BAY AREA WATER SUPPLY AND CONSERVATION AGENCY
BOARD OF DIRECTORS MEETING

July 8, 2021

Correspondence and media coverage of interest between May 11, 2021 and July 6, 2021

Correspondence

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: San Francisco Public Utilities Commission
Date: June 29, 2021
Subject: Projected Wholesale Customer Water Purchases from the San Francisco Regional Water System

From: Los Vaqueros Reservoir Expansion Project
To: Stakeholders
Date: June 29, 2021
Subject: Monthly Report

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Darryl Barrow, General Manager, Westborough Water District
Date: May 14, 2021
Subject: Letter to BAWSCA Dated April 27, 2021 Regarding 2020 Urban Water Management Plan Matters

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Tammy Rudock, General Manager, Mid-Peninsula Water District
Date: May 14, 2021
Subject: Letter to BAWSCA Dated May 11, 2021 Regarding 2020 Urban Water Management Plan Matters

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Tom Piccolotti, Board President, North Coast County Water District
Date: June 1, 2021
Subject: Letter to BAWSCA Dated May 21, 2021 Regarding 2020 Urban Water Management Plan Matters

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Justin Chapel, Public Works Superintendent, City of Redwood City
Date: June 1, 2021
Subject: Letter to BAWSCA Dated May 19, 2021 Regarding 2020 Urban Water Management Plan Matters

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Mary Rogren, General Manager, Coastside County Water District
Date: June 4, 2021
Subject: Letter to BAWSCA Dated May 28, 2021 Regarding 2020 Urban Water Management Plan Matters

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Nicole Nagaya, Public Works Director, City of Menlo Park
Date: June 10, 2021

Subject: Letter to BAWSCA Dated May 27, 2021 Regarding 2020 Urban Water Management Plan Matters

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Michael Hurley, Water Resources Manager, California Water Service Company
Date: June 11, 2021
Subject: Letter to BAWSCA Dated June 7, 2021 Regarding 2020 Urban Water Management Plan Matters

From: Nicole Sandkulla, CEO/General Manager, BAWSCA
To: Peter Pirnejad, City/District Manager
Date: June 16, 2021
Subject: Letter to BAWSCA Dated June 11, 2021 Regarding 2020 Urban Water Management Plan Matters

Media Coverage

Climate

Date: June 24, 2021
Source: The Press Democrat
Article: Why so dry? Experts explain factors behind stubborn drought

Date: June 19, 2021
Source: NPR
Article: The Record Temperature Enveloping The West Are Not Your Average Heat Wave

Date: June 17, 2021
Source: UCLA Newsroom
Article: Reduced humidity increases wildfire threat in Southwest United States

Drought:

Date: June 30, 2021
Source: KQED Science
Article: What's causing the drought in the West – and why it's so bad

Date: June 30, 2021
Source: San Francisco Chronicle
Article: California's rain year just ended – and the data shows we're in trouble

Date: June 23, 2021
Source: Mercury News
Article: Where did Sierra snow go this spring? Not into California rivers and water supplies

Date: June 19, 2021
Source: Los Angeles Times
Article: Here are some things to know about the extreme drought in the Western U.S.

Date: June 18, 2021
Source: KGET Local News
Article: Rep. David Valadao introduces emergency drought relief legislation

Drought, cont'd.:

Date: June 17, 2021
Source: Department of Water Resources
Article: Drought + heat = Increased Impacts

Date: July 16, 2021
Source: Earth Observatory, NASA
Article: July 16, 2021

Conservation:

Date: June 25, 2021
Source: KPIX 5
Article: Santa Clara County Declares Drought Emergency; Water Conservation Urged in Unincorporated Areas

Date: June 20, 2021
Source: Sacramento Bee
Article: California can learn much from Israel on how to conserve water, manage drought better

Date: June 12, 2021
Source: Bay Area News Group
Article: 12 Bay Area drought survival tips for a long, dry season

Water Management:

Date: June 2021
Source: SF Estuary Magazine
Article: One reporter's view on fish, farms, and the fight over the Delta's water

Date: July 5, 2021
Source: The Hill
Article: A wake-up call for water resilience in the West

Date: June 29, 2021
Source: CalMatters
Article: Thanks to Long-Term Water Strategy, Southern California Is Weathering the Record Drought

Date: June 29, 2021
Source: CNBC
Article: Why some of the world's biggest companies are increasingly worried about water scarcity

Date: June 15, 2021
Source: Maven
Article: Drought Conditions Prompt Restrictions For Some Delta Water Right Holders

Date: June 18, 2021
Source: The Union Democrat
Article: Irrigation districts agree to send water from New Melones south to drought-stricken farmers

Water Management, cont'd.:

Date: June 19, 2021
Source: Manteca/Ripon Bulletin
Article: Bureau Water Releases Out Of New Melones Worry SSJID

Date: June 19, 2021
Source: Marin Independent Journal
Article: Drought: Marin district details water pipeline, desalination plans

Date: June 19, 2021
Source: Modesto Bee
Article: OID and SSJID revive water sale to West Side farmers after rechecking conditions

Water Infrastructure:

Date: June 30, 2021
Source: Sacramento Bee
Article: As drought ravages California, Biden's infrastructure bill could help store more water

Water Policy:

Date: June 14, 2021
Source: The Planning Report
Article: New MWD GM Adel Hagekhalil Commits To "One Water" Agenda

BAWSCA
Bay Area Water Supply & Conservation Agency

June 29, 2021

The Hon. Sophie Maxwell, President
San Francisco Public Utilities Commission
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102

SUBJECT: Projected Wholesale Customer Water Purchases from the San Francisco Regional Water System in Compliance with Section 4.05 of the 2018 Amended and Restated Water Supply Agreement between San Francisco and its Wholesale Customers

Dear President Maxwell,

Section 4.05 of the 2018 Amended and Restated Water Supply Agreement between the City and County of San Francisco and its Wholesale Customers (Agreement) requires the San Francisco Public Utilities Commission (SFPUC) to annually prepare a Water Supply Development Report (Report) for consideration by the Commission each December. The need to report is in effect through December 31, 2028.

The Agreement provides that the Bay Area Water Supply and Conservation Agency (BAWSCA) will provide the SFPUC with water purchase projections for the Wholesale Customers to be utilized in the Report. These projections are to be submitted by BAWSCA to the Commission by June 30 each year beginning 2010.

Based on information provided to BAWSCA by its member agencies, the aggregate Wholesale Customer Water Purchases in FY 2027-2028 are currently projected to be 147 MGD.

The enclosed Table 1 summarizes the projected purchases from San Francisco for each Wholesale Customer in FY 2027-28. This table was prepared using data documented in the *BAWSCA FY 2019-20 Annual Survey*. BAWSCA completed the Regional Water Demand and Conservation Projections Study (Demand Study) in June 2020. The projected purchases from San Francisco have been updated from that study and are reflected in the BAWSCA FY 2019-20 Annual Survey.

BAWSCA looks forward to working with your staff as the Report is prepared for the Commission's consideration this coming December. If you have any questions, please contact Tom Francis, BAWSCA Water Resources Manager, at 650-349-3000.

