewable resources as well as a market analysis of the project compared to competing technologies. It is expected that the financial analysis should be completed in six months. He reported that the risk analysis will analyze the feasibility of including additional energy purchasers as well as public funding opportunities.

Mr. Gonzalez reported that the legal team will be reviewing contractual and ownership concerns of the Wilderness Act. The legal team will also examine open access requirements for the transmission facilities and impacts to the existing Hoover Power Purchasers Implementation Agreement. Mr. Gonzalez added that the environmental team will address permitting needs, identify risk and litigation strategies, contingency alternatives and the project's impacts to the LCR MSCP. He stated the conceptual timeline for the entire project is about ten years, adding the first three to four years will consist of outreach, planning, engineering feasibility and financial analysis. Environmental analysis will take two years to complete and construction would start in 2024 and be complete in four years. Years 2029 and 2030 will be devoted to testing the project.

Mr. Avila noted that one of the biggest issues that the project faces is its costs, noting that the project could cost close to $3 billion. He stated that a preliminary financial analysis shows that the project will save LADWP money and create revenue, potentially yielding three to four billion dollars in value over thirty years. He added that cost of the project will also be impacted by the maintenance of the batteries.

Responding to a question from a Board member regarding FERC licensing, Mr. Mannan reported that the project has a specialized legal team examining FERC licensing. He added that LADWP hired a former President Trump administration official help LADWP navigate federal licensing and permitting issues. Mr. Avila reported that LADWP has also engaged with Reclamation since the beginning of the project. He reported that Mr. Marty Adams, Director of Water Operations at LADWP is scheduled to travel to Washington, DC in June to meet up with the Los Angeles delegation and other key officials at the Bureau of Land Management about the project. Mr. Mannan stated that LADWP met with Mr. Terry Fulp, Lower Colorado Regional Director, to discuss the project during the Hoover Dam plan technical review committee.

Board member Mr. Wilson inquired about the potential impact of Lake Mead's declining elevation to the project. Mr. Avila stated that this a major concern and the engineering team will examine this issue, adding that Lake Mead's declining elevation has reduced the operating efficiency of the dam. Responding to a question about the transit time of the pumped water, Mr. Avila responded it may take a day for the water to return to Lake Mead, depending on the dam's operations.

A Board member inquired about the potential costs incurred from the additional operation of the hydropower facilities. Mr. Avila responded that the capital costs will be borne by the entities that have invested in the pumped storage. Mr. Hasencamp commented that in addition to paying for power, Hoover power contractors also pay for the LCR MSCP, the Salinity Control Project and the Hoover Dam Visitor's Center, adding that the cost share for these programs is based on the percentage of power received by the contractor. He inquired whether these costs should be redistributed because more power will be generated with this project. Mr. Avila responded that the project will increase the O&M costs but whether there will be any financial benefits to the contractors has not been determined yet.

STATUS OF COLORADO RIVER BASIN PROGRAMS

Status of the Lower Basin Drought Contingency Plan

Mr. Harris reported that President Trump signed the Drought Contingency Plan Authorization Act (Public Law 16-14) into law on April 16th. He added that a signing ceremony has been scheduled for May 20th at the Hoover Dam facility, where Basin State principals will sign the Companion Agreement and the Upper Basin and Lower Basin DCP Agreements. Mr. Harris reported that the California agencies that have executed the DCP agreement include the Coachella Valley Water District, MWD, Palo Verde Irrigation District and the City of Needles.

Status of Minute No. 323 Binational Water Scarcity Contingency Plan

Mr. Harris reported that work continues to reconcile the operational and water accounting aspects of both the LB DCP and the Minute 323 Binational Water Scarcity Contingency Plan. He stated that Section 4 of the Minute details the implementing details of the Binational Water Scarcity Plan, which needs to be consistent to the operating sections within the LB DCP. Mr. Harris stated the goal is to have both plans fully effective and synced by the release of the August 2019 24-Month study report, adding the plan is expected to be finalized by the end of June or early July.

Status of the Salinity Control Program

Mr. Harris reported that the Salinity Control Program Work Group met in Salt Lake City on April 17-18. The group reviewed CRSS model scenarios that were compiled for the 2020 Triennial Review, which evaluated three different levels of potential future salinity control. Mr. Harris also reported that the Salinity Control Forum's Executive Director, Don Barnett, visited Washington D.C. in late March and met with agency leads, committee and congressional staff to promote the program and urge the administration to support full funding for the program. Mr. Harris noted that the President's budget request does include the full $10 million budget requested by the Forum.

In response to a question, Mr. Harris noted that he would return to the Board with any information or studies that compare the cost effectiveness of controlling salinity at point sources such as the Paradox Valley versus non-point sources, such as on-farm conservation.

Mr. Harris noted that a magnitude 4.5 earthquake occurred near the Paradox Valley Unit injection well on March 4th. The well was not operating at the time of the earthquake and will remain off-line for a three-month shutdown while Reclamation evaluates the seismic risk of continuing operation.

Mr. Harris also reported that the Moab uranium mill tailing removal project has moved approximately 9.5 million tons, or 60%, of the mill tailings from a site adjacent to the Colorado River to a permanent disposal site near Crescent Junction, Utah. Beginning in February, the Department of Energy, which oversees the project, significantly increased the rate of tailings removal.

Finally, Mr. Harris reported that the Salinity Control Work Group, Advisory Council, and Forum would meet June 3-7 in Denver, Colorado.

Status of the Glen Canyon Dam Adaptive Management Program

Board Staff Ms. Neuwerth reported that the Glen Canyon Dam Adaptive Management Program Technical Work Group (TWG) met via webinar on May 1st. The group discussed the Fiscal Year 2020 budget, as well the next triennial budget and work plan, which will cover Fiscal Years 2021-2023.

Ms. Neuwerth reported that, following approval by the Department of the Interior in late April, invertebrate production flows or "bug flows" began at Glen Canyon Dam on May 1st. These low steady weekend flows will continue through August 31st and are intended to improve the aquatic foodbase below Glen Canyon Dam. Ms. Neuwerth noted that initial results from the bug flows conducted in the summer of 2018 indicate an increase in the diversity and distribution of aquatic insects.

Ms. Neuwerth also noted that the Adaptive Management Work Group (AMWG) would meet via webinar on May 22nd, followed by a TWG meeting on June 11-12 in Phoenix, Arizona.

Status of the Lower Colorado River Multi-Species Conservation Program

Ms. Neuwerth reported that the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) held a dedication ceremony in mid-April for the new Dennis Underwood Conservation Area. The 600 acre conservation area is located at the southern end of the Palo Verde Valley and will provide several types of native habitat.

Ms. Neuwerth reported that the LCR MSCP Steering Committee met April 24th in Las Vegas. The group approved the expenditure of funds originally budgeted for FY18 to be spent in FY19, to accommodate for a delay in the acquisition of the Dennis Underwood property easement. Ms. Neuwerth also noted that the Steering Committee acted to authorize the Bureau of Reclamation to begin preliminary consultations with the U.S. Fish and Wildlife Service regarding the possibility of amending the LCR MSCP to increase program coverage for changes in flow along the Colorado River.

Ms. Neuwerth noted that the LCR MSCP provides environmental coverage for changes in flow resulting from transfers and other changes in point of diversion. Currently, the program allows for 845,000 acre-feet of change-in-flow between Hoover and Davis Dams, 860,000 acre-feet of change-in-flow between Davis and Parker Dams, and 1.574 million acre-feet of change-in-flow between Parker and Imperial Dams. Ms. Neuwerth noted that this covers many actions, including the QSA transfers and the creation of ICS and delivery reductions in the 2007 Guidelines. Ms. Neuwerth reported that the group is exploring the option of increasing program coverage so that the entire river from Hoover Dam to Imperial Dam will have coverage for up to 1.574 million

acre-feet of change in flow. This increase in coverage is currently estimated to require minor additional habitat creation and program funding.

Chairman Nelson noted that this increase in program coverage could be of interest to the LADWP pumped storage project proponents. Mr. Harris noted that this marked the beginning of a process that will include robust stakeholder outreach to the LCR MSCP California participating agencies.

Ms. Neuwerth also reported that the work group for the LCR MSCP met in San Diego on May 8-9 to discuss program accomplishments in FY18 and the FY20 budget and work plan. Program managers reported that approximately 6,000 acres of habitat have been created through FY18, making up three-quarters of the program's 8,132 acre obligation. Ms. Neuwerth reported that the group also believes that with current and proposed conservation areas, the program will be able to meet its overall acreage obligation.

ANNOUNCEMENTS

Mr. Harris reported that on May 10th, Governor Newsom announced several new appointments to the Natural Resources Agency. Ms. Angela Barranco was appointed Undersecretary of the California Natural Resources Agency and Mr. Thomas Gibson was appointed Deputy Secretary and Special Counsel for Water.

Mr. Harris reported that the House Speaker and Senate Minority Leader met with the administration to discuss next steps on potential infrastructure legislation, anticipated to cost about $2 trillion and unlikely to focus on water infrastructure.

Finally, Mr. Harris noted that the next meeting of the Colorado River Board would be June 12th and would be held in Ontario, California.

ADJOURNMENT

With no further items to be brought before the Board, Chairman Nelson adjourned the meeting at 11:35 a.m.

Colorado River Board of California

COLORADO RIVER BOARD OF CALIFORNIA

Fiscal-Year 2018/2019 Accomplishments Report

Fiscal-Year 2019/2020 Planned Activities Report

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The Natural Resources Agency · State of California · Gavin Newsom, Governor

INTRODUCTION

The purpose of this document is to provide a very brief overview and description of the major activities and programs that the staff of the Colorado River Board of California (CRB) was involved in on behalf of the CRB in Fiscal-Year 2018/2019. Additionally, a brief description of planned activities for the upcoming Fiscal-Year 2019/2020 is provided.

FISCAL-YEAR 2018/2019 ACCOMPLISHMENTS FOR THE CRB

In Fiscal-Year 2018/2019 (FY-18/19) the CRB participated in the following major programs and activities:

- Provided 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 the Desalination Work Group;
- Provided California representation with other California agencies, federal agencies, and other Basin States in completion of the Colorado River Basin Drought Contingency Plans (DCP); and represented California and the agencies in reconciling the proposed operational aspects of the U.S. Lower Basin DCP and the Mexican binational water scarcity contingency plan contained within Section IV of Minute No. 323;
- 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 $16,000 in FY-18/19 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;
- 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 ongoing weather modification activities in Colorado, Utah, and Wyoming under a newly executed Basin States programmatic funding agreement;
- Participated in the 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-18/19 contributions totaled approximately $30,000;
- Provided California representation on the Colorado River Climate and Hydrology Workgroup related to development of the State of the Science Report and various climate and hydrology research & modeling projects; and
- In conjunction with the Departments of General Services and Water Resources, successfully negotiated and entered into new leasing agreement for headquarters location; successfully completed and submitted year-end financial statements for FY-17/18 to the State Controller's Office; successfully completed procurement services audit with Department of General Services; successfully complied with the State Agency Buy Recycled Campaign Annual Report and purchasing requirements administered by the Department of Resources Recycling and Recovery; filled vacant Principal Engineer position, retained the services of the part-time retired annuitant to perform Office Technician duties, and received authorization to add and fill full-time Office Technician position in the Administrative Unit.

FISCAL-YEAR 2019/2020 PLANNED ACTIVITIES FOR THE CRB

In FY-19/20, the staff of the CRB anticipate 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; 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-19/20;
- 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;
- Continue participation in the Basin States cost-sharing of 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, review of the State of

the Science Report and ongoing development of proposed climate and hydrology research projects; and

- Initiate development of a process for effective participation related to the renegotiation of the Colorado River Interim Guidelines slated to begin at the end of 2020.

COLORADO RIVER BOARD OF CALIFORNIA
FY 2019-20 BUDGET
6/12/2019

	Current Year Authorized FY-2018/19	Anticipated Expenditures FY-2018/19	Proposed Budget FY-2019/20
Colorado River Board Total Budget	$ 2,222,000	$ 2,222,000	$ 2,308,000

3460 Colorado River Board of California

The Colorado River Board protects California's rights and interests in the water and power resources of the Colorado River system. The Board works with: Colorado River Basin states (Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming), federal agencies, other state agencies, six local agencies (Palo Verde Irrigation District, Imperial Irrigation District, Coachella Valley Water District, Metropolitan Water District of Southern California, San Diego County Water Authority, Los Angeles Department of Water and Power), Congress, the courts, and Mexico. Its activities include analyses of engineering, legal and economic matters concerning the Colorado River resources of the seven basin states and the 1944 United States-Mexico Water Treaty obligation to deliver Colorado River water to Mexico.

3-YEAR EXPENDITURES AND POSITIONS

		Positions			Expenditures		
		2017-18	2018-19	2019-20	2017-18*	2018-19*	2019-20*
2410	Protection of California's Colorado River Rights and Interests	11.0	10.0	10.0	$1,761	$2,308	$2,308
TOTALS, POSITIONS AND EXPENDITURES (All Programs)		**11.0**	**10.0**	**10.0**	**$1,761**	**$2,308**	**$2,308**

FUNDING		2017-18*	2018-19*	2019-20*
0995	Reimbursements	$1,761	$2,308	$2,308
TOTALS, EXPENDITURES, ALL FUNDS		**$1,761**	**$2,308**	**$2,308**

LEGAL CITATIONS AND AUTHORITY

DEPARTMENT AUTHORITY

California Water Code, Division 6, Part 5, Sections 12500-12553.

DETAILED BUDGET ADJUSTMENTS

	2018-19*			2019-20*		
	General Fund	Other Funds	Positions	General Fund	Other Funds	Positions
Workload Budget Adjustments						
Other Workload Budget Adjustments						
• Other Post-Employment Benefit Adjustments	$-	$9	-	$-	$9	-
• Salary Adjustments	-	48	-	-	48	-
• Benefit Adjustments	-	18	-	-	18	-
• Retirement Rate Adjustments	-	11	-	-	11	-
Totals, Other Workload Budget Adjustments	**$-**	**$86**	**-**	**$-**	**$86**	**-**
Totals, Workload Budget Adjustments	**$-**	**$86**	**-**	**$-**	**$86**	**-**
Totals, Budget Adjustments	**$-**	**$86**	**-**	**$-**	**$86**	**-**

DETAILED EXPENDITURES BY PROGRAM

		2017-18*	2018-19*	2019-20*
	PROGRAM REQUIREMENTS			
2410	**PROTECTION OF CALIFORNIA'S COLORADO RIVER RIGHTS AND INTERESTS**			
	State Operations:			
0995	Reimbursements	1,761	2,308	2,308
	Totals, State Operations	**$1,761**	**$2,308**	**$2,308**
	TOTALS, EXPENDITURES			
	State Operations	1,761	2,308	2,308
	Totals, Expenditures	**$1,761**	**$2,308**	**$2,308**

*** Dollars in thousands, except in Salary Range. Numbers may not add or match to other statements due to rounding of budget details.**

3460 Colorado River Board of California - Continued

EXPENDITURES BY CATEGORY

1 State Operations	Positions			Expenditures		
	2017-18	2018-19	2019-20	2017-18*	2018-19*	2019-20*
PERSONAL SERVICES						
Baseline Positions	9.0	10.0	10.0	$927	$957	$957
Other Adjustments	2.0	-	-	-33	48	48
Net Totals, Salaries and Wages	**11.0**	**10.0**	**10.0**	**$894**	**$1,005**	**$1,005**
Staff Benefits	-	-	-	411	585	585
Totals, Personal Services	**11.0**	**10.0**	**10.0**	**$1,305**	**$1,590**	**$1,590**
OPERATING EXPENSES AND EQUIPMENT				$456	$718	$718
TOTALS, POSITIONS AND EXPENDITURES, ALL FUNDS (State Operations)				**$1,761**	**$2,308**	**$2,308**

DETAIL OF APPROPRIATIONS AND ADJUSTMENTS

1 STATE OPERATIONS	2017-18*	2018-19*	2019-20*
0995 Reimbursements			
APPROPRIATIONS			
Reimbursements	$1,761	$2,308	$2,308
TOTALS, EXPENDITURES	**$1,761**	**$2,308**	**$2,308**
Total Expenditures, All Funds, (State Operations)	**$1,761**	**$2,308**	**$2,308**

CHANGES IN AUTHORIZED POSITIONS

	Positions			Expenditures		
	2017-18	2018-19	2019-20	2017-18*	2018-19*	2019-20*
Baseline Positions	9.0	10.0	10.0	$927	$957	$957
Salary and Other Adjustments	2.0	-	-	-33	48	48
Totals, Adjustments	**2.0**	**-**	**-**	**$-33**	**$48**	**$48**
TOTALS, SALARIES AND WAGES	**11.0**	**10.0**	**10.0**	**$894**	**$1,005**	**$1,005**

*** Dollars in thousands, except in Salary Range. Numbers may not add or match to other statements due to rounding of budget details.**

6/3/2019

LOWER COLORADO WATER SUPPLY REPORT

River Operations

Bureau of Reclamation

Questions: BCOOWaterops@usbr.gov
(702)293-8373
http://www.usbr.gov/lc/region/g4000/weekly.pdf

CURRENT STORAGE	PERCENT FULL	Content 1000 ac-ft (kaf)	Elev. (Feet above mean sea level)	7-Day Release (CFS)
LAKE POWELL	43%	10,421	3,585.53	11,400
* LAKE MEAD	40%	10,550	1,086.42	16,000
LAKE MOHAVE	94%	1,704	643.20	14,900
LAKE HAVASU	94%	582	448.09	11,400
TOTAL SYSTEM CONTENTS **	48%	28,702		
As of 6/2/2019				
SYSTEM CONTENT LAST YEAR	51%	30,619		

* 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	80%	1,833		
Painted Rock Dam	0%	0	530.00	0
Alamo Dam	14%	143	1,120.30	25

Forecasted Water Use for Calendar Year 2019 (as of 6/3/2019) (values in kaf)

NEVADA	256	
SOUTHERN NEVADA WATER SYSTEM		222
OTHERS		34
CALIFORNIA	4,045	
METROPOLITAN WATER DISTRICT OF CALIFORNIA		626
IRRIGATION DISTRICTS		3,406
OTHERS		13
ARIZONA	2,513	
CENTRAL ARIZONA PROJECT		1,383
OTHERS		1,129
TOTAL LOWER BASIN USE		6,814
DELIVERY TO MEXICO - 2019 (Mexico Scheduled Delivery + Preliminary Yearly Excess [1])		1,522

OTHER SIGNIFICANT INFORMATION

UNREGULATED INFLOW INTO LAKE POWELL - MAY MID-MONTH FINAL FORECAST DATED 5/16/2019

	MILLION ACRE-FEET	% of Normal
FORECASTED WATER YEAR 2019	12.129	112%
FORECASTED APRIL-JULY 2019	9.204	129%
APRIL OBSERVED INFLOW	1.244	118%
MAY INFLOW FORECAST	2.500	107%

	Upper Colorado Basin	Salt/Verde Basin
WATER YEAR 2019 PRECIP TO DATE	126% (29.8")	128% (23.9")
CURRENT BASIN SNOWPACK[2]	484% (10.7")	NA% (NA)

[1] Delivery to Mexico forecasted yearly excess calculated using year-to-date observed and projected excess.

[2] Snowpack value may not provide a valid measure of conditions this late in the runoff season.

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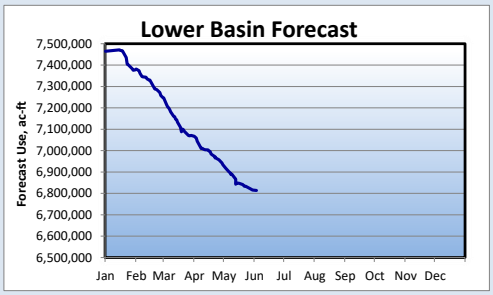
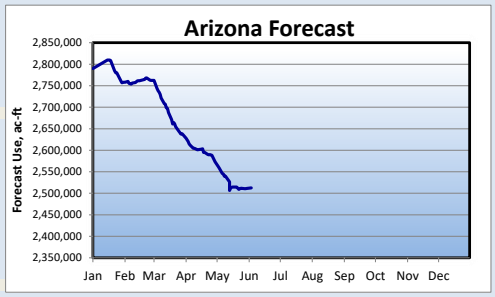
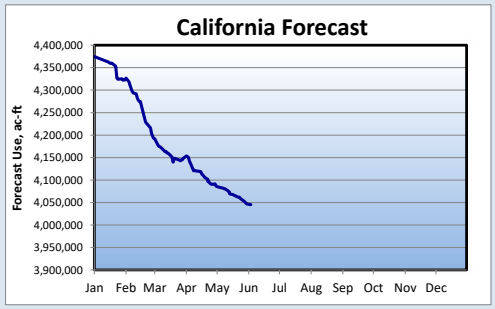
ARI□ONA, CALI□ORNIA, NEVADA, MEXICO
□ORECAST O□ END O□ YEAR CONSUMPTIVE USE
□ORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS [1]
(ACRE-□EET)

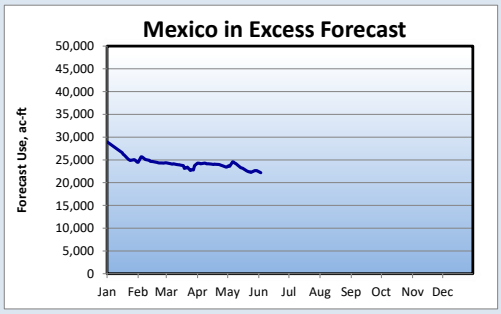
WATER USE SUMMARY	Use To Date CY2019	Forecast Use CY2019	Approved Use [2] CY2019	Excess to Approval CY2019
ARI□ONA	1,067,227	2,512,535	2,758,672	-246,137
CALI□ORNIA	1,574,003	4,045,291	4,374,692	-329,401
NEVADA	60,495	256,029	300,000	-43,971
STATES TOTAL [3]	2,701,725	6,813,855	7,433,364	-619,509
MEXICO IN SATIS□ACTION O□ TREATY (Including downward delivery)	743,765	1,522,185	1,500,000	**22,185**
TO MEXICO AS SCHEDULED	740,452	1,500,000		
MEXICO IN EXCESS O□ TREATY [4]	3,313	22,185		
BYPASS PURSUANT TO MINUTE 242 [5]	38,483	103,236		
TOTAL LOWER BASIN □ MEXICO	3,483,973	8,439,276		

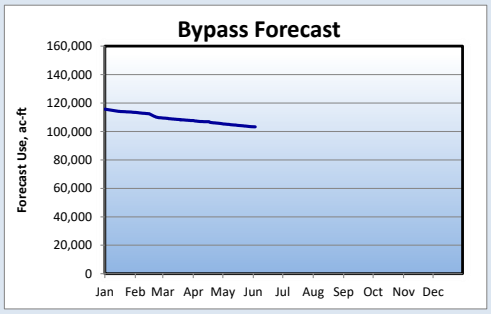
1□Incorporates 80 daily reporting stations which may be revised after provisional data reports are distributed by the USGS. Use to date estimated for users reporting monthly and annually.
2□These values reflect adjusted apportionments. See Adjusted Apportionment calculation on each state page.
3□Includes 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.
4□Mexico excess forecast is based on the 5-year average for the period 2013-2017.
5□Bypass forecast is based on the average for the period 1990-2017.

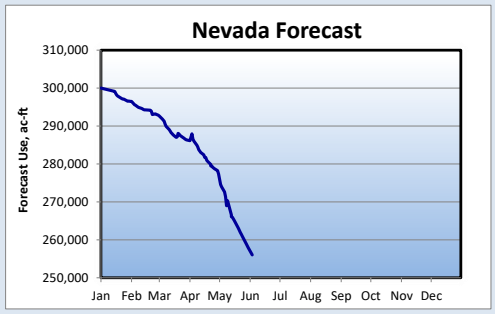


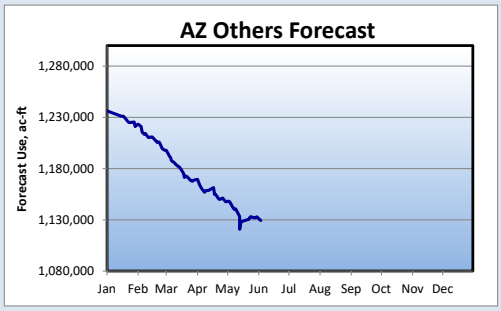


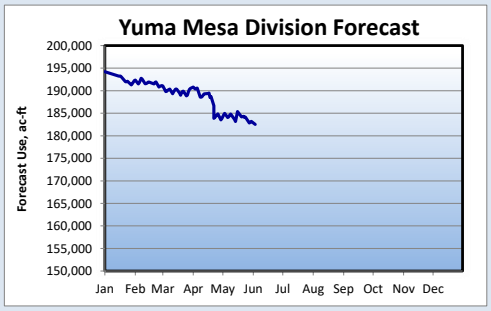


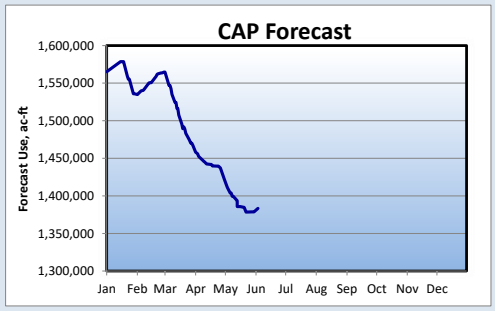


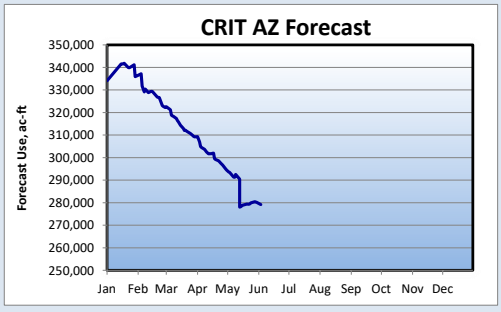


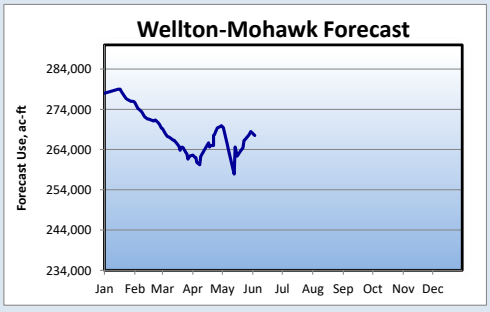


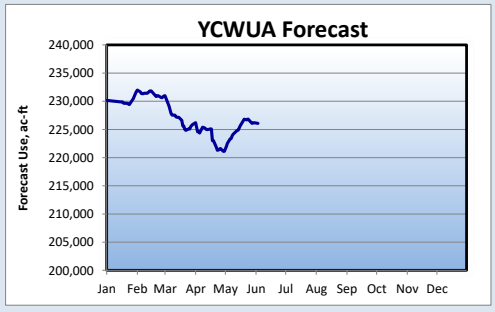












Graph notes: □an 1 forecast use is scheduled use in accordance with the Annual Operating Plan's state entitlements, available unused entitlements, and over-run paybacks. A downward sloping line indicates use at a lower rate than scheduled, upward sloping is above schedule, and a flat line indicates a use rate e□ual 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.

U.S. BUREAU OF RECLAMATION
LOWER COLORADO REGION
CY 2019

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)

WATER USER	Use To Date CY2019	Forecast Use CY2019	Estimated Use CY2019	Excess to Estimated Use CY2019	Diversion To Date CY2019	Forecast Diversion CY2019	Approved Diversion CY2019	Excess to Approved Diversion CY2019
ARIZONA PUMPERS	6,480	14,444	14,444	---	9,984	22,255	22,255	0
LAKE MEAD NRA, AZ - Diversions from Lake Mead	31	100	100	---	31	100	100	0
LAKE MEAD NRA, AZ - Diversions from Lake Mohave	69	188	188	---	69	188	188	0
DAVIS DAM PROJECT	1	2	2	---	9	20	20	0
BULLHEAD CITY	2,528	7,360	7,683	---	4,141	12,077	12,720	-643
MOHAVE WATER CONSERVATION DISTRICT	284	632	632	---	424	944	944	0
BROOKE WATER LLC	141	315	315	---	213	475	475	0
MOHAVE VALLEY IDD	6,269	19,454	21,464	---	11,610	36,023	39,746	-3,723
FORT MOJAVE INDIAN RESERVATION, AZ	11,983	38,551	44,550	---	22,190	71,390	82,500	-11,110
GOLDEN SHORES WATER CONSERVATION DISTRICT	120	268	268	---	180	402	402	0
HAVASU NATIONAL WILDLIFE REFUGE	1,316	3,235	3,563	---	10,963	33,486	41,820	-8,334
LAKE HAVASU CITY	2,958	8,575	8,928	---	4,772	13,832	14,400	-568
CENTRAL ARIZONA PROJECT	633,568	1,383,255		---	633,568	1,383,255		
TOWN OF PARKER	129	415	430	---	313	905	933	-28
COLORADO RIVER INDIAN RESERVATION, AZ	91,289	279,138	316,645	---	204,260	570,519	612,125	-41,606
EHRENBURG IMPROVEMENT ASSOCIATION	105	234	234	---	147	328	328	0
CIBOLA VALLEY [1]	7,026	15,661	15,661	---	9,821	21,891	21,891	0
CIBOLA NATIONAL WILDLIFE REFUGE	3,794	14,016	14,016	0	6,120	22,605	22,605	0
IMPERIAL NATIONAL WILDLIFE REFUGE	1,583	3,799	3,799	0	2,552	6,128	6,128	0
BLM PERMITEES (PARKER DAM to IMPERIAL DAM)	490	1,093	1,093		754	1,680	1,680	
CHA CHA, LLC	413	1,298	1,365	---	635	1,997	2,100	-103
BEATTIE FARMS	258	727	724	---	395	1,115	1,110	**5**
YUMA PROVING GROUND	140	462	479	---	140	462	479	-17
GILA MONSTER FARMS	2,302	4,871	5,254	---	3,929	8,364	9,156	-792
WELLTON-MOHAWK IDD	114,128	267,487	278,000	-10,513	154,656	381,319	412,965	-31,646
BLM PERMITEES (BELOW IMPERIAL DAM)	44	97	97	0	66	148	148	0
CITY OF YUMA	4,434	13,933	15,962	-2,029	8,478	24,429	26,700	-2,271
MARINE CORPS AIR STATION YUMA	463	1,286	1,359	---	463	1,286	1,359	-73
UNION PACIFIC RAILROAD	10	24	24	---	20	48	48	0
UNIVERSITY OF ARIZONA	307	902	888	---	307	902	888	**14**
YUMA UNION HIGH SCHOOL DISTRICT	44	141	151	---	60	189	200	-11
DESERT LAWN MEMORIAL	8	17	17	---	10	23	23	0
NORTH GILA VALLEY IRRRIGATION DISTRICT	4,432	11,172	12,141	---	16,718	41,591	44,200	-2,609
YUMA IRRIGATION DISTRICT	15,946	36,957	39,007	---	27,555	65,975	71,900	-5,925
YUMA MESA IDD	43,484	134,390	143,060	---	76,753	227,323	239,724	-12,401
UNIT B IRRIGATION DISTRICT	5,407	19,074	21,483	---	8,920	27,400	29,400	-2,000
FORT YUMA INDIAN RESERVATION	564	1,258	1,258	---	869	1,937	1,937	0
YUMA COUNTY WATER USERS' ASSOCIATION	103,902	226,065	230,166	---	148,303	347,236	360,400	-13,164
COCOPAH INDIAN RESERVATION	736	1,548	1,691	---	858	2,095	2,580	-485
RECLAMATION-YUMA AREA OFFICE	41	91	91	---	41	91	91	0
RETURN FROM SOUTH GILA WELLS								
TOTAL ARIZONA	1,067,227	2,512,535	2,758,664		1,371,297	3,332,433	3,638,100	
CAP	633,568	1,383,255				1,383,255		
ALL OTHERS	433,659	1,129,280	1,207,232			1,949,178	2,086,668	
YUMA MESA DIVISION, GILA PROJECT	63,862	182,519	171,610	10,909		334,889		