Sincerely,

Nicole M. Sandkulla
Chief Executive Officer/General Manager

Enclosure:

- Table 1: Projected SFPUC Purchases by the BAWSCA Member Agencies in FY 2027-28

cc: Michael Carlin, SFPUC Acting General Manager
BAWSCA Board of Directors
BAWSCA Member Agency Representatives
Allison Schutte, Hanson Bridgett

Table 1
Projected SFPUC Purchases by the BAWSCA Member Agencies in FY 2027-28

BAWSCA Member Agency	Individual Supply Guarantee (mgd)	Projected SFPUC Purchases in FY 2027-28 (a) (mgd)
Alameda County WD	13.76	7.68
Brisbane/GVMID	0.98	0.89
Burlingame	5.23	4.36
Coastside County WD	2.18	1.39
CWS - Bear Gulch, Mid-Peninsula, and SSF Districts	35.68	29.89
Daly City	4.29	3.55
East Palo Alto **(c) (d)**	3.46	1.91
Estero Municipal ID	5.90	4.09
Hayward	--(b)	18.19
Hillsborough	4.09	3.26
Menlo Park	4.46	3.60
Mid-Peninsula WD	3.89	2.85
Millbrae	3.15	2.37
Milpitas	9.23	6.65
Mountain View **(c)**	12.46	9.25
North Coast County WD	3.84	2.38
Palo Alto **(d)**	16.58	10.10
Purissima Hills WD	1.63	2.09
Redwood City	10.93	8.47
San Bruno	3.25	3.23
San Jose	0 (b)	4.50
Santa Clara	0 (b)	4.50
Stanford University	3.03	2.07
Sunnyvale	12.58	9.22
Westborough WD	1.32	0.86
Member Agency Total (e):	**--**	**147**
Total Supply Assurance:	**184**	**--**

Notes:
(a) Source: BAWSCA FY 2019-20 Annual Survey, Table 3E-1 (Demand Projects by Source). Projections derived by straighlining the projected purchases in FY 2025-26 and in FY 2030-31.
(b) Hayward does not have a fixed ISG. San Jose and Santa Clara are temporary and interruptible customers of the SFPUC and do not have an ISG.
(c) Individual Supply Guarantees for East Palo Alto and Mountain View were adjusted to address a 1 MGD transfer that took place in FY 2016-17.
(d) Individual Supply Guarantees for East Palo Alto and Palo Alto were adjusted to address a 0.5 MGD transfer that took place in FY 2017-18.
(e) BAWSCA prepared a demand study update. That update was completed in June 2020 and results were incorporated into the FY 19-20 Annual Survey.

Abbreviations:
CWS = California Water Service
GVMID = Guadalupe Valley Municipal Improvement District
ID = Improvement District
ISG = Individual Supply Guarantee
mgd = million gallons per day
WD = Water District

LOS VAQUEROS RESERVOIR EXPANSION PROJECT

JUNE 29, 2021

UPCOMING ACTIVITIES

July 2 – Local Agency Partner (LAP) Comments due on the Draft Letter of Support

July 16 – LAP Comments due on the Draft Multi-party Agreement (MPA) Amendment No. 3

August 18 – CCWD Authorize MPA Amendment No. 3

UPCOMING LAP BOARD COORDINATION

June 30 – Valley Water Storage Committee

August TBD – LAP Board meetings to consider approval of the JPA Agreement

August – October TBD – LAP Board meetings to consider appointment of Director and Alternate to the JPA Board of Directors

August – November TBD – LAP Board meetings to consider approval of MPA Amendment No. 3

ADDITIONAL PROJECT INFO

https://www.ccwater.com/lvstudies

https://www.usbr.gov/mp/vaqueros/

https://cwc.ca.gov/Water-Storage/WSIP-Project-Review-Portal/All-Projects/Los-Vaqueros-Reservoir-Expansion-Project

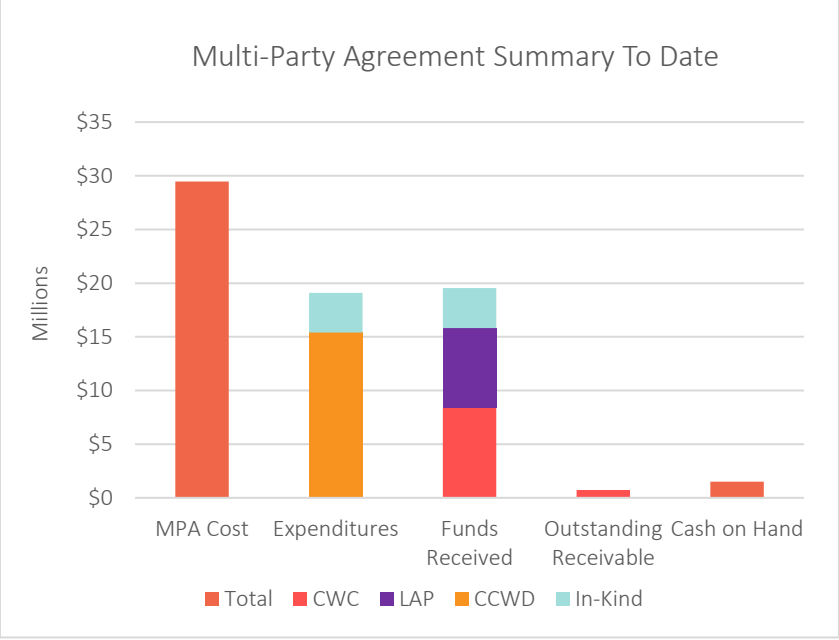
MONTHLY REPORT

FUNDING

CCWD is working with Reclamation to develop an assistance agreement for a portion of the federal funding that will be administered by CCWD for preconstruction activities. It is anticipated that the agreement will include approximately $7 million of federal funding for the Project. The current Federal funding request includes the remainder of the full federal share of 25 percent of the total project cost (approximately $211 million). Subsequent agreements would be needed to fund construction.

CCWD provided the draft of Amendment No. 3 to the Multi-party Cost Share Agreement (MPA) to extend the termination date from December 31, 2021 to December 31, 2022, and allocate cost share for activities in 2022. The MPA is intended to be replaced with an Interim Funding Agreement through the Los Vaqueros Reservoir Joint Powers Authority (JPA) once the JPA has been formed and is ready to assume LVE financial management responsibilities. A workshop with the LAPs was held June 23 to review schedule, assumptions and cost estimates for the proposed amendment. Comments on Amendment No. 3 are requested by July 2.

The following chart provides an overview of the MPA expenditures to date. The in-kind services, funds received, outstanding receivable, and cash on hand are shown through June 22, 2021. All LAPs remain in good standing on progress payments. The next invoice will be sent to the LAPs in July 2021. If MPA Amendment No. 3 is approved, the subsequent invoice would be sent in January 2022.



JPA FORMATION

The Legal Work Group met on June 24 to continue revisions the terms of the JPA Agreement. The next legal workgroup call is scheduled for July 12 to review version 14 of the JPA Agreement. The target date for completion of the final form of the JPA Agreement is prior to July 31, 2021. The current schedule assumes the LAP Boards would consider approval of the JPA Agreement in August 2021. LAP Boards have the option of appointing their Director and Alternate to the JPA Board of Directors at the same meeting, or at a future meeting held within 30 days of the effective date of the JPA Agreement.

CWC FEASIBILITY HEARING

All seven storage projects that received a conditional eligibility award from the California Water Commission (CWC) must meet three criteria prior to January 1, 2022 to remain eligible for funding: 1) draft environmental documents must be complete, 2) the CWC must make a finding that the project is feasible, and will advance the long-term objectives of restoring ecological health and improving water management for beneficial uses of the Delta, and 3) the Director of the Department of Water Resources must receive a letter demonstrating support for not less than 75 percent of the non-public benefit cost share of the project (joint support letter). The joint support letter is being reviewed by LAPs and would replace the previous support letters from CCWD and the LAPs that were submitted to the CWC in 2017. The Phase 2 LVE Project is tentatively scheduled for a CWC Feasibility Hearing on October 20. CCWD staff are closely coordinating with CWC staff to ensure the Project meets the statutory requirements and remains eligible for funding.