ARIZONA ADJUSTED APPORTIONMENT CALCULATION

Arizona Basic Apportionment	2,800,000
System Conservation Water - Pilot System Conservation Program [2]	-41,328
Total State Adjusted Apportionment	2,758,672
Excess to Total State Adjusted Apportionment	-246,137
Estimated Allowable Use for CAP	**1,629,081**

[1] Includes the following water users within the Cibola Valley: Cibola Valley IDD, Arizona Game and Fish Commission, GSC Farms, Red River Land Co., Western Water, and the Hopi Tribe.
[2] System Conservation Water to be conserved by Bullhead City, Fort McDowell Yavapai Nation, and the Colorado River Indian Tribes pursuant to System Conservation Implementation Agreements executed under the Pilot System Conservation Program. This water will remain in Lake Mead to benefit system storage.

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

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CY 2019

NOTE:
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CALI ORNIA WATER USERS
ORECAST O END O YEAR CONSUMPTIVE USE
ORECAST 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 CY2019	Forecast Use CY2019	Estimated Use CY2019	Excess to Estimated Use CY2019	Diversion To Date CY2019	Forecast Diversion CY2019	Approved Diversion CY2019	Excess to Approved Diversion CY2019
CALI ORNIA PUMPERS	818	1,824	1,824	---	1,480	3,300	3,300	0
ORT MO AVE INDIAN RESERVATION, CA	1,969	5,925	8,996	---	3,660	11,013	16,720	-5,707
CITY O NEEDLES (includes LCWSP use)	427	1,425	1,605	-180	728	2,133	2,261	-128
METROPOLITAN WATER DISTRICT	212,740	625,522	840,734	---	213,977	628,376	843,474	---
COLORADO RIVER INDIAN RESERVATION, CA	1,143	2,548	2,548	---	1,893	4,220	4,220	0
PALO VERDE IRRIGATION DISTRICT	138,635	397,391	422,468	---	305,797	831,130	856,000	-24,870
YUMA PRO ECT RESERVATION DIVISION	17,996	43,256	50,616	---	34,604	87,450	98,928	-11,478
YUMA PRO ECT RESERVATION DIVISION - INDIAN UNIT	---	---	---	---	17,585	40,578	46,128	-5,550
YUMA PRO ECT RESERVATION DIVISION - BARD UNIT	---	---	---	---	17,019	46,872	52,800	-5,928
YUMA ISLAND PUMPERS	1,199	2,673	2,673	---	2,168	4,833	4,833	0
ORT YUMA INDIAN RESERVATION - RANCH 5	235	523	523	---	424	945	945	0
IMPERIAL IRRIGATION DISTRICT	1,066,159	2,592,763	2,652,800	-60,037	1,063,917	2,660,063	2,755,109	---
SALTON SEA SALINITY MANAGEMENT	0	0	0	0	0	0	0	---
COACHELLA VALLEY WATER DISTRICT	132,203	370,373	388,837	-18,464	135,785	385,300	404,914	---
OTHER LCWSP CONTRACTORS	372	829	829	---	581	1,296	1,296	0
CITY O WINTERHAVEN	30	67	67	---	44	99	99	0
CHEMEHUEVI INDIAN RESERVATION	77	172	172	---	5,088	11,340	11,340	0

CALIFORNIA ADJUSTED APPORTIONMENT CALCULATION

California Basic Apportionment	4,400,000
System Conservation Water - Pilot System Conservation Program [1]	-308
Creation of Additional Conserved Water (IID) [2]	-25,000
Creation of Extraordinary Conservation ICS (MWD) [3]	-
Total State Adjusted Apportionment	4,374,692
Excess to Total State Adjusted Apportionment	-329,401

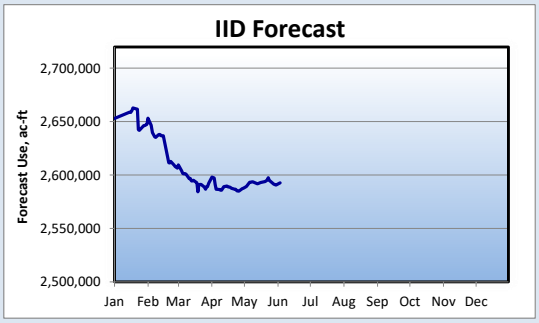
Estimated Allo able Use for MWD **954,923**

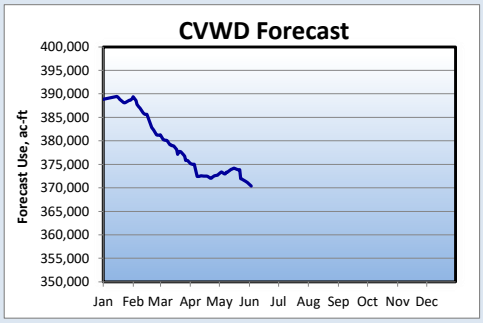
NOTES: Click on California Schedules and Approvals above for incoming diversion schedules and approvals.

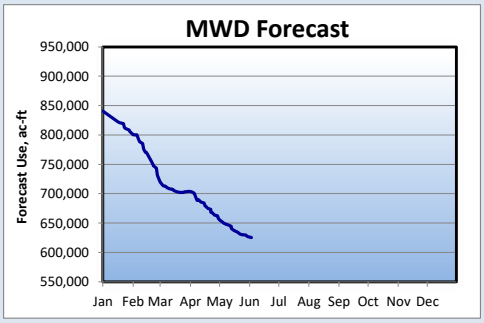
[1] System Consevation Water to be conserved by the City of Needles and the Coachella Valley Water District pursuant to System Conservation Implementation Agreements executed under the Pilot System Conservation Program. This water will remain in Lake Mead to benefit system storage.

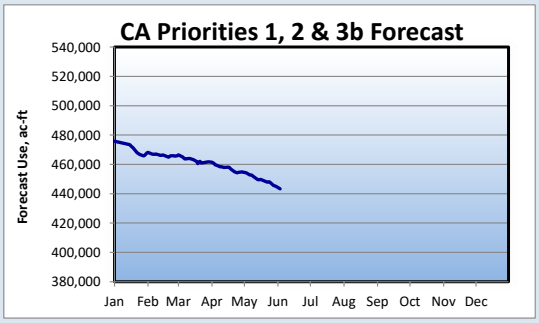
[2] IID's CY 2019 water order incorporates an Estimate of Additonal Conserved Water for purposes including, but not limited to, storage in The Metropolitan Water District of Southern California's system (with the written consent of MWD) or in Lake Mead as Intentionally Created Suprlus (ICS). As of the date of this forecast, approval of IID's CY 2019 ICS Plan of Creation (Plan) is pending. Use by IID of Additional Conserved Water to create ICS for storage in Lake Mead is conditional upon Reclamation's approval of IID's CY 2019 Plan.

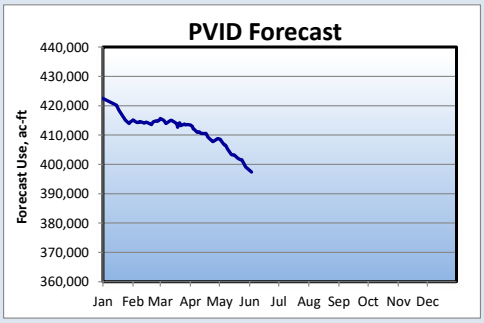
[3] MWD's CY 2019 water order incorporates the creation of up to 299,300 A of Extraordinary Conservation Intentionally Created Suprlus (ICS). As of the date of this forecast, approval of MWD's CY 2019 ICS Plan of Creation (Plan) is pending therefore the estimate of the amount of water available to MWD does not incorporate ICS creation by MWD. Upon approval of MWD's CY 2019 ICS Plan, Reclamation will revise MWD's water order approval accordingly.











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U.S. BUREAU OF RECLAMATION
LOWER COLORADO REGION
CY 2019

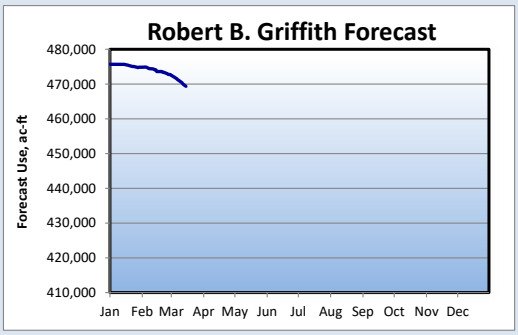
NOTE:
● Diversions and uses that are pending approval are noted in *red italics*.
● Water users with a consumptive use entitlement - **Excess to Estimated Use** column indicates overrun underrun of entitlement. Dash in this column indicates water user has a diversion entitlement.
● Water user with a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

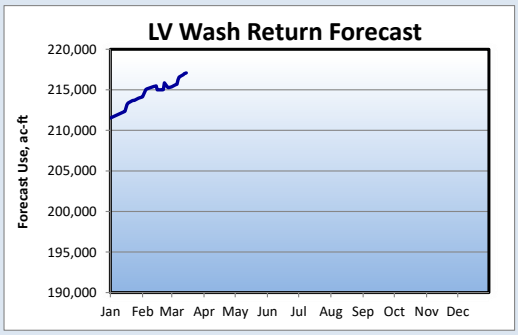
NEVADA WATER USERS
ORECAST O END O YEAR CONSUMPTIVE USE
ORECAST BASED ON USE TO DATE AND APPROVED ANNUAL WATER ORDERS
Nevada Schedules and Approvals
Historic Use Records (Water Accounting Reports)

WATER USER	Use To Date CY2019	Forecast Use CY2019	Estimated Use CY2019	Excess to Estimated Use CY2019	Diversion To Date CY2019	Forecast Diversion CY2019	Approved Diversion CY2019	Excess to Approved Diversion CY2019
ROBERT B. GRI ITH WATER PRO ECT (SNWS)	152,391	447,234	475,686	-28,452	152,391	447,234	475,686	-28,452
LA E MEAD NRA, NV - Diversions from Lake Mead	291	1,261	1,500	---	291	1,261	1,500	-239
LA E MEAD NRA, NV - Diversions from Lake Mohave	117	439	500	---	117	439	500	-61
BASIC MANAGEMENT INC.	2,163	7,468	8,208	---	2,163	7,468	8,208	-740
CITY O HENDERSON (BMI DELIVERY)	6,763	16,590	15,878	---	6,763	16,590	15,878	**712**
NEVADA DEPARTMENT O WILDLI E	5	12	12	0	329	866	1,000	---
PACI IC COAST BUILDING PRODUCTS INC.	397	932	928	---	397	932	928	**4**
BOULDER CANYON PRO ECT	78	173	173	---	135	300	300	0
BIG BEND WATER DISTRICT	1,044	4,148	4,619	---	2,471	8,738	10,000	-1,262
ORT MO AVE INDIAN TRIBE	898	3,208	4,020	---	1,340	4,787	6,000	-1,213
LAS VEGAS WASH RETURN LOWS	-103,652	-225,436	-211,524	---				
TOTAL NEVADA	60,495	256,029	300,000	-28,452	166,397	488,615	520,000	-31,251
SOUTHERN NEVADA WATER SYSTEM (SNWS)	48,739	221,798				447,234		
ALL OTHERS	11,756	34,231				41,381		
NEVADA USES ABOVE HOOVER	58,553	248,673				475,090		
NEVADA USES BELOW HOOVER	1,942	7,356				13,525		

Tributary Conservation Imported Intentionally Created Surplus	
Total Re uested Tributary Conservation Intentionally Created Surplus	42,000
Total Re uested Imported Conservation Intentionally Created Surplus	0
5 System Assessment for Creation of Intentionally Created Surplus	-2,100
Total Intentionally Created Surplus Left in Lake Mead	39,900

NEVADA ADJUSTED APPORTIONMENT CALCULATION	
Nevada Basic Apportionment	300,000
Excess to Total State Adjusted Apportionment	-43,971



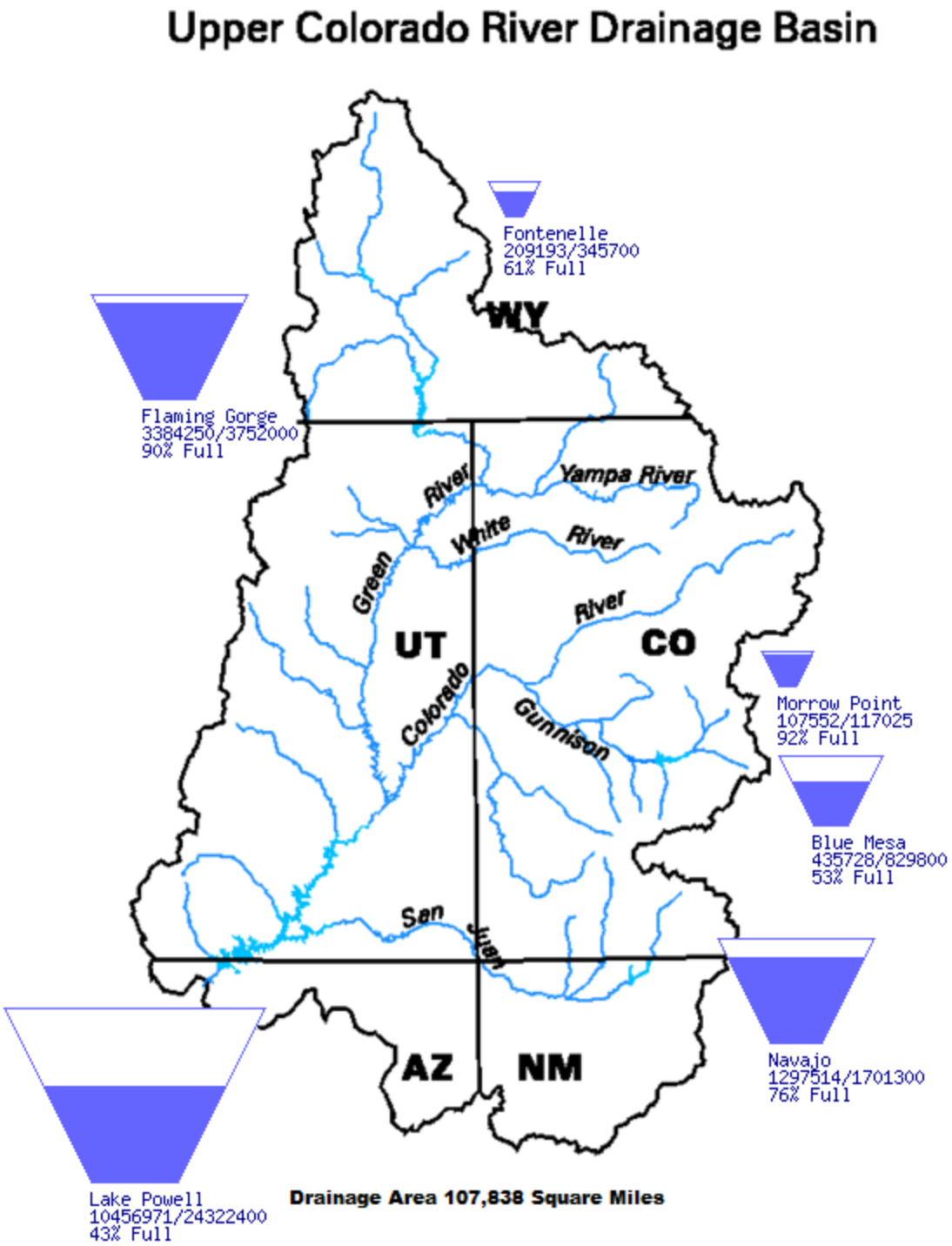


NOTES: Click on Nevada Schedules and Approvals above for incoming diversion schedules and approvals.

Upper Colorado Region Water Resources Group

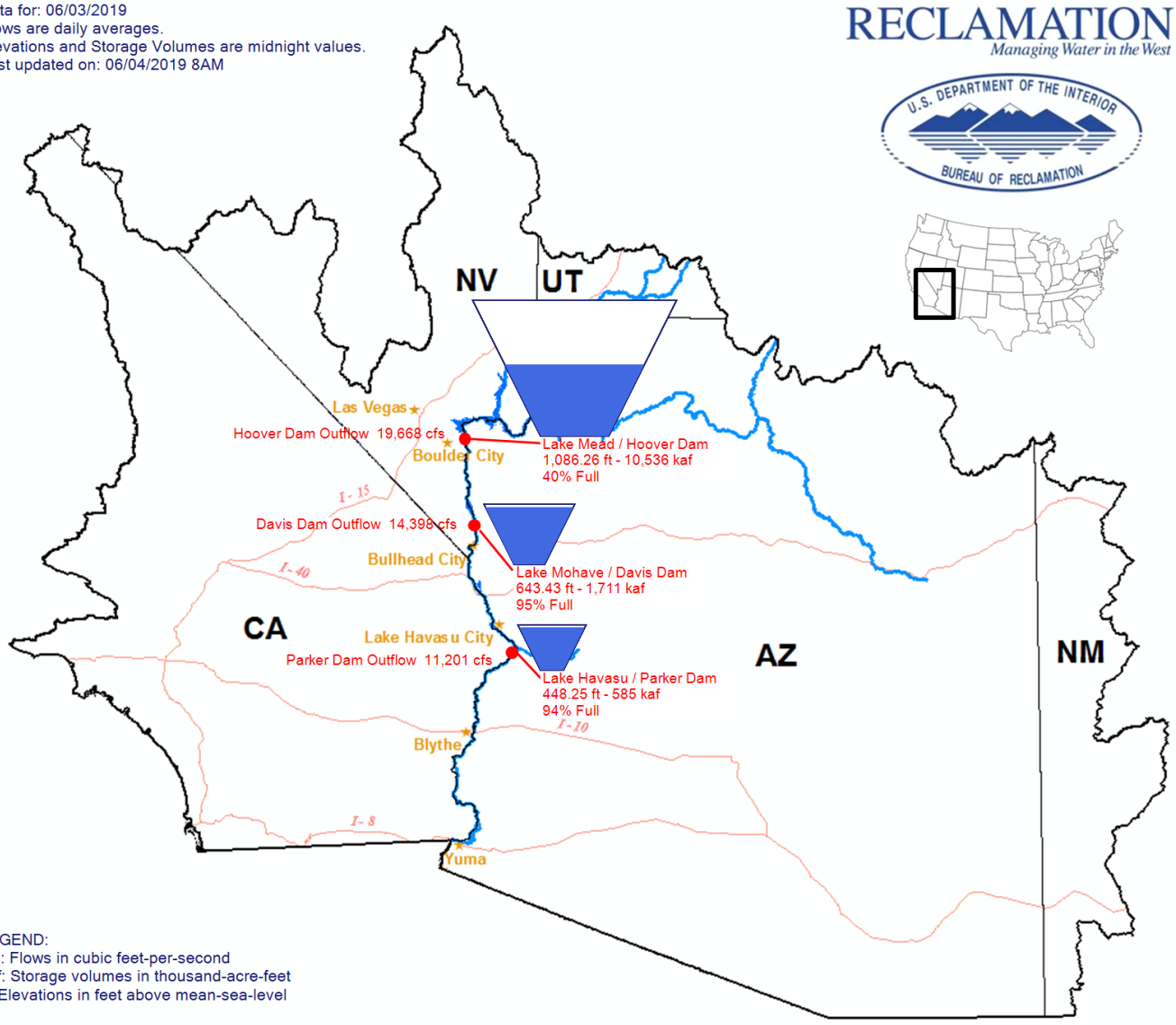
River Basin Tea-Cup Diagrams

Data Current as of:
06/03/2019



Lower Colorado River Teacup Diagram

Data for: 06/03/2019
Flows are daily averages.
Elevations and Storage Volumes are midnight values.
Last updated on: 06/04/2019 8AM

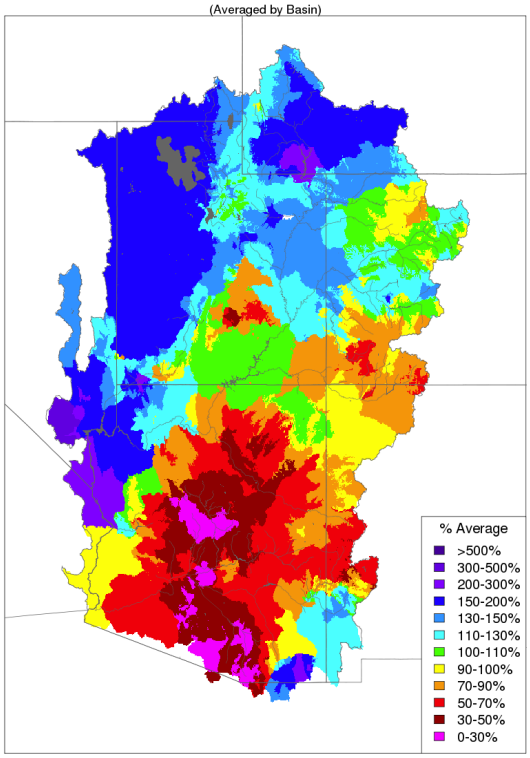


LEGEND:
cfs: Flows in cubic feet-per-second
kaf: Storage volumes in thousand-acre-feet
ft: Elevations in feet above mean-sea-level

NOAA National Weather Service Monthly Precipitation Map April and May 2019

Monthly Precipitation - April 2019

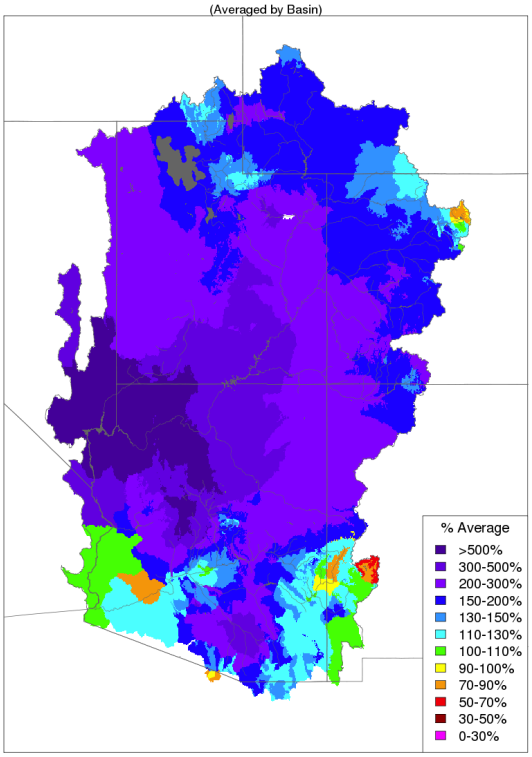
(Averaged by Basin)



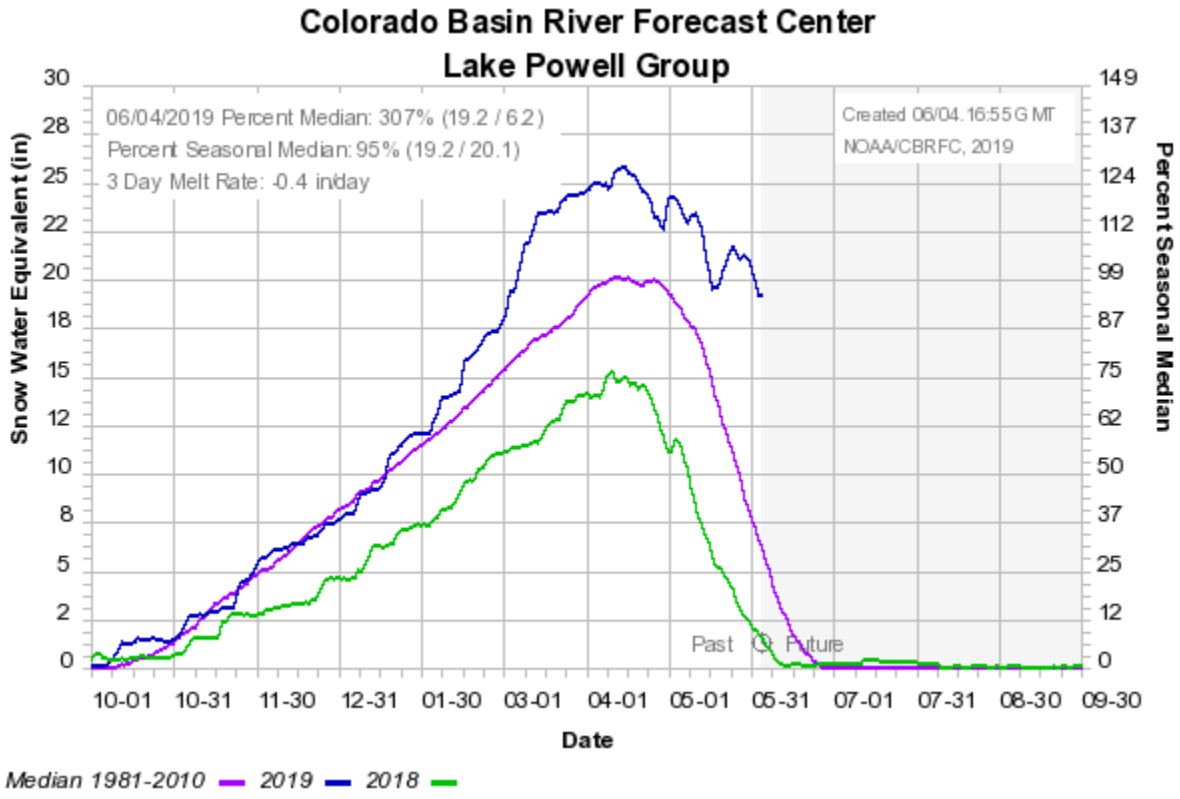
Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

Monthly Precipitation - May 2019

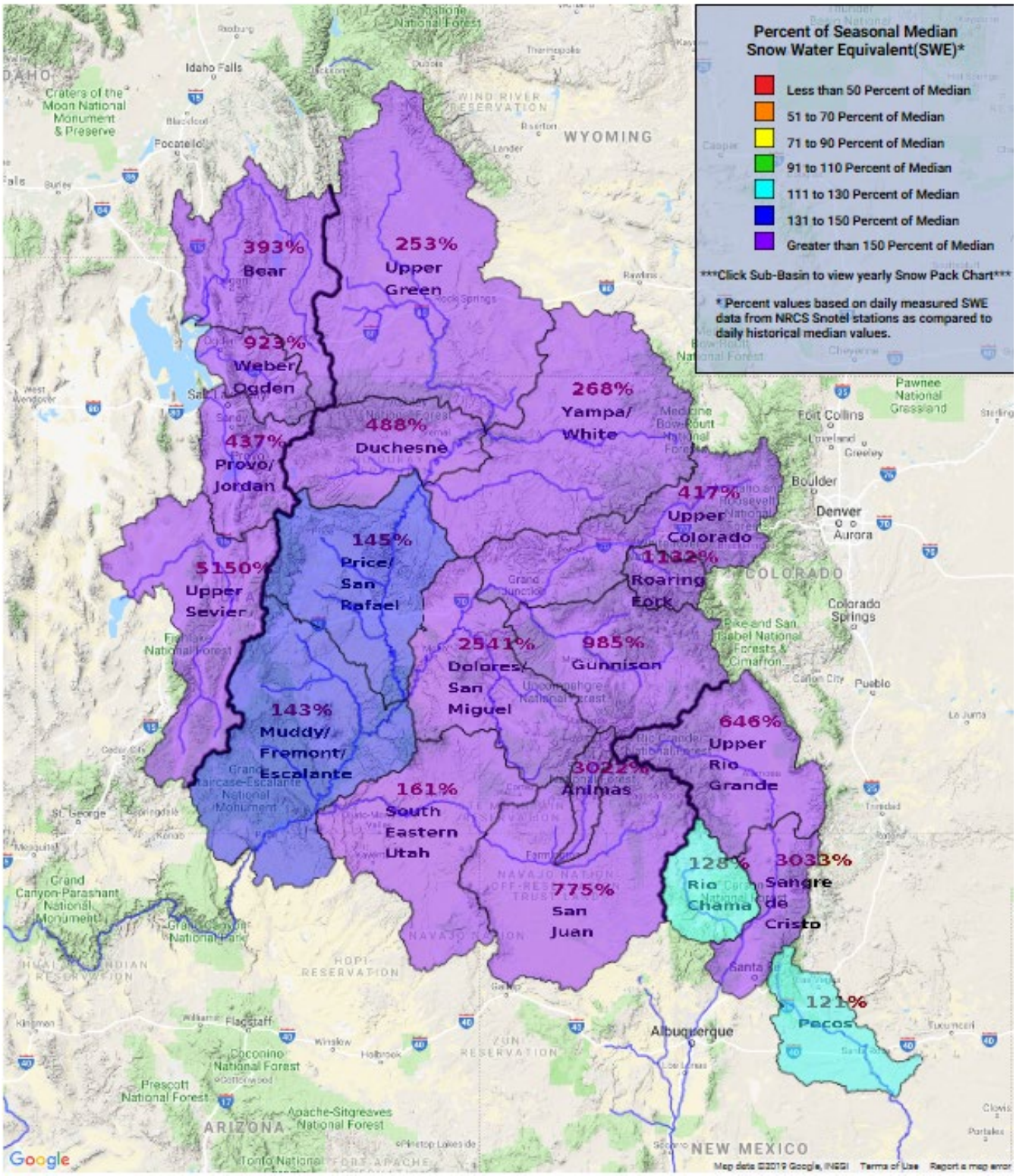
(Averaged by Basin)