PERMITTING

Reclamation is continuing review of the aquatic Biological Assessment (BA). The U.S. Fish and Wildlife Service (USFWS) is reviewing the terrestrial BA per Section 7 of the Federal Endangered Species Act. A Bald and Golden Eagle Protection Act 'take' permit application for the USFWS is being developed. The State Historic Preservation Officer is continuing consultation under Section 106 of the National Historic Preservation Act. A Historic Properties Treatment Plan, to support this consultation, is being developed. CCWD staff are preparing a response to the California Department of Fish and Wildlife (CDFW) with additional information required in support of the Incidental Take Permit application. A Compensatory Mitigation Plan to support the USFWS and CDFW permits is being developed. The CDFW Lake and Streambed Alteration Agreement package is being developed. The U.S. Army Corps of Engineers (USACE) and Central Valley Regional Water Quality Control Board (CVRWQCB) continue review of their respective permit packages.

The Draft Wetland Mitigation Plan and Restoration and Revegetation Plan, required by the USACE and CVRWQCB, are continuing to be developed.

DESIGN

On June 24, CCWD conducted a technical briefing with LAPs to respond to questions raised during the dam design and construction cost workshop that was held in April. Dam expansion design work and coordination with the California Division of Safety of Dams (DSOD) continues, and the 90-percent design (plans and specifications) were submitted to DSOD in June for their review. Transfer-Bethany Pipeline alignment evaluations continued with an assessment of land rights through parcels south of Vasco Road, and CCWD staff obtained additional information from other landowners. Preliminary design of the Turn-in to the California Aqueduct at the Bethany Reservoir continues to progress.

(This page was intentionally left blank)

BAWSCA
Bay Area Water Supply & Conservation Agency

May 14, 2021

Mr. Darryl Barrow
General Manager
Westborough Water District
2263 Westborough Blvd
South San Francisco, CA 94080

Subject: Letter to BAWSCA Dated April 27, 2021 Regarding 2020 Urban Water Management Plan (UWMP) Matters

Dear Darryl,

BAWSCA received Westborough Water District's (WWD) letter dated April 27, 2021 within which WWD took exception with the "equal allocation of cutbacks" methodology that was applied by BAWSCA to allocate the San Francisco Regional Water System (RWS) supplies that were available, for 2020 UWMP development purposes, during shortfall conditions that would occur in either a single-year or multiple-dry year drought scenarios.

As WWD is aware, the supply allocation available for the collective BAWSCA member agencies was calculated by the San Francisco Public Utilities Commission (SFPUC). The SFPUC assumed that the currently adopted Bay-Delta Plan will be implemented, in particular the Plan's 40% unimpaired streamflow requirement that limits the water supply that would be available from the Tuolumne River. The SFPUC's analysis also incorporated projected SPFUC water purchases by member agencies, including WWD, through the 2045 planning horizon. BAWSCA system-wide shortages under those assumptions are as high as 49% in multiple dry years. That translated to shortages to the wholesale customers between 45% and 54% in the 3rd, 4th, and 5th consecutive years of a multi-year drought.

Impacts of the Bay-Delta Plan on Supply Reliability Were Recognized, Quantified and Discussed Beginning in FY 2016-17

The cutbacks, as noted above, do not come as a recent surprise. In a letter dated March 16, 2017, BAWSCA provided comments to the State Water Resources Control Board (State Board) on their *2016 Draft Revised Substitute Environmental Document (Draft SED) In Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality*. In that letter, BAWSCA included the following statement related to the impacts of a 40% unimpaired flow requirement on the
member agencies:

> *"… using system-wide annual deliveries of 223 mgd, which is equivalent to Fiscal Year 2012-2013 RWS demand, if a 40 percent unimpaired flow objective were implemented on the Tuolumne River, the RWS deliveries to the Wholesale Customers would be cutback by 43 percent during the first 3 years of the drought, followed by 52 percent reductions in deliveries for the next 3 years…"*

BAWSCA's review of the Draft SED as well as the ensuing comment letter was extensively discussed with BAWSCA's Water Management Representatives (WMR) and Board of Directors beginning in 2016. The cutbacks identified in BAWSCA's comments to the State Board mirror the results of the cutbacks calculated by the SFPUC and provided as part of the 2020 UWMP documentation.

WWD also submitted a comment letter, dated December 19, 2016, to the State Board on the Draft SED, noting the significant impacts of the proposed Bay-Delta Plan on its water supply reliability. WWD's letter included the following statement:

> *As a wholesale customer of SFPUC that purchases 100% of its potable water supply from the San Francisco Regional Water System, water supply available to the Westborough Water District under the SED proposal could be reduced more than 50% under drought conditions for multiple consecutive years.*

BAWSCA Continues its Efforts to Engage Interested Parties on the Impacts of the Bay-Delta Plan

Since 2016 to the present, BAWSCA has provided statements, both in writing and through oral comments, to the State Board, at WMR meetings, at the SFPUC Commission, and to a number of other entities such as the Bay Area Council and the Harbor Industrial Association, discussing the severe impacts that the Bay-Delta Plan and its associated 40% unimpaired flow requirement on member agencies' water supply reliability.

While WWD may not recall specific prior discussions, letters, comments, or statements made by BAWSCA related to the Bay-Delta Plan, it is BAWSCA's belief that WWD and BAWSCA board members will likely recall that, in general, many concerns have been raised on the topic for many years by BAWSCA. BAWSCA continues to voice strong concerns about the impact of the Bay-Delta Plan on water supply reliability for its member agencies and their water customers, press for a voluntary agreement to be analyzed as an alternative to the adopted Plan, and urge the SFPUC to implement an Alternative Water Supply Planning effort to ensure it can meet its contractual and legal obligations to the member agencies.

BAWSCA Provided Extensive Support to Member Agencies with the 2020 UWMP Preparation

To support member agencies in their preparation of 2020 UWMPs, BAWSCA held five workshops between October 2020 and April 2021, inviting member agency staff, their consultants and legal counsel. Those workshops were thorough and thoughtful, and allowed for agencies and their consultants to pose questions and keep abreast of the status of documentation that was to be provided by BAWSCA and the SFPUC.

BAWSCA placed a high priority on providing member agencies with timely and accurate information. However, BAWSCA reminded its member agencies that BAWSCA does not control SFPUC's approach with its 2020 UWMP or its development schedule. Nor does BAWSCA control the various course changes made by the SFPUC on its 2020 UWMP, that in turn negatively impacted member agencies' 2020 UWMP development.

BAWSCA agrees that moving forward on the next cycle of UWMPs, the SFPUC should start its work earlier, such that member agencies are given more time to digest the information provided to them and more time to craft their UWMPs.

As was discussed during the above-reference workshops, supply shortfall allocation would prove to be challenging. The approach to the allocation of shortfalls is informed by the 2018 Amended and Restated Water Supply Agreement (WSA). Paragraph 3.11.C.3 of the WSA states:

> *For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.*

Given the size of the system-wide shortfalls provided by the SFPUC, it was clear that the Tier 2 Plan, which allocates shortfalls of no greater than 20%, did not apply in all cases. Designing a technical approach to apply to system-wide cutbacks greater than 20% that all agencies would embrace within the 2020 UWMP development time frame was not possible. Developing such an approach requires significant time and detailed analysis, and further requires direct engagement with agency staff, agency-specific operational and system data, and feedback from the governing bodies. As WWD knows, previous efforts to develop the existing Tier 2 Plan took multiple years prior to the final negotiations and adoption.

Given these circumstances, for the purposes of the development of member agency 2020 UWMPs, BAWSCA considers applying an equal allocation of cutbacks remains the prudent approach for 2020 UWMP preparation purposes.

It is at the discretion of WWD, or any BAWSCA member agency, to propose a different allocation for use in their specific 2020 UWMP. If WWD believes that a shortage of this level is to happen, and some other allocation of supplies would be established and can be agreed upon, then WWD may provide that allocation as part of its 2020 UWMP documentation. Other member agencies may elect to do so as well, as there is no mandate to utilize the information BAWSCA provided.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Work Plan

BAWSCA intends to initiate an update to the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA initiates the update, yet it is not certain at this time.

SFPUC's Level of Service (LOS) Goals are Contractual Requirements Referenced in the Water Supply Agreement (WSA) Between Member Agencies and San Francisco

WWD's letter referenced the fact that SFPUC is contractually required under the WSA to meet level of service (LOS) goals. Those LOS goals require that the SFPUC have sufficient supplies available in times of a drought such that no greater than 20% system-wide cutbacks are required. BAWSCA has provided the member agencies, including WWD, with suggested language for use in 2020 UWMPs to reference that requirement. Moreover, the joint language developed by the SFPUC for use in member agencies' 2020 UWMPs references alternative water supply projects that would be developed to help address drought shortfalls. BAWSCA encourages WWD to incorporate that information into the 2020 UWMP.

BAWSCA Continues its Engagement in Support of the Tuolumne River Voluntary Agreement that Reduces the Water Supply Impacts of the Bay-Delta Plan

Finally, WWD's letter noted the efforts that BAWSCA has undertaken in support of a voluntary agreement, which, if implemented, would significantly reduce the water supply impact of the Bay-Delta Plan. WWD asks that BAWSCA redouble its efforts, and BAWSCA is doing just that. WWD and other member agencies can support BAWSCA in this request by actively participating in various public discussions as appropriate. As an example, we have asked member agencies to prepare comments to the SFPUC's Draft 2020 UWMP, noting the extreme hardship that cutbacks in the range of 50% would create. Moreover, member agencies have been asked to speak at public meetings where the topic of SFPUC's 2020 UWMP, the Bay-Delta Plan or the proposed Tuolumne River Voluntary Agreement are on the agenda. BAWSCA expects that FY 2021-22 will include significant opportunities for individual member agencies to engage on this issue. BAWSCA is committed to serving the best interests of its member agencies and their water customers by ensuring a reliable supply of high-quality water at a fair price.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to BAWSCA's member agencies. It is BAWSCA's hope that its efforts to support the member agencies' 2020 UWMP preparations have proven to be of assistance. Please feel free to reach out to me if WWD would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Tom Chambers, BAWSCA Vice-Chair

Westborough Water District
P.O. Box 2747 | 2263 Westborough Blvd. | South San Francisco, CA 94080
Phone: 650-589-1435 Fax: 650-589-5167
Email: WWD@WestboroughWater.org Web: WestboroughWater.org

April 27, 2021

RECEIVED
MAY 6 2021

Nicole Sandkulla
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Re: 2020 UWMP

Dear Nicole:

While we appreciate the assistance that BAWSCA has provided to the District with regard to the preparation of its Urban Water Management Plan, we need to take exception with the "equal allocation of cutbacks" methodology reflected in those materials, which were provided with your letter dated February 18, 2020 regarding the San Francisco Public Utility Commission's Regional Water System (RWS) Supply Reliability Letter of January 22, 2021. Specifically, while we appreciate BAWSCA's acknowledgement that "this is not an ideal situation or method for allocation of available drought supplies," we wish to take note your statement that:

> In the event of actual RWS shortages greater than 20 percent, the Member Agencies would have the opportunity to negotiate and agree upon a more nuanced and equitable approach. Such an approach would likely consider basic health and safety needs, the water needs to support critical institutions such as hospitals, and minimizing economic impacts on individual communities and the region.

Given the many concerns that the District and others have expressed about this "equal allocation of cutbacks" methodology, the District must go on record to say that while we are using this method merely for planning purposes for the 2020 UWMP at your suggestion, the District is not in agreement with this methodology. Further, we understand that beginning in FY 2021, a revised allocation methodology will be likely negotiated among the wholesale customers.

We also want to point out that the current supply reliability numbers that were provided by SFPUC do not meet the level of service (LOS) goals included in the Water Supply Agreement (WSA). We expect that BAWSCA, in its role of administering the contract on behalf of the Wholesale Customers, will prioritize pressuring SFPUC to meet its contractual obligations, specifically its LOS goals and urge the SFPUC to expedite water supply projects to meet its supply assurance obligations of 184 million gallons per day (MGD) to its wholesale customers and Westborough's Individual Supply Guarantee of 1.32 MGD.

We also want to acknowledge and support the efforts that BAWSCA has made to advocate on behalf of the suburban customers of the Hetch Hetchy water system for a voluntary settlement

agreement in the Bay-Delta proceeding in order to avoid the very severe water supply cutbacks that would occur with the implementation of the Bay-Delta Plan (Plan) that was adopted by the State Water Resources Control Board in December of 2018. We urge you to redouble your efforts in this regard. We look forward to working with you to protect the interests of the water users served by the SFPUC system.

Sincerely,

Darryl A. Barrow

Darryl Barrow
General Manager

BAWSCA
Bay Area Water Supply & Conservation Agency

May 14, 2021

Ms. Tammy A. Rudock
General Manager
Mid-Peninsula Water District
3 Dairy Lane
Belmont, CA 94002

Subject: Letter to BAWSCA Dated May 11, 2021 Regarding 2020 Urban Water Management Plan Matters

Dear Tammy,

BAWSCA received Mid-Peninsula Water District's (MPWD) letter dated May 11, 2021 within which comments were provided in regard to matters surrounding the development of MPWD's 2020 UWMP. BAWSCA is appreciative of MPWD's perspective, and offers the following reply related to the points raised in the letter.

As MPWD noted, the supply allocation available for the collective BAWSCA member agencies was calculated by the SFPUC. For UWMP purposes, the SFPUC has assumed implementation of the Bay-Delta Water Quality Control Plan Phase 1 Update (Plan), in particular the Plan's 40% unimpaired streamflow requirement that limits water supply available from the Tuolumne River. The SFPUC analysis also incorporated projected SPFUC water purchases by the member agencies, including MPWD, through the 2045 planning horizon. System-wide shortages under those assumptions can be as high as 49% in multiple dry years. That translated to shortages to the wholesale customers between 45% and 54% in the 3rd, 4th, and 5th consecutive years of a multi-year drought.

Impacts of the Bay-Delta Plan on Supply Reliability Were Recognized, Quantified and Discussed Beginning in 2016-17

The impacts of the implementation of the Bay-Delta Plan as adopted by the State Water Resources Control Board (State Board) should not be a recent surprise. In its March 16, 2017 letter, BAWSCA provided comments to the State Board on the *2016 Draft Revised Substitute Environmental Document (Draft SED) In Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality*. In that letter, BAWSCA included the following statement related to the impacts of a 40% unimpaired flow requirement on member agencies:

> *"… using system-wide annual deliveries of 223 mgd, which is equivalent to Fiscal Year 2012-2013 RWS demand, if a 40 percent unimpaired flow objective were implemented on the Tuolumne River, the RWS deliveries to the Wholesale Customers would be cutback by 43 percent during the first 3 years of the drought, followed by 52 percent reductions in deliveries for the next 3 years…"*

BAWSCA's review of the Draft SED as well as the ensuing BAWSCA comment letter was extensively discussed with BAWSCA's Water Management Representatives (WMRs) as well as BAWSCA's Board of Directors. The cutbacks envisioned in BAWSCA's comments to the State

Board mirror the results of the cutbacks provided by the SFPUC as part of the 2020 UWMP documentation it provided.