Prepared by NOAA, Colorado Basin River Forecast Center
Salt Lake City, Utah, www.cbrfc.noaa.gov

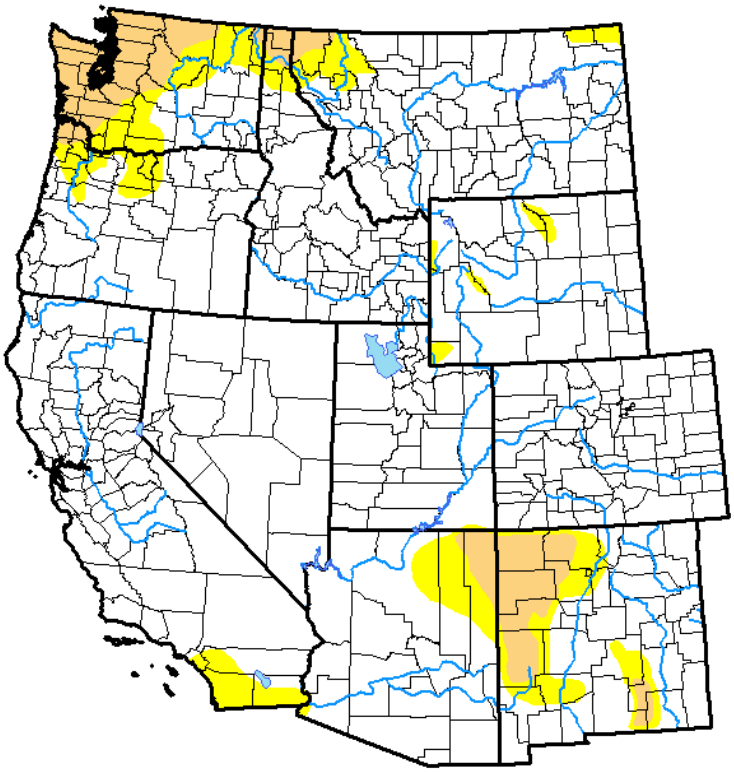

Colorado Basin River Forecast Center
Lake Powell Group
06/04/2019 Percent Median: 307% (19.2 / 6.2)
Percent Seasonal Median: 95% (19.2 / 20.1)
3 Day Melt Rate: -0.4 in/day
Created 06/04.16:55 G MT
NOAA/CBRFC, 2019
Past
Future
Snow Water Equivalent (in)
Percent Seasonal Median
Date
10-01
10-31
11-30
12-31
01-30
03-01
04-01
05-01
05-31
07-01
07-31
08-30
09-30
Median 1981-2010
2019
2018

Snow Pack Conditions Map
Upper Colorado Region



USDA United States Drought Monitor Map

U.S. Drought Monitor
West



May 28, 2019
(Released Thursday, May. 30, 2019)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	87.15	12.85	5.41	0.00	0.00	0.00
Last Week *05-21-2019*	86.58	13.42	5.07	0.00	0.00	0.00
3 Months Ago *02-26-2019*	47.01	52.99	26.50	9.76	1.40	0.09
Start of Calendar Year *01-01-2019*	28.03	71.97	53.25	27.22	8.35	2.88
Start of Water Year *09-25-2018*	13.91	86.09	59.57	39.68	18.15	4.36
One Year Ago *05-29-2018*	39.22	60.78	44.05	31.50	18.83	4.35

Intensity:

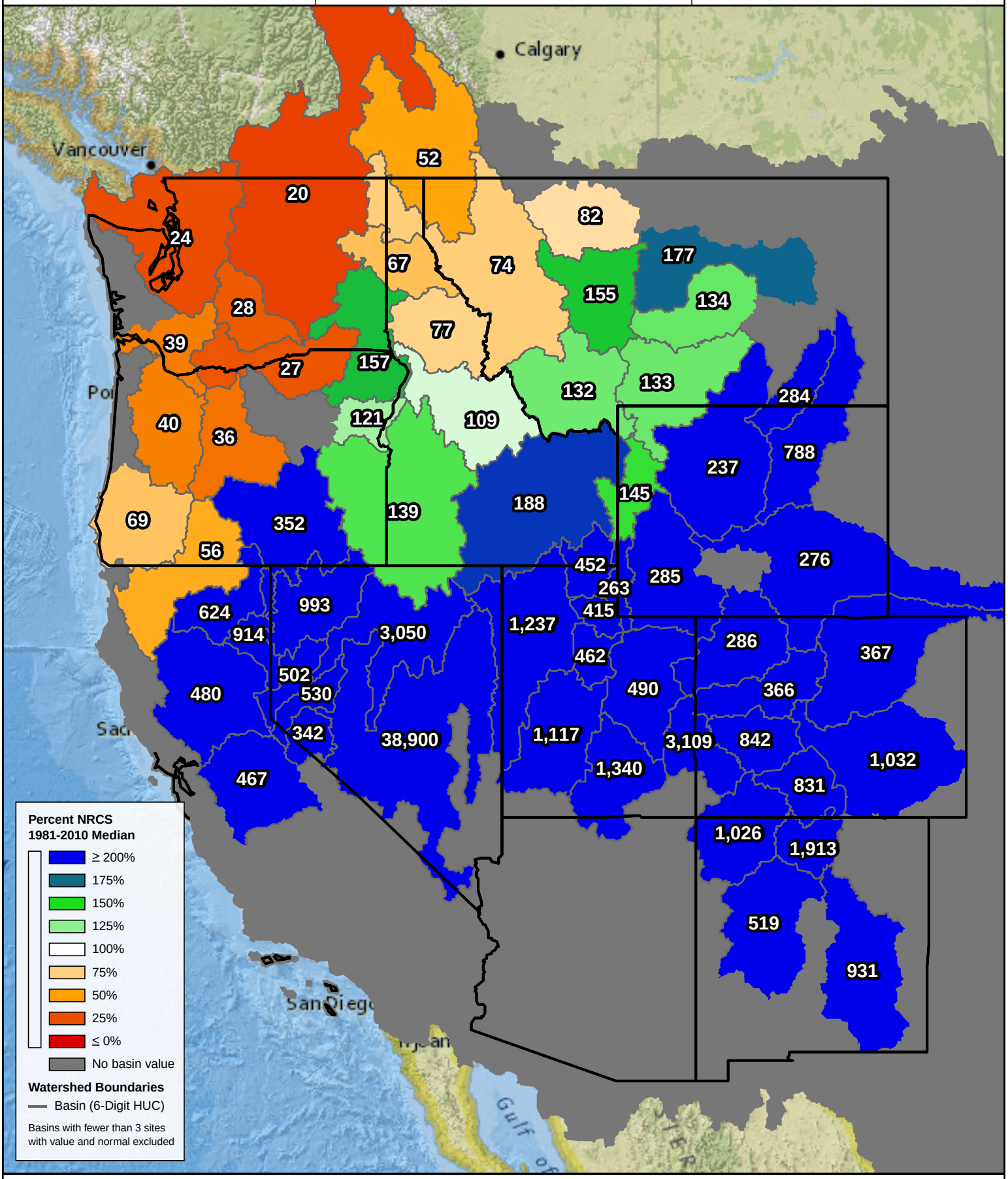
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Richard Heim
NCEI/NOAA

http://droughtmonitor.unl.edu/

Snow Water Equivalent	Percent NRCS 1981-2010 Median	June 1st, 2019



USDA Natural Resources Conservation Service
United States Department of Agriculture

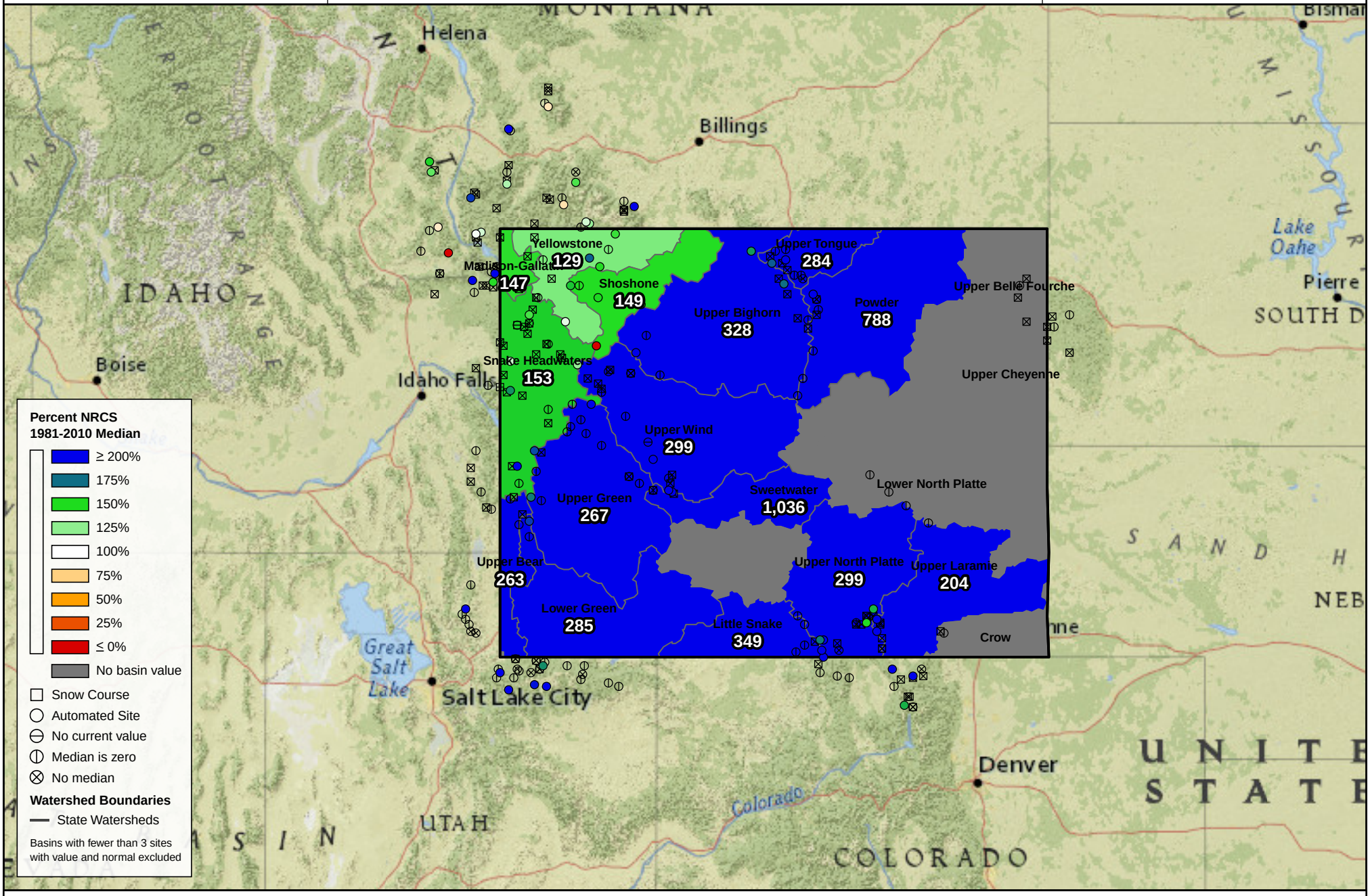
Created 6-06-2019

Snow Water Equivalent

SWE Percent_June_1st_2019_Wyoming

Percent NRCS 1981-2010 Median

June 1st, 2019



USDA Natural Resources Conservation Service
United States Department of Agriculture

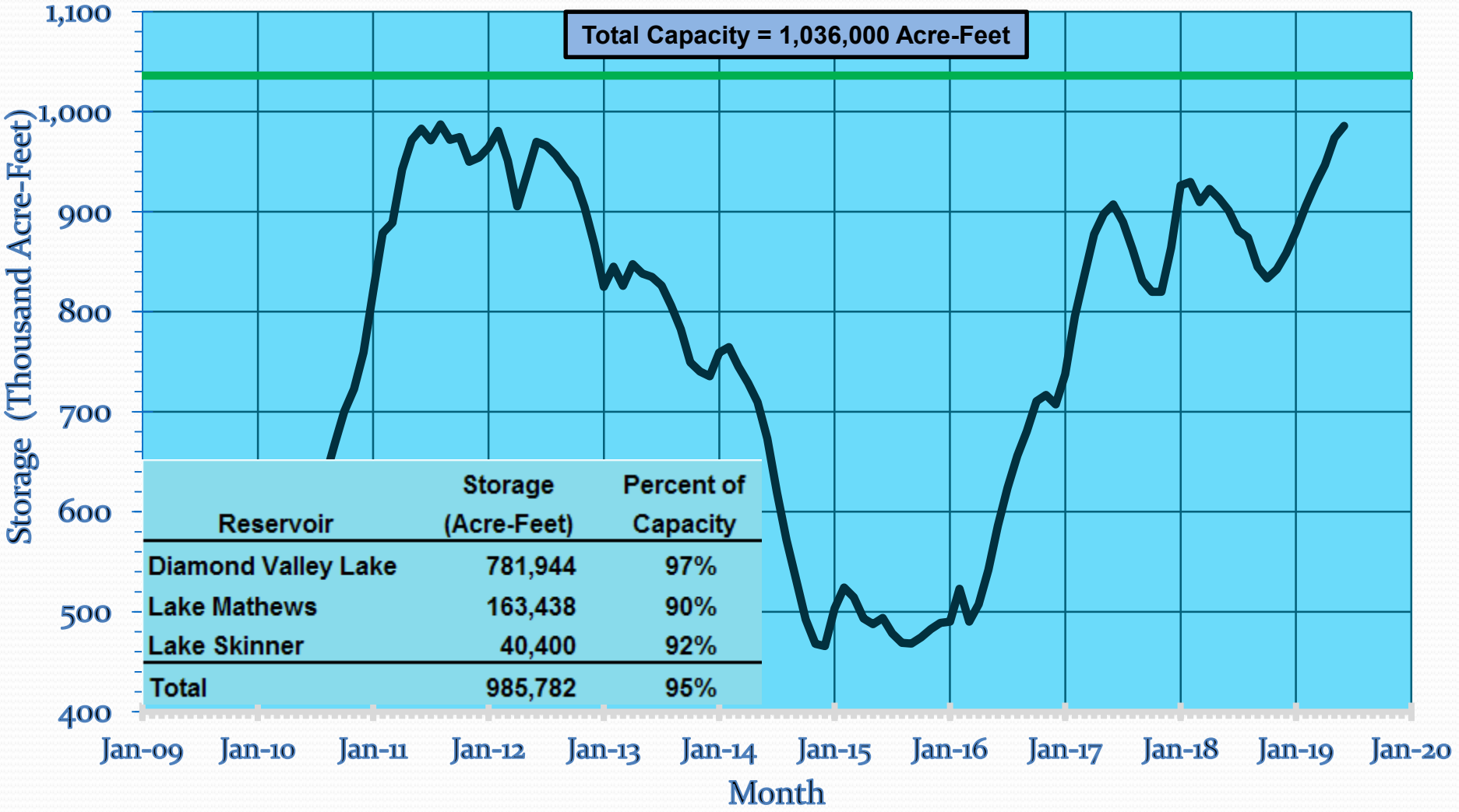
N

0 20 40 80 120 160 200 Miles

Created 6-04-2019

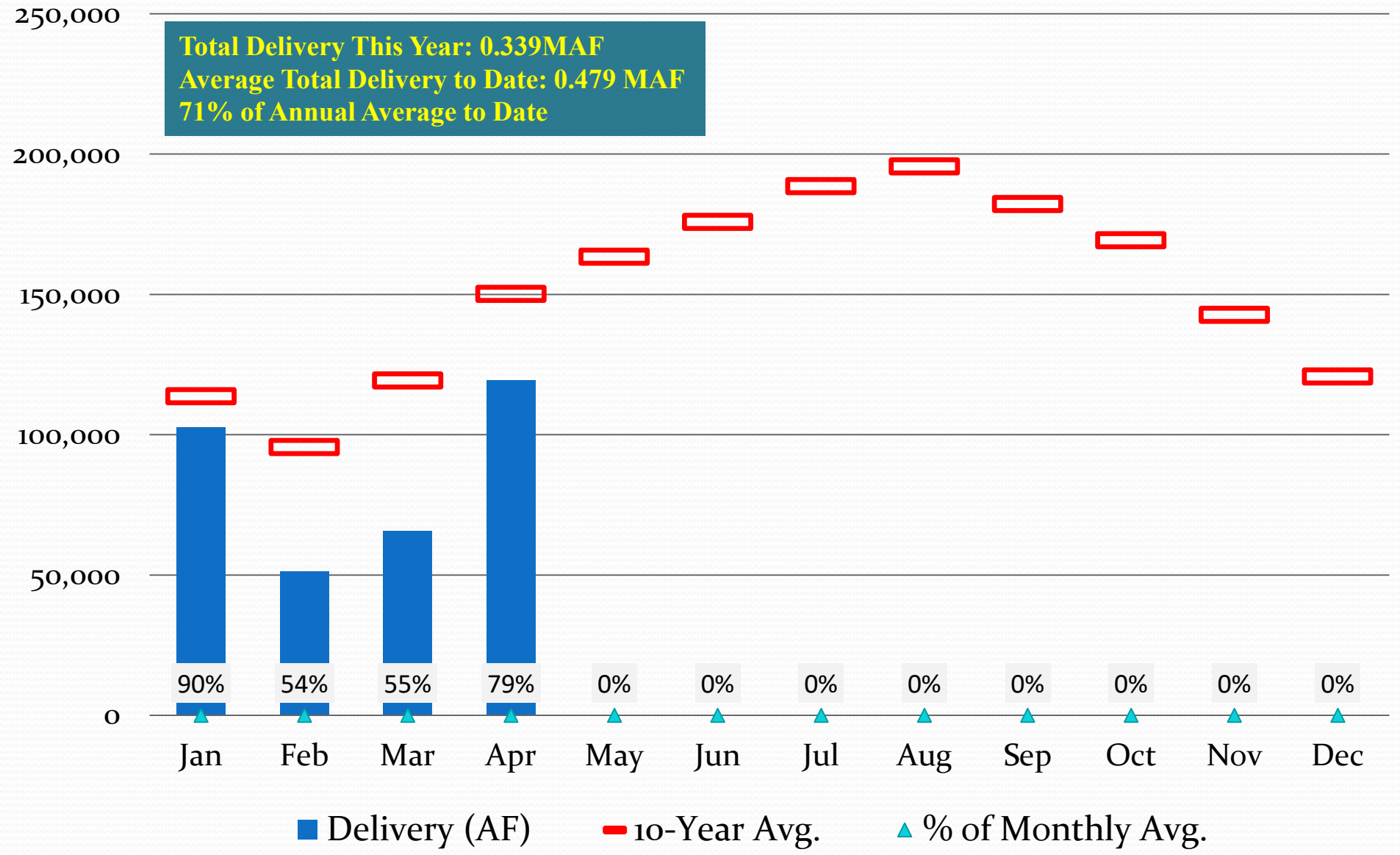
MWD's Combined Reservoir Storage as of June 1, 2019

Lake Skinner, Lake Mathews, and Diamond Valley Lake

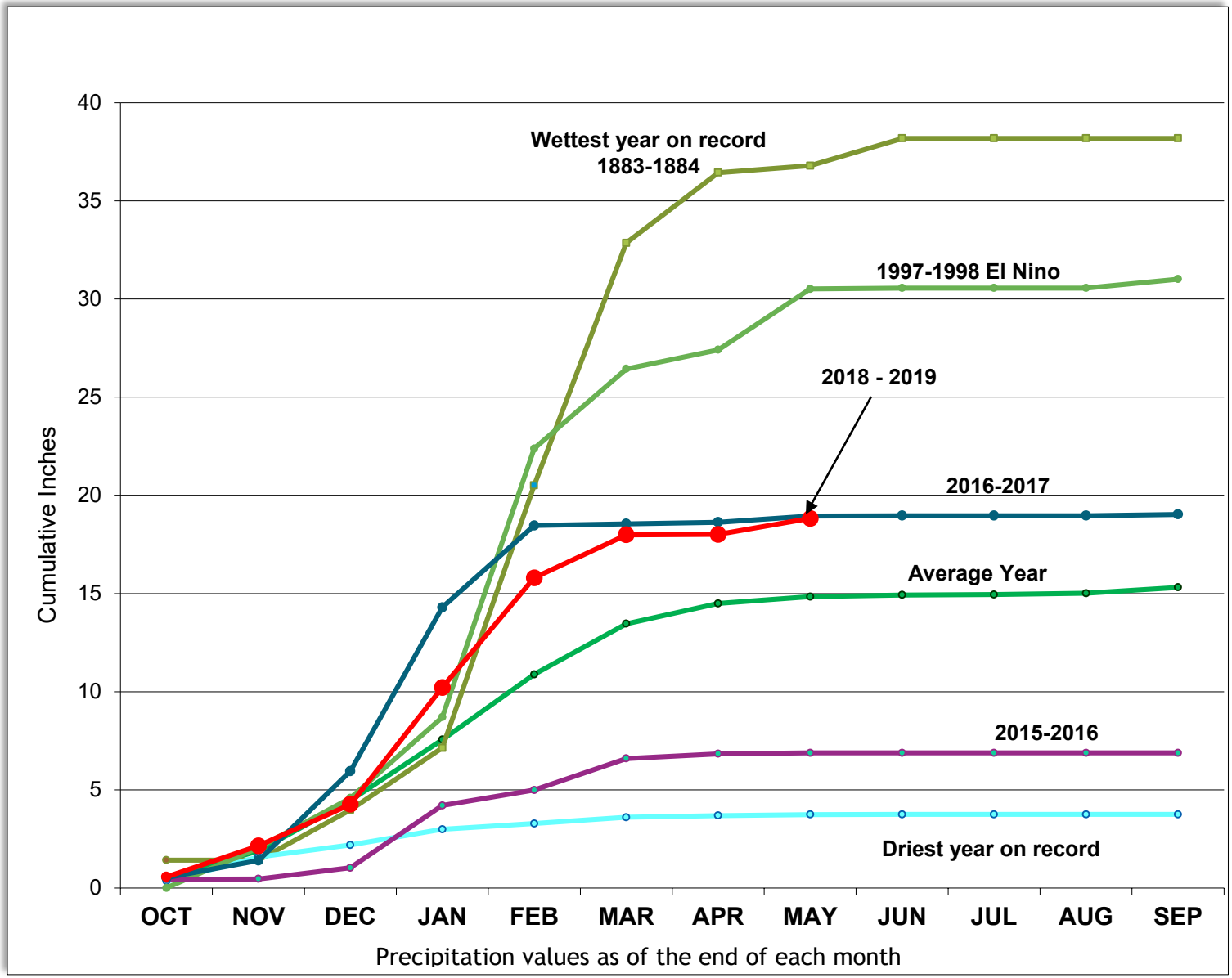


Reservoir	Storage (Acre-Feet)	Percent of Capacity
Diamond Valley Lake	781,944	97%
Lake Mathews	163,438	90%
Lake Skinner	40,400	92%
Total	985,782	95%

2019 Water Deliveries to Agencies (AF)



Los Angeles Civic Center Precipitation

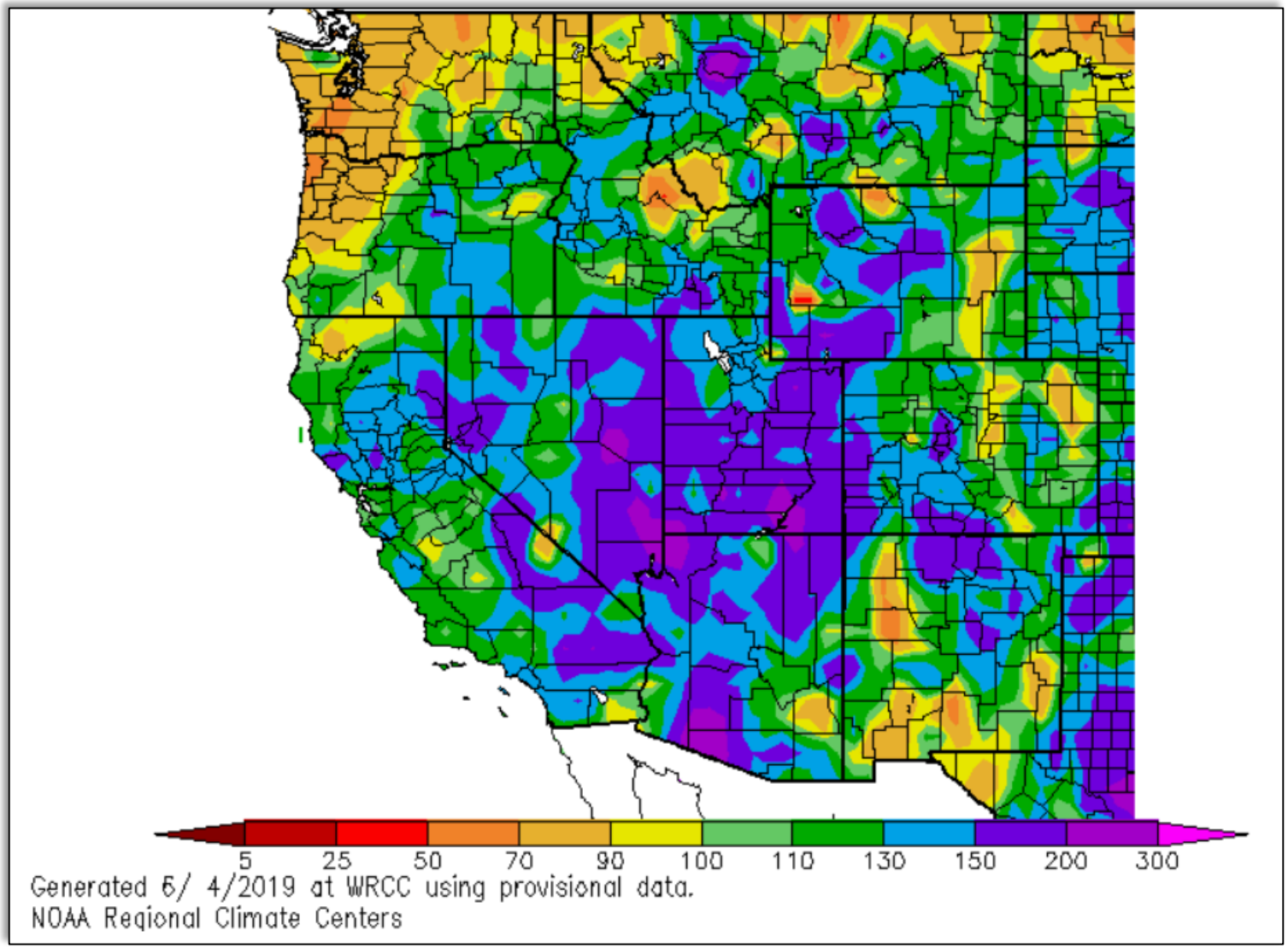


Precipitation at Six Major Stations in Southern California

From October 1, 2018 to May 31, 2019

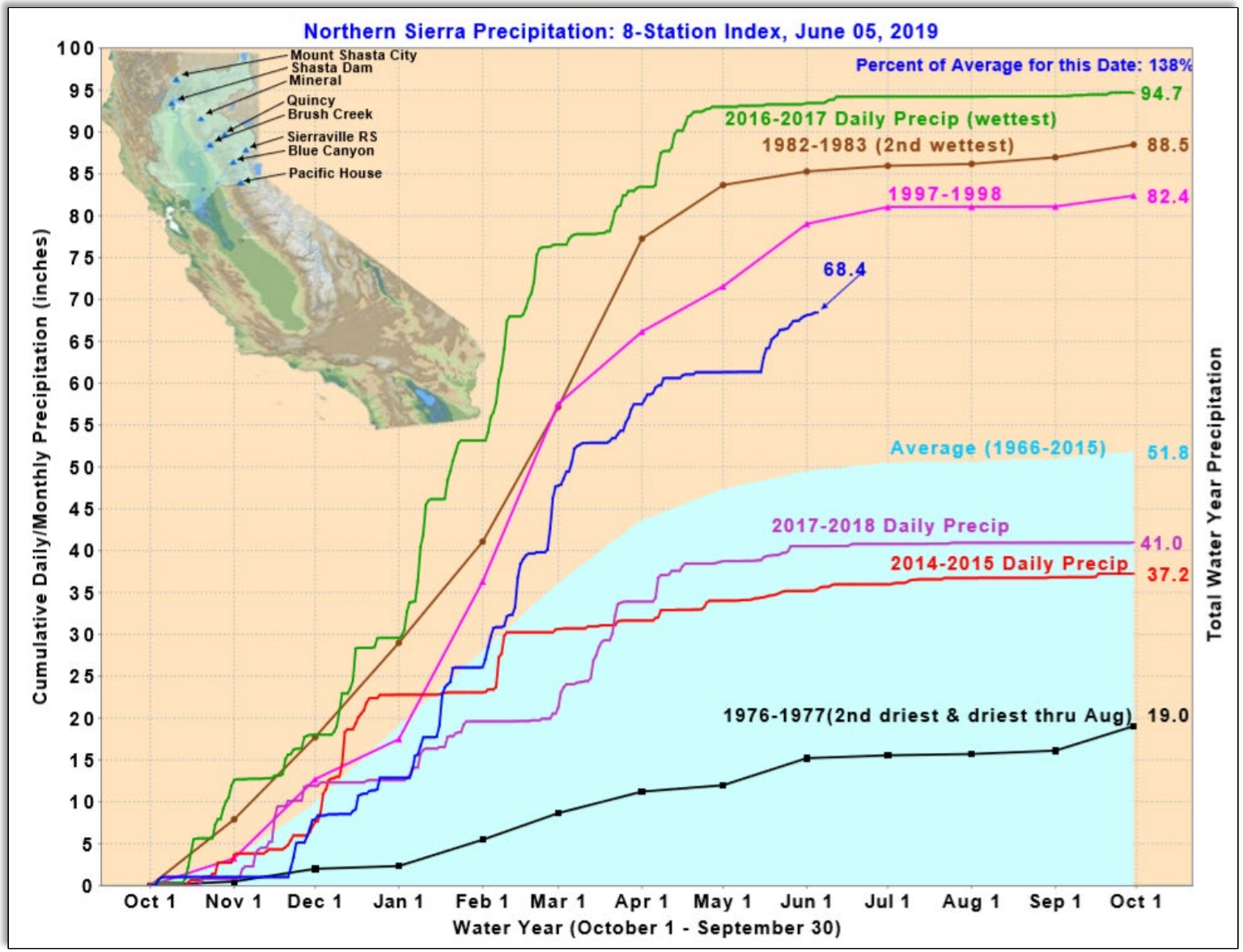
Station	Precipitation in inches		Average to Date	Percent of Average
	May	Oct 1 to May 31		
San Luis Obispo	1.80	17.50	22.00	80%
Santa Barbara	1.88	20.31	17.44	116%
Los Angeles	0.81	18.82	14.84	127%
San Diego	0.48	8.49	9.85	86%
Blythe	0.00	2.27	2.57	88%
Imperial	0.01	1.69	2.18	78%