MPWD also submitted a comment letter, dated February 27, 2017, to the State Board on the Draft SED, noting the significant impacts of the proposed Bay-Delta Plan on its water supply reliability. MPWD's letter included the following statement:

> *"As a wholesale customer of SFPUC that purchases 100% of its potable water supply from the San Francisco Regional Water System, water supply available to the MPWD under the SED proposal could be reduced more than 50% under drought conditions for multiple consecutive years"*

BAWSCA Continues its Efforts to Engage Interested Parties on the Impacts of the Bay-Delta Plan

Since 2016 to the present, BAWSCA has provided statements, both in writing and through oral comments, to the State Board, to the WMRs, to the SFPUC Commission, and to a number of other entities such as the Bay Area Council and Harbor Industrial Association, discussing the severe impacts that the Plan and its associated 40% unimpaired flow requirement would have on member agencies' water supply reliability.

While MPWD may not recall specific prior discussions, letters, comments, or statements made by BAWSCA related to the Bay-Delta Plan and the resulting significant supply shortfalls, it is BAWSCA's belief that MPWD and BAWSCA board members will likely recall that, in general, BAWSCA has raised many concerns on the topic for many years. BAWSCA continues to voice strong concerns about the impact of the Bay-Delta Plan on water supply reliability for its member agencies and their water customers, press for a voluntary agreement to be analyzed as an alternative to the adopted Plan, and urge the SFPUC to implement an Alternative Water Supply Planning effort to ensure it can meet its contractual and legal obligations to the member agencies.

BAWSCA Provided Extensive Support to Member Agencies with the 2020 UWMP Preparation

As noted in MPWD's letter to BAWSCA, BAWSCA devoted significant time and energy in support of its member agencies in their preparation of 2020 UWMPs. BAWSCA held five workshops between October 2020 and April 2021, inviting member agency staff, their legal counsel, and their consultants. Those workshops were thorough and thoughtful, and allowed for agencies and their consultants to pose questions and keep abreast of the status of documentation that was provided by BAWSCA and the SFPUC.

BAWSCA placed a high priority in providing member agencies with timely and accurate information. However, it is important to remember that BAWSCA cannot control or direct the SFPUC's approach with its 2020 UWMP development and schedule. Additionally, BAWSCA had no authority to control the various course changes made by the SFPUC regarding its 2020 UWMP that in turn negatively impacts member agencies' 2020 UWMP development.

BAWSCA agrees that moving forward on the next cycle of UWMPs, the SFPUC should start its work earlier, such that member agencies are given more time to process the information provided to them and more time to prepare their UWMPs.

As was discussed during the above-reference workshops, supply shortfall allocation would prove to be challenging. The approach to the allocation of shortfalls is informed by the 2018 Amended and Restated Water Supply Agreement (WSA). Paragraph 3.11.C.3 of the WSA states:

> *For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.*

Given the size of the system-wide shortfalls provided by the SFPUC, it was clear that the Tier 2 Drought Allocation Plan (Tier 2 Plan), which allocates shortfalls of no greater than 20%, did not apply in all cases. Designing a technical approach to apply to system-wide cutbacks greater than 20% that all agencies would embrace within the 2020 UWMP development time frame was not possible. Developing such an approach requires significant time and detailed analysis, and further requires direct engagement with agency staff, agency-specific operational and system data, and feedback from the governing bodies. As MPWD knows, previous efforts to develop the existing Tier 2 Plan took multiple years prior to the final negotiations and adoption.

Given these circumstances, for the purposes of the development of member agency 2020 UWMPs, BAWSCA considers, applying an equal allocation of cutbacks remains the prudent approach for 2020 UWMP preparation purposes.

It is at the discretion of MPWD, or any BAWSCA member agency, to propose a different allocation for use in their specific 2020 UWMP. We understand per the comment made in MPWD's letter to BAWSCA that for the purposes of MPWD's 2020 UWMP, MPWD intends to apply the shared shortfall approach. Other member agencies may elect to do so as well, but there is no mandate to do so.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Work Plan

BAWSCA intends to initiate an update to the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA begins the update process, yet it is not certain at this time.

SFPUC's Level of Service (LOS) Goals Are Contractual Requirements Referenced in the Water Supply Agreement (WSA) Between Member Agencies and San Francisco

MPWD's letter to BAWSCA referenced the fact that SFPUC is contractually required under the WSA to meet LOS goals. Those LOS goals require that SFPUC have sufficient supplies available in times of a drought so that no greater than 20% system-wide cutbacks are required. BAWSCA has provided its member agencies, including MPWD, with suggested language for use in 2020 UWMPs to reference that requirement. Moreover, the joint language developed by the SFPUC for use in member agencies' 2020 UWMPs references alternative water supply projects that would be developed to help address drought shortfalls. BAWSCA encourages MPWD to incorporate that information into the 2020 UWMP.

BAWSCA's Continues its Engagement in Support of the Tuolumne River Voluntary Agreement That Reduces the Water Supply Impacts of the Bay-Delta Plan

Finally, MPWD's letter noted the efforts that BAWSCA has undertaken in support of a voluntary agreement, which if implemented, would significantly reduce the water supply impact of the Bay-Delta Plan. As MPWD is aware, BAWSCA is ardently advocating for a voluntary agreement approach and pressing for a voluntary agreement to be analyzed as an alternative to the adopted Plan. BAWSCA is very appreciative of MPWD's willingness to participate in various public discussions on topics related to the Bay-Delta Plan. Specifically, MPWD has provided comments to the SFPUC's Draft 2020 UWMP, noting the extreme hardship that cutbacks in the range of 50% would create. Moreover, MPWD has spoken at public meetings when the topic of SFPUC's 2020 UWMP, the Bay-Delta Plan or the proposed Tuolumne River Voluntary Agreement are on the agenda. BAWSCA expects that FY 2021-22 will include significant opportunities for individual member agencies to continue to engage on this issue and BAWSCA encourages other member agencies to follow MPWD's lead. BAWSCA is committed to serving the best interests of its member agencies and their water customers by ensuring a reliable supply of high-quality water at a fair price.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to its member agencies. It is BAWSCA's hope that its efforts to support the member agencies' 2020 UWMP preparations have proven to be of assistance. Please feel free to reach out to me if MPWD would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Louis Vella – BAWSCA Board Member

MID-PENINSULA
WATER DISTRICT
3 Dairy Lane, Belmont, CA 94002
tel: 650.591.8941 fax: 650.591.4998 MidPeninsulaWater.org

May 11, 2021

Nicole Sandkulla, Chief Executive Officer
Bay Area Water Supply Conservation Agency (BAWSCA)
155 Bovet Road, Suite 650
San Mateo, CA 94402

Re: Regional Water System (RWS) Supply Reliability and Cutback Allocations

Dear Nicole:

Thank you for the many engaging workshops sponsored by BAWSCA for the Wholesale Customers to assist during development of the 2020 Urban Water Management Plans (UWMP) and Water Shortage Contingency Plans (WSCP). This year has been chaotic, to say the least.

And the Mid-Peninsula Water District (MPWD) appreciated your presentation before the Board of Directors regarding the background of the Bay-Delta Plan on March 25, 2021, during our 2020 UWMP progress report.

While most of the member agencies were aware of the Bay-Delta Plan Amendment (adopted in December 2018), MPWD was NOT aware of what the San Francisco Public Utilities Commission's (SFPUC) water supply reliability and/or planning efforts were going to reveal until January 2021 when the SFPUC released its RWS reliability letter outlining water supplies available to Wholesale Customers for use in creating their 2020 UWMPs. The SFPUC's RWS reliability letter outlined projected water supply available to Wholesale Customers both with and without the Bay-Delta Plan implementation (projected for 2023). The estimate was updated on April 15, 2021 by the SFPUC.

To be clear from our perspective, and as I previously shared with you, there were no substantive conversations, meetings, and/or shared water supply projections, modeling, or information from either the SFPUC or BAWSCA prior to the January 2021 RWS reliability letter. And the changes kept coming in the form of revised/updated water supply projections and planning scenarios and member agency impacts—in February 2021, March 2021, and April 2021. It has been extremely challenging for all affected Wholesale Customers and their water managers.

Should the Bay-Delta Plan be implemented, which implementation is uncertain given pending litigation and ongoing negotiations in support of a Tuolumne River Voluntary Agreement (TRVA), the projected RWS available to Wholesale Customers in multiple years of a sustained drought would potentially decrease by 45% to 54%. Such a reduction could fail to meet the basic health and safety needs for MPWD customers. It is also far short of the Level of Service Goal included in Section 3.11(C)(4) of the Water Supply Agreement between San Francisco and the Wholesale Customers, which ensures no more than a 20% shortage in any year of a planned designed drought.

Our expectation is that BAWSCA will prioritize and focus on compelling the SFPUC toward prioritization of its efforts to resolve any potential water supply shortfall and honor its contractual obligations to meet a goal of not more than 20% system-wide shortage in any year of a design drought.

The MPWD understands and supports the SFPUC's and BAWSCA's advocacy and negotiations efforts toward a TRVA, which could provide environmental benefits superior to that of the Bay-Delta Plan without imposing the same flow restrictions that would cause large and detrimental RWS shortfalls. We further support the litigation by the SFPUC and BAWSCA challenging the implementation of the Bay-Delta Plan.

Finally, there was insufficient time allowed for member agency vetting of the BAWSCA-proposed "equal allocation cutback," provided in late March 2021 and revised in April 2021, recommending that each member agency would have its supply equally reduced during a drought, potentially by as much as 49%. While I plan to recommend to the MPWD Board of Directors that it adopt a 2020 UWMP with the equal allocation cutback proposed by BAWSCA, the MPWD does not necessarily agree to the methodology, as it would render inequitable results and could threaten the health and safety of our ratepayers. The MPWD looks forward to the much-needed discussions among member agency water managers around a more appropriate cutback allocation during a drought.

Sincerely,

Tammy A. Rudock
General Manager

Bay Area Water Supply & Conservation Agency

June 1, 2021

Thomas J. Piccolotti
President of the Board of Directors
North Coast County Water District
2400 Francisco Blvd.
Pacifica, CA 94044

Subject: Letter to BAWSCA Dated May 21, 2021 Regarding 2020 Urban Water Management Plan Matters

Dear Thomas,

BAWSCA received North Coast County Water District's (NCCWD) letter dated May 21, 2021 within which NCCWD took exception with the "equal allocation of cutbacks" methodology that was applied by BAWSCA to allocate the San Francisco Regional Water System (RWS) supplies available, for 2020 UWMP development purposes only, during shortfall conditions that would occur in either a single-year or multiple-dry year drought scenarios.

As NCCWD is aware, the supply allocation available for the collective BAWSCA member agencies was calculated by the San Francisco Public Utilities Commission (SFPUC). The SFPUC assumed that the currently adopted Bay-Delta Plan was implemented, in particular the Plan's 40% unimpaired streamflow requirement that limits the water supply that would be available from the Tuolumne River. The SFPUC's analysis also incorporated projected SPFUC water purchases by BAWSCA member agencies, including NCCWD, through the 2045 planning horizon. RWS system-wide shortages under those assumptions are as high as 49% in multiple dry years. That translates to shortages to the wholesale customers between 45% and 54% in the 3rd, 4th, and 5th consecutive years of a multi-year drought.

Impacts of the Bay-Delta Plan on Supply Reliability Were Recognized, Quantified and Discussed Beginning in 2016-17

The cutbacks as noted above do not come as a recent surprise. In a letter dated March 16, 2017, BAWSCA provided comments to the State Water Resources Control Board (State Board) on their 2016 Draft Revised Substitute Environmental Document (Draft SED) In Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality. In that letter, BAWSCA included the following statement related to the impacts of a 40% unimpaired flow requirement on BAWSCA member agencies:

> *"… using system-wide annual deliveries of 223 mgd, which is equivalent to Fiscal Year 2012-2013 RWS demand, if a 40 percent unimpaired flow objective were implemented on the Tuolumne River, the RWS deliveries to the Wholesale Customers would be cutback by 43 percent during the first 3 years of the drought, followed by 52 percent reductions in deliveries for the next 3 years…"*

BAWSCA's review of the Draft SED as well as the ensuing comment letter was extensively discussed with BAWSCA's Water Management Representatives (WMR) as well as BAWSCA's

Board of Directors beginning in 2016. The cutbacks envisioned in BAWSCA's comments to the State Board mirror the results of the cutbacks provided by the SFPUC as part of the 2020 UWMP documentation they provided.

NCCWD also submitted a comment letter, dated December 28, 2016, to the State Board on the Draft SED, noting the significant impacts of the proposed Bay-Delta Plan on its water supply reliability. NCCWD's letter included the following statement:

> *"As a wholesale customer of SFPUC that purchases 100% of its potable water supply from the San Francisco Regional Water System, water supply available to* NCCWD *under the SED proposal could be reduced more than 50% under drought conditions for multiple consecutive years."*

BAWSCA's Effort to Engage Interested Parties on the Impacts of the Bay-Delta Plan Continued from 2017 Moving Forward

In 2016 through to the present, BAWSCA has provided statements, both in writing and through oral comments, to the State Board, at WMR meetings, at SFPUC meetings, and to a number of other entities such as the Bay Area Council and San Mateo County's Harbor Industrial Association, discussing the severe impacts that the Bay-Delta Plan and its associated 40% unimpaired flow requirement would have on member agency water supply reliability.

While NCCWD may not recall specific prior discussions, letters, comments, or statements made by BAWSCA related to the Bay-Delta Plan, it is BAWSCA's belief that NCCWD and its Board of Directors will likely recall that, in general, many concerns have been raised on the topic for many years by BAWSCA. BAWSCA continues to voice strong concerns about the impact of the Bay-Delta Plan on water supply reliability for its member agencies and their water customers, press for the Tuolumne River Voluntary Agreement (TRVA) to be analyzed as an alternative to the adopted Plan, and urge the SFPUC to implement an Alternative Water Supply Planning effort to ensure it can meet its contractual and legal obligations to the member agencies.

BAWSCA's Effort to Support Member Agencies on their 2020 UWMP Preparation Was Extensive

To support member agencies in their preparation of 2020 UWMPs, BAWSCA held five workshops between October 2020 and April 2021, inviting member agency staff, their consultants, and legal counsel. Those workshops were thorough and thoughtful, and allowed for agencies and their consultants to pose questions and keep abreast of the status of documentation that was to be provided by BAWSCA and the SFPUC. BAWSCA placed a high priority on providing member agencies with timely and accurate information. However, BAWSCA reminded its member agencies that BAWSCA does not control SFPUC's approach taken with its 2020 UWMP or its development schedule. Nor does BAWSCA control the various course changes made by the SFPUC on its 2020 UWMP, that in turn negatively impacted member agency 2020 UWMP development. BAWSCA agrees that moving forward on the next cycle of UWMPs, the SFPUC should start its work earlier, such that BAWSCA member agencies are given more time to digest the information provided to them and more time to craft their UWMPs.

As was discussed during the above-referenced workshops, supply shortfall allocation would prove to be challenging. The approach to the allocation of shortfalls is informed by the 2018

Amended and Restated Water Supply Agreement (WSA). Paragraph 3.11.C.3 of the WSA states:

> *For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.*

Given the size of the system-wide shortfalls provided by the SFPUC, it was clear that the Tier 2 Plan, which allocates shortfalls of no greater than 20%, did not apply in all cases. Designing a technical approach to apply to system-wide cutbacks greater than 20% that all agencies would embrace within the 2020 UWMP development time frame was not possible. Developing such an approach requires significant time and detailed analysis, and further requires direct engagement with agency staff, agency-specific operational and system data, and feedback from the governing bodies. As NCCWD knows, prior efforts to develop the existing Tier 2 Plan took multiple years prior to the final negotiations and adoption.

Given these circumstances, for the purposes of the development of member agency 2020 UWMPs, BAWSCA considers applying an equal allocation of cutbacks remains the prudent approach for 2020 UWMP preparation purposes.

It is at the discretion of NCCWD, or any BAWSCA member agency, to propose a different allocation for use in their specific 2020 UWMP. We understand per the comment made in NCCWD's letter to BAWSCA that for the purposes of NCCWD's 2020 UWMP, NCCWD intends to apply the shared shortfall approach. Other member agencies may elect to do so as well, but there is no mandate to do so.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Budget

BAWSCA intends to initiate an update the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA initiates the update, yet it is not certain at this time.

SFPUC's Level of Service (LOS) Goals Are Contractual Requirements Referenced in the Water Supply Agreement Between Member Agencies and the City / County of San Francisco

NCCWD's letter referenced the fact that the SFPUC is contractually required under the WSA to meet Level of Service (LOS) Goals and Objectives. Those LOS goals require that the SFPUC have sufficient supplies available in times of a drought such that no greater than 20% system-wide cutbacks are required. BAWSCA has provided the member agencies, including NCCWD, with suggested language for use in 2020 UWMPs to reference that requirement. Moreover, the joint language developed by the SFPUC for use in member agency 2020 UWMPs references

alternative water supply projects that would be developed to help address drought shortfalls. BAWSCA encourages NCCWD to incorporate that information into the 2020 UWMP.

NCCWD's Water Conservation Programs

Finally, BAWSCA recognizes that NCCWD has made considerable investments in its water conservation programs to improve water use efficiency. Every drop of water saved improves supply reliability and benefits all users of the RWS. BAWSCA continues to encourage all member agencies to make water conservation a way of life and appreciates NCCWD's ongoing commitment to those efforts.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to BAWSCA's member agencies. It is BAWSCA's hope that BAWSCA's efforts to support the member agencies on their 2020 UWMP preparation efforts have proven to be of assistance. Please feel free to reach out to BAWSCA if NCCWD would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Adrianne Carr, NCCWD, General Manager

2400 Francisco Blvd.
P.O. Box 1039
Pacifica, CA 94044
www.nccwd.com

North Coast County Water District
SINCE 1944

Phone (650) 355-3462
Fax (650 355-0735

RECEIVED
MAY 27 2021

May 21, 2021

Ms. Nicole Sandkulla
Chief Executive Officer & General Manager
Bay Area Water Supply & Conservation Agency
155 Bovet Road, Suite 650
San Mateo CA 94402

Re: NCCWD Urban Water Management Plan

Dear Nicole:

While the North Coast County Water District (NCCWD) appreciates all the time and effort that the Bay Area Water Supply and Conservation Agency (BAWSCA) has put into assisting its member agencies prepare the 2020 Urban Water Management Plan (UWMP), NCCWD disagrees with the use of "equal allocation cutbacks" for allocating regional water supplies among the BAWSCA member agencies. For planning purposes under the 2020 UWMPs, BAWSCA recommends that the Wholesale Customers adopt an "equal allocation cutback," in which each agency will have its supply reduced equally for regional water supply shortages greater than 20%, in lieu of the adopted Tier 2 Plan. This results in water supply reductions to NCCWD of up to 54% in multiple year droughts.

This equal allocation cutback methodology has inequitable results, particularly when considering past water conservation efforts and existing per capita water usage. NCCWD customers have done a remarkable job of using water efficiently and implementing long term water conservation measures that have lasting results. In 2020 NCCWD's overall water usage was 60 gallons per capita per day, with a residential usage at 48 gallons per capita per day. The equal allocation cutback approach penalizes NCCWD's investment in these water conservation efforts and threatens the health and safety of NCCWD's water customers.

Given the many concerns that NCCWD and others have expressed about this "equal allocation of cutbacks" methodology, NCCWD must go on record to say that while we are using this method merely for planning purposes for the 2020 UWMP at your suggestion, NCCWD is not in agreement with this methodology. We believe that BAWSCA understands how problematic inequities would arise if the equal allocation cutback methodology were used, so NCCWD requests that BAWSCA proactively lead the effort to develop an equitable methodology among the BAWSCA member agencies for regional water supply shortages that exceed 20%.

NCCWD relies solely on water provided by the SFPUC to meet the needs of its customers. NCCWD was shocked by the huge cutbacks that will be imposed in drought years with the implementation of the Bay-

Delta Plan. The projected system-wide water supply reductions of up to 49% in multiple year droughts far exceeds the level of service goal included in the November 2018 Amended and Restated Water Supply Agreement with the City and County of San Francisco, which BAWSCA was instrumental in negotiating. The Water Supply Agreement provides that the SFPUC has a "goal of not more than 20 percent system-wide shortage in any year of a design drought." Because BAWSCA administers the Water Supply Agreement on behalf of all the wholesale customers, NCCWD requests that BAWSCA work with the SFPUC to ensure that SFPUC meets this level of service goal. We expect that BAWSCA will urge the SFPUC to expedite water supply projects to meet its supply assurance obligations of 184 million gallons per day (MGD) to its wholesale customers and NCCWD's Individual Supply Guarantee of 3.84 MGD.

We also want to acknowledge and support the efforts that BAWSCA has made to advocate on behalf of the Wholesale Customers of the Hetch Hetchy water system for a voluntary settlement agreement in the Bay-Delta proceeding in order to avoid the very severe water supply cutbacks that would occur with the implementation of the Bay-Delta Plan that was adopted by the State Water Resources Control Board in December of 2018.

Again, NCCWD appreciates all that BAWSCA does for its member agencies, and we look forward to working with you to ensure that SFPUC provides adequate water supply to all Wholesale Customers during drought years.

Sincerely,

Thomas J. Piccolotti
President, Board of Directors
North Coast County Water District

Bay Area Water Supply & Conservation Agency

June 1, 2021

Justin Chapel
Public Works Superintendent
City of Redwood City
1400 Broadway Street
Redwood City, CA 94063

Subject: Letter to BAWSCA Dated May 19, 2021 Regarding 2020 Urban Water Management Plan Matters

Dear Justin,

BAWSCA received Redwood City's letter dated May 19, 2021 within which Redwood City took exception with the "equal allocation of cutbacks" methodology that was applied by BAWSCA to allocate the San Francisco Regional Water System (RWS) supplies available, for 2020 UWMP development purposes only, during shortfall conditions that would occur in either a single-year or multiple-dry year drought scenarios.

As Redwood City is aware, the supply allocation available for the collective BAWSCA member agencies was calculated by the San Francisco Public Utilities Commission (SFPUC). The SFPUC assumed that the currently adopted Bay-Delta Plan was implemented, in particular the Plan's 40% unimpaired streamflow requirement that limits the water supply that would be available from the Tuolumne River. The SFPUC's analysis also incorporated projected SPFUC water purchases by BAWSCA member agencies, including Redwood City, through the 2045 planning horizon. RWS system-wide shortages under those assumptions are as high as 49% in multiple dry years. That translates to shortages to the wholesale customers between 45% and 54% in the 3rd, 4th, and 5th consecutive years of a multi-year drought.

Impacts of the Bay-Delta Plan on Supply Reliability Were Recognized, Quantified and Discussed Beginning in 2016-17

The cutbacks as noted above do not come as a recent surprise. In a letter dated March 16, 2017, BAWSCA provided comments to the State Water Resources Control Board (State Board) on their 2016 Draft Revised Substitute Environmental Document (Draft SED) In Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality. In that letter, BAWSCA included the following statement related to the impacts of a 40% unimpaired flow requirement on BAWSCA member agencies:

> *"… using system-wide annual deliveries of 223 mgd, which is equivalent to Fiscal Year 2012-2013 RWS demand, if a 40 percent unimpaired flow objective were implemented on the Tuolumne River, the RWS deliveries to the Wholesale Customers would be cutback by 43 percent during the first 3 years of the drought, followed by 52 percent reductions in deliveries for the next 3 years…"*

BAWSCA's review of the Draft SED as well as the ensuing comment letter was extensively discussed with BAWSCA's Water Management Representatives (WMR) as well as BAWSCA's

Board of Directors beginning in 2016. The cutbacks envisioned in BAWSCA's comments to the State Board mirror the results of the cutbacks provided by the SFPUC as part of the 2020 UWMP documentation they provided.

Redwood City also submitted a comment letter, dated February 23, 2017, to the State Board on the Draft SED noting the significant impacts of the proposed Bay-Delta Plan on its water supply reliability. Redwood City's letter included the following statement:

> *"As a wholesale customer of SFPUC that purchases 100% of its potable water supply from the San Francisco Regional Water System, water supply available to Redwood City under the SED proposal could be reduced more than 50% under drought conditions for multiple consecutive years."*

BAWSCA's Effort to Engage Interested Parties on the Impacts of the Bay-Delta Plan Continued from 2017 Moving Forward

In 2016 through to the present, BAWSCA has provided statements, both in writing and through oral comments, to the State Board, at WMR meetings, at SFPUC meetings, and to a number of other entities such as the Bay Area Council and San Mateo County's Harbor Industrial Association, discussing the severe impacts that the Bay-Delta Plan and its associated 40% unimpaired flow requirement would have on member agency water supply reliability.

While Redwood City may not recall specific prior discussions, letters, comments, or statements made by BAWSCA related to the Bay-Delta Plan, it is BAWSCA's belief that Redwood City and its Council Members will likely recall that, in general, many concerns have been raised on the topic for many years by BAWSCA. BAWSCA continues to voice strong concerns about the impact of the Bay-Delta Plan on water supply reliability for its member agencies and their water customers, press for the Tuolumne River Voluntary Agreement (TRVA) to be analyzed as an alternative to the adopted Plan, and urge the SFPUC to implement an Alternative Water Supply Planning effort to ensure it can meet its contractual and legal obligations to the member agencies.

BAWSCA's Effort to Support Member Agencies on their 2020 UWMP Preparation Was Extensive

To support member agencies in their preparation of 2020 UWMPs, BAWSCA held five workshops between October 2020 and April 2021, inviting member agency staff, their consultants, and legal counsel. Those workshops were thorough and thoughtful, and allowed for agencies and their consultants to pose questions and keep abreast of the status of documentation that was to be provided by BAWSCA and the SFPUC. BAWSCA placed a high priority on providing member agencies with timely and accurate information. However, BAWSCA reminded its member agencies that BAWSCA does not control SFPUC's approach taken with its 2020 UWMP or its development schedule. Nor does BAWSCA control the various course changes made by the SFPUC on its 2020 UWMP, that in turn negatively impacted member agency 2020 UWMP development. BAWSCA agrees that moving forward on the next cycle of UWMPs, the SFPUC should start its work earlier, such that BAWSCA member agencies are given more time to digest the information provided to them and more time to craft their UWMPs.

As was discussed during the above-referenced workshops, supply shortfall allocation would prove to be challenging. The approach to the allocation of shortfalls is informed by the 2018 Amended and Restated Water Supply Agreement (WSA). Paragraph 3.11.C.3 of the WSA states:

> *For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.*

Given the size of the system-wide shortfalls provided by the SFPUC, it was clear that the Tier 2 Plan, which allocates shortfalls of no greater than 20%, did not apply in all cases. Designing a technical approach to apply to system-wide cutbacks greater than 20% that all agencies would embrace within the 2020 UWMP development time frame was not possible. Developing such an approach requires significant time and detailed analysis, and further requires direct engagement with agency staff, agency-specific operational and system data, and feedback from the governing bodies. As Redwood City knows, prior efforts to develop the existing Tier 2 Plan took multiple years prior to the final negotiations and adoption.

Given these circumstances, for the purposes of the development of member agency 2020 UWMPs, BAWSCA considers applying an equal allocation of cutbacks remains the prudent approach for 2020 UWMP preparation purposes.

It is at the discretion of Redwood City, or any BAWSCA member agency, to propose a different allocation for use in their specific 2020 UWMP. We understand per the comment made in Redwood City's letter to BAWSCA that for the purposes of Redwood City's 2020 UWMP, Redwood City intends to apply the shared shortfall approach. Other member agencies may elect to do so as well, but there is no mandate to do so.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Budget

BAWSCA intends to initiate an update the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA initiates the update, yet it is not certain at this time.

SFPUC's Level of Service (LOS) Goals Are Contractual Requirements Referenced in the Water Supply Agreement Between Member Agencies and the City / County of San Francisco

Redwood City's letter referenced the fact that the SFPUC is contractually required under the WSA to meet Level of Service (LOS) Goals and Objectives. Those LOS goals require that the SFPUC have sufficient supplies available in times of a drought such that no greater than 20% system-wide cutbacks are required. BAWSCA has provided the member agencies, including Redwood City, with suggested language for use in 2020 UWMPs to reference that requirement.

Moreover, the joint language developed by the SFPUC for use in member agency 2020 UWMPs references alternative water supply projects that would be developed to help address drought shortfalls. BAWSCA encourages Redwood City to incorporate that information into the 2020 UWMP.

Redwood City's Recycled Water Program

Finally, BAWSCA recognizes that Redwood City has made considerable investments in its recycled water program to offset potable water demand, not just within City boundaries but in neighboring jurisdictions as well. As stated in Redwood City's letter, developing local supplies to offset improves supply reliability and benefits all users of the RWS. BAWSCA continues to encourage all member agencies to maximize the use of local supplies and appreciates Redwood City's ongoing commitment to expand recycled water use regionally.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to BAWSCA's member agencies. It is BAWSCA's hope that BAWSCA's efforts to support the member agencies on their 2020 UWMP preparation efforts have proven to be of assistance. Please feel free to reach out to BAWSCA if Redwood City would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Barbara Pierce, BAWSCA Board of Director

PUBLIC WORKS SERVICES
WATER