Percent of Average Precipitation (%)
10/01/2018 - 06/04/2019



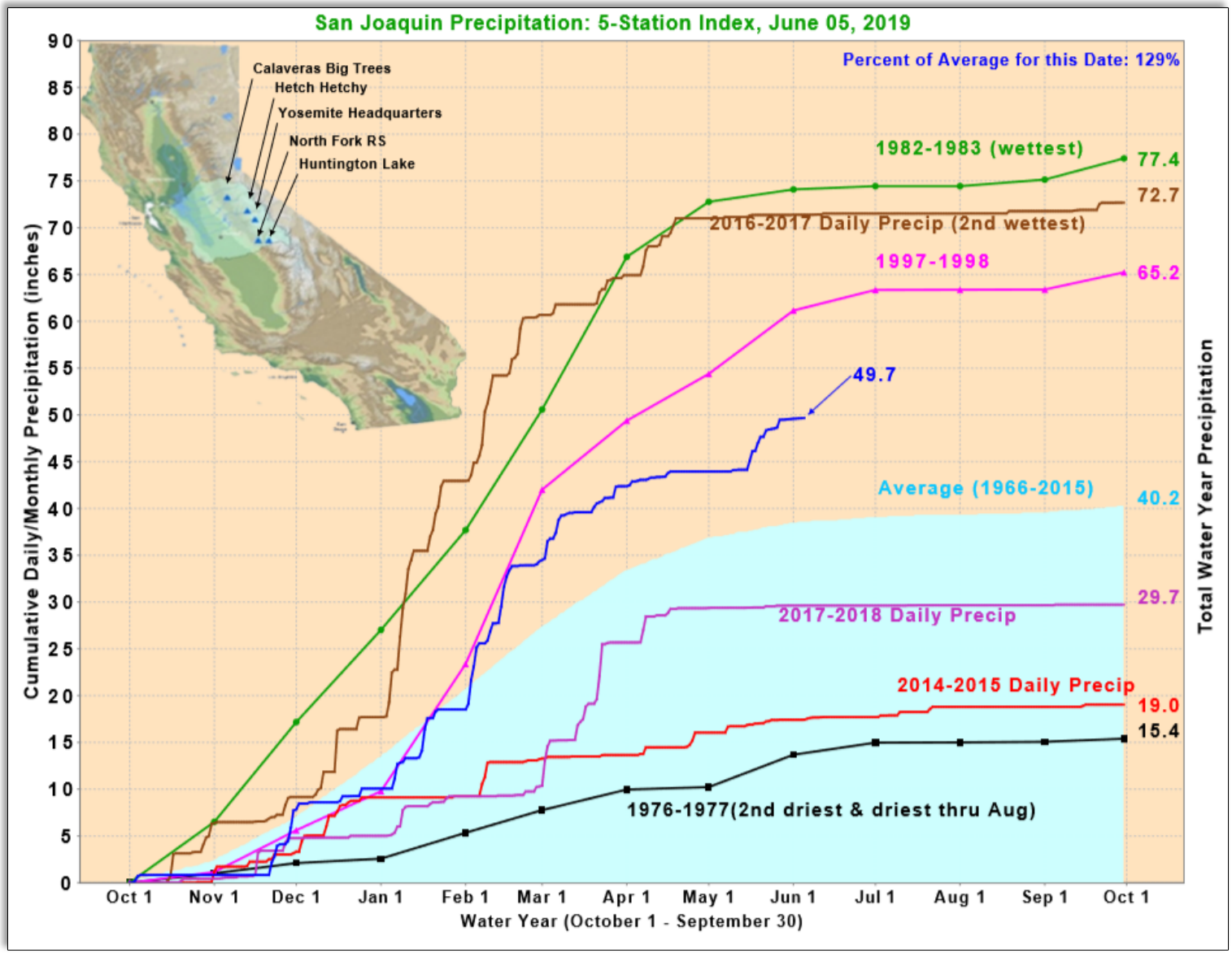
Western Regional Climate Center
http://www.wrcc.dri.edu/cgi-bin/anomimage.pl?wrcOctPpct.gif

Northern Sierra Precipitation: 8 Station Index



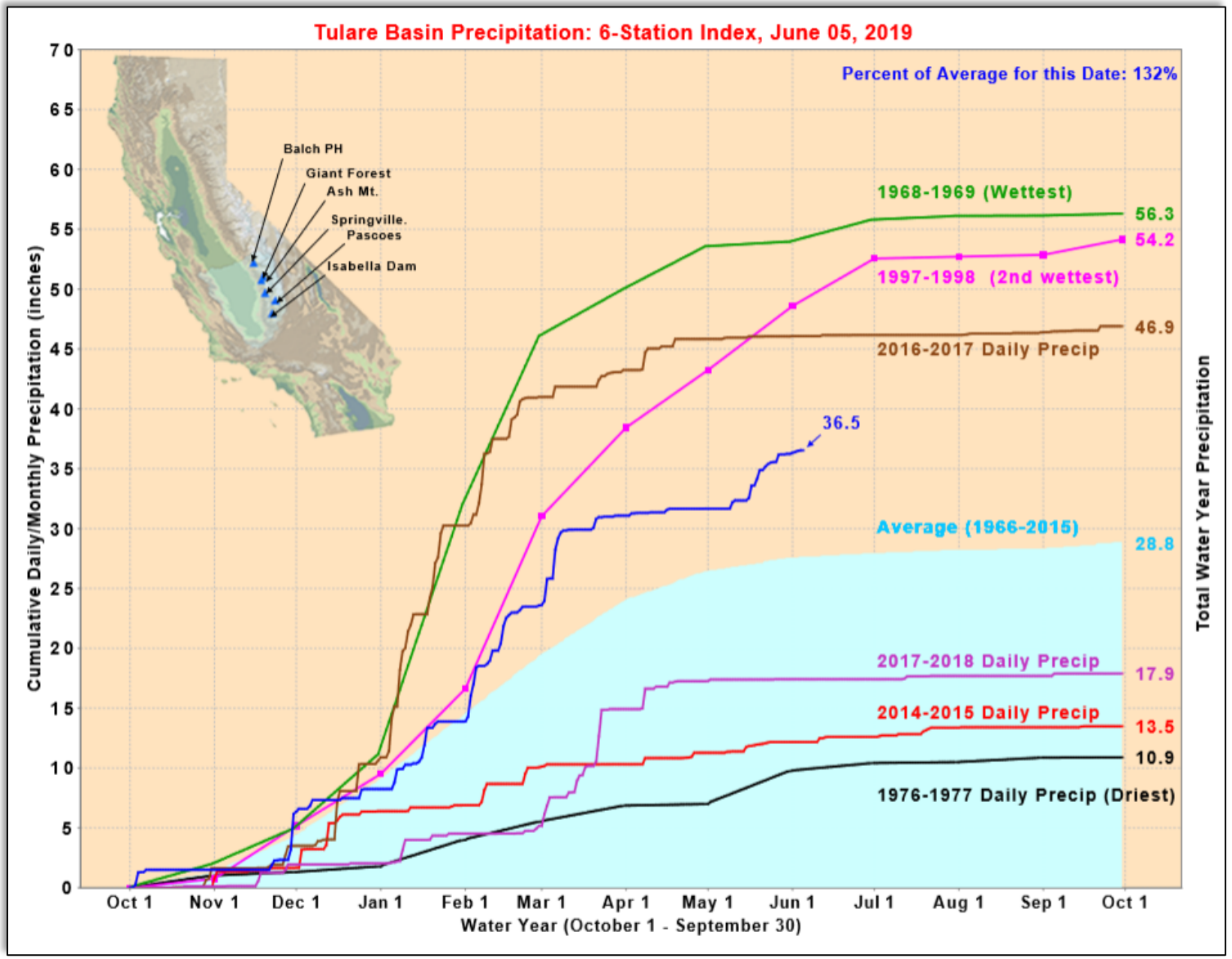
California Data Exchange Center
http://cdec.water.ca.gov/cgi-progs/products/PLOT_ESI.pdf

San Joaquin Precipitation: 5 Station Index



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

Tulare Basin Precipitation: 6 Station Index



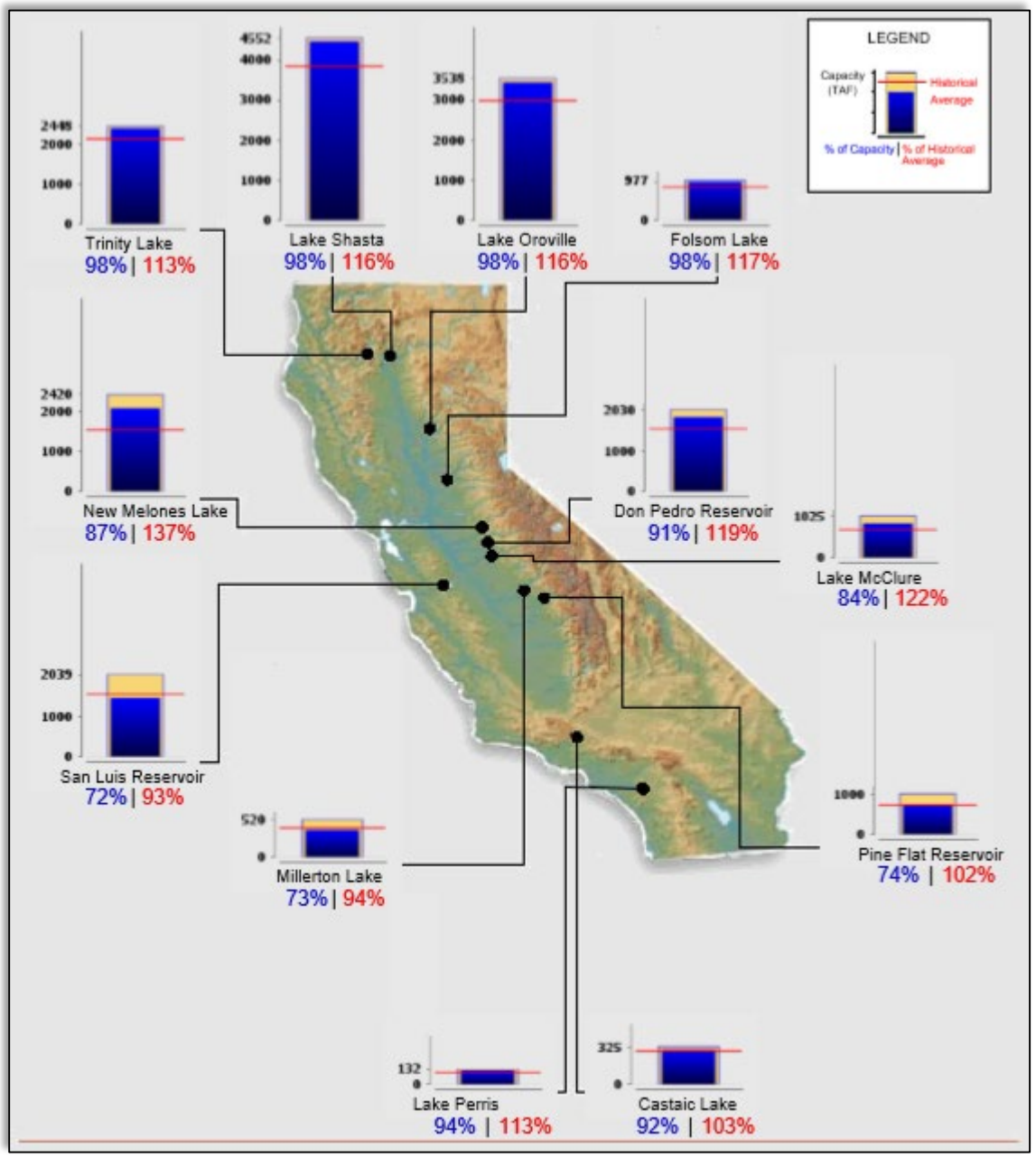
California Data Exchange Center
http://cdec.water.ca.gov/cgi-progs/products/PLOT_TSI.pdf

Comparison of SWP Water Storage

Reservoir	Capacity	2018 Storage (acre-feet) As of Jun 1	2018 Storage (acre-feet) % of Cap.	2019 Storage (acre-feet) As of Jun 1	2019 Storage (acre-feet) % of Cap.
Frenchman	55,475	55,951	101%	56,476	102%
Lake Davis	84,371	81,147	96%	81,029	96%
Antelope	22,564	22,760	101%	23,361	104%
Oroville	3,553,405	2,407,583	68%	3,458,716	97%
TOTAL North	3,715,815	2,567,441	69%	3,619,582	97%
Del Valle	39,914	39,921	100%	37,711	94%
San Luis	2,027,835	1,516,408	75%	1,445,033	71%
Pyramid	169,901	164,839	97%	162,847	96%
Castaic	319,247	289,509	91%	300,492	94%
Silverwood	74,970	69,379	93%	70,884	95%
Perris	126,841	59,049	47%	121,745	96%
TOTAL South	2,758,708	2,139,105	78%	2,138,712	78%
TOTAL SWP	6,474,523	4,706,546	73%	5,758,294	89%

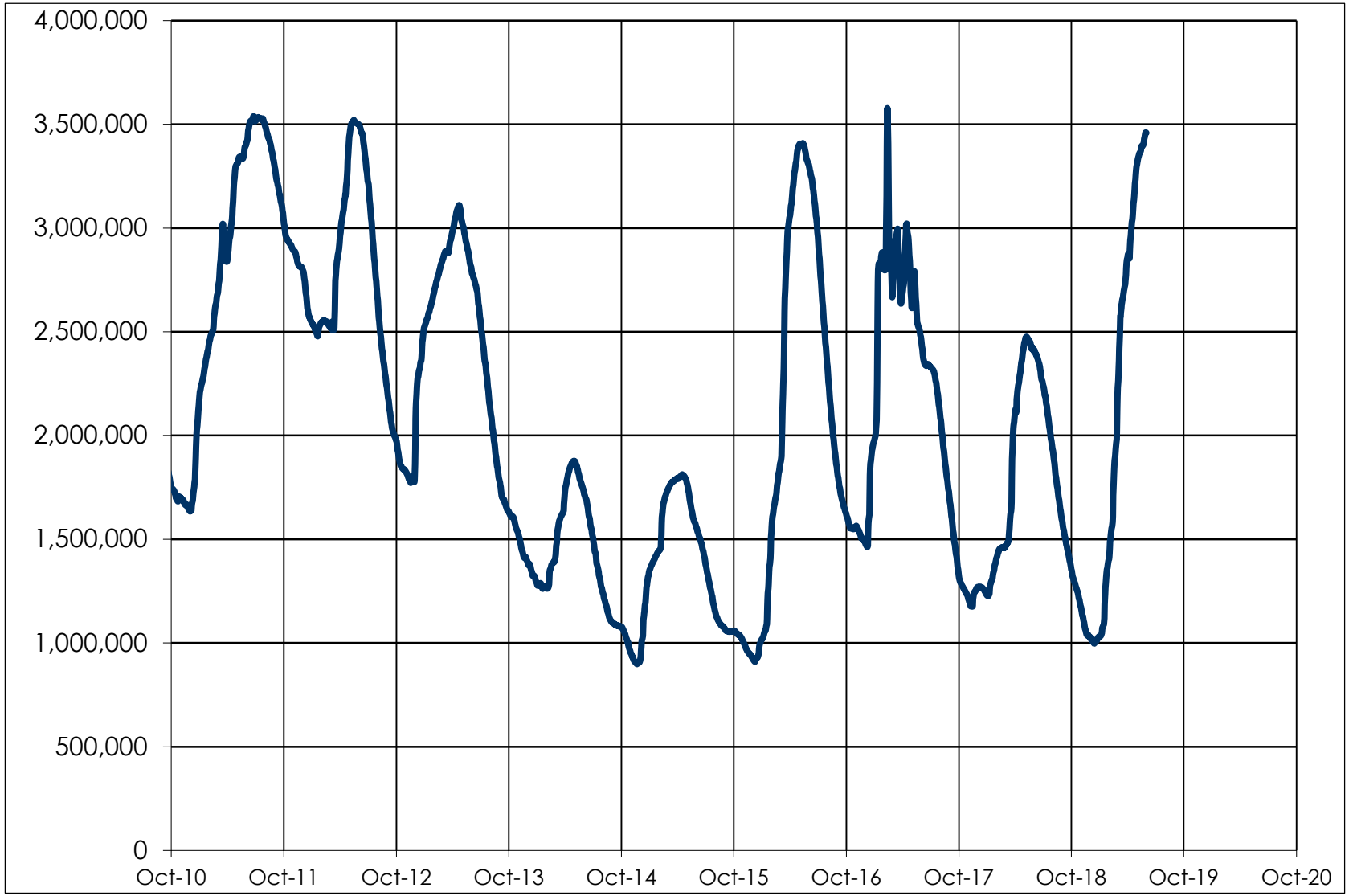
As of March 20, 2019, the Table A allocations for SWP contractors is 70%.

Reservoir Current Conditions as of 06/05/2019

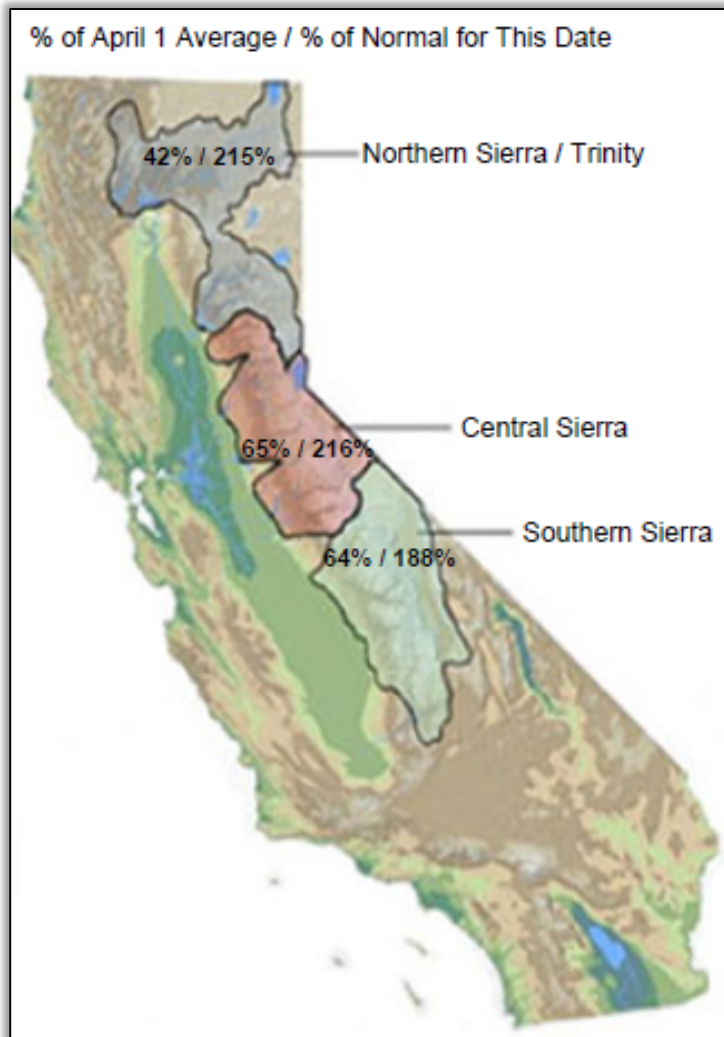


California Data Exchange Center
https://cdec.water.ca.gov/reportapp/javareports?name=rescond.pdf

Oroville Storage (acre-feet)
October 1, 2010 – June 1, 2019



Statewide Summary of Snow Water Content as of 06/05/2019



NORTH	
Data as of June 3, 2019	
Number of Stations Reporting	28
Average snow water equivalent (inches)	12.3
Percent of April 1 Average (%)	42
Percent of normal for this date (%)	215

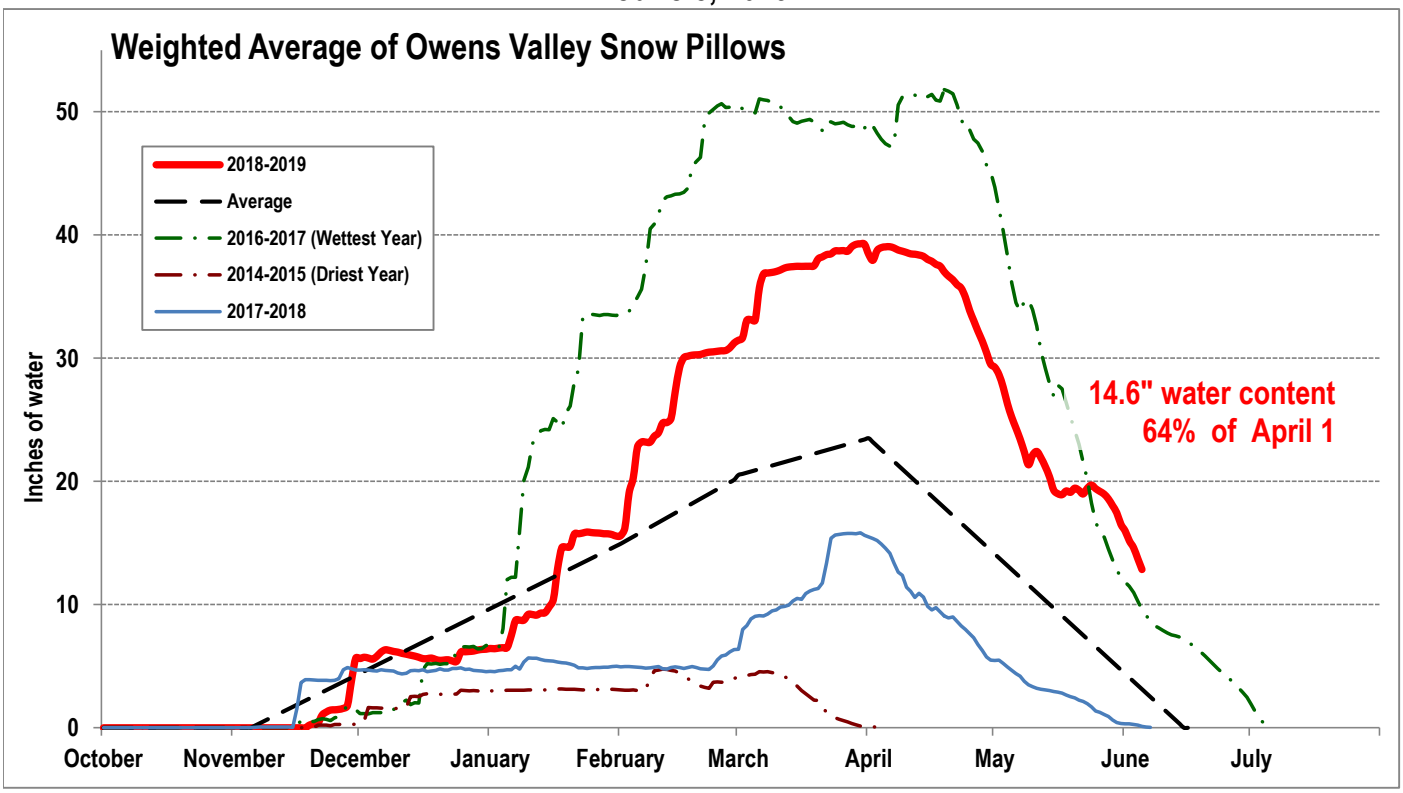
CENTRAL	
Data as of June 3, 2019	
Number of Stations Reporting	38
Average snow water equivalent (inches)	18.1
Percent of April 1 Average (%)	65
Percent of normal for this date (%)	216

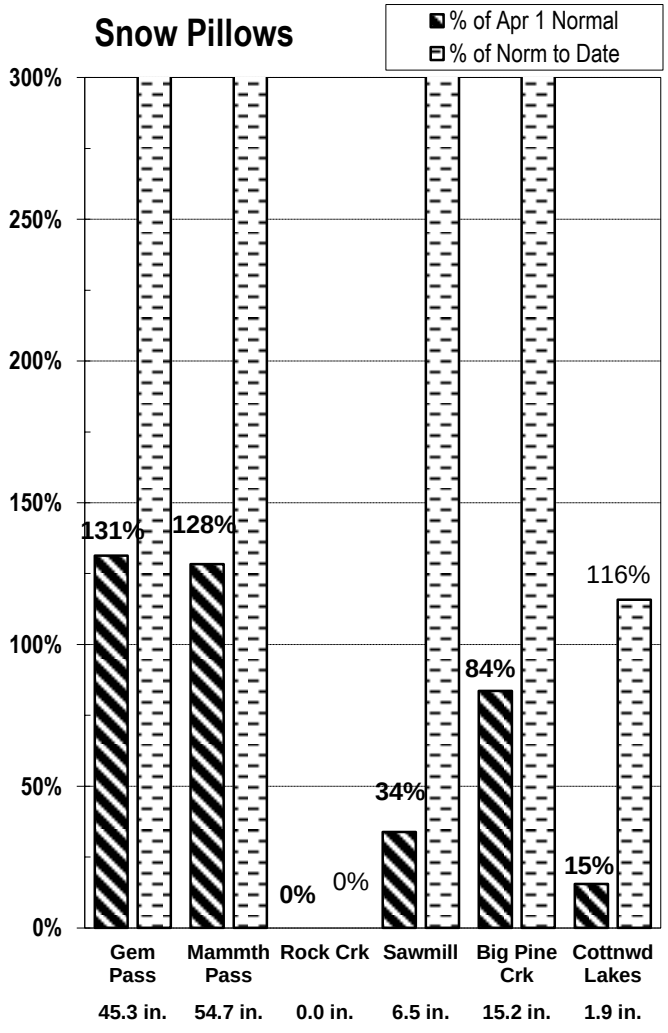
SOUTH	
Data as of June 3, 2019	
Number of Stations Reporting	25
Average snow water equivalent (inches)	15.5
Percent of April 1 Average (%)	64
Percent of normal for this date (%)	188

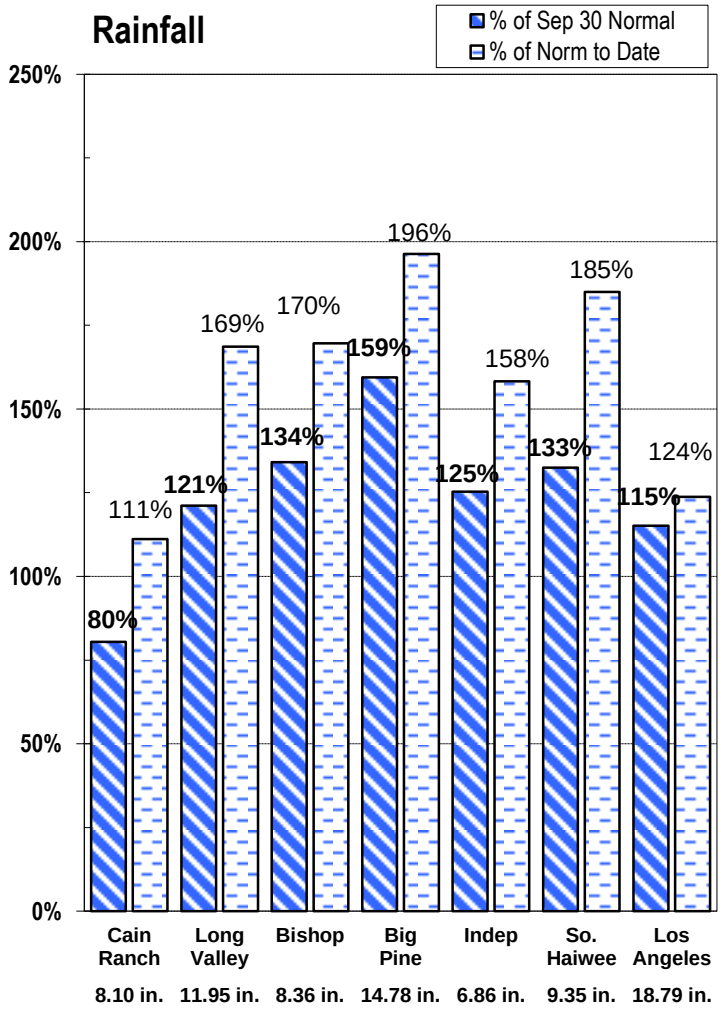
STATE	
Data as of June 3, 2019	
Number of Stations Reporting	91
Average snow water equivalent (inches)	15.6
Percent of April 1 Average (%)	57
Percent of normal for this date (%)	201

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

EASTERN SIERRA
CURRENT PRECIPITATION CONDITIONS
June 5, 2019







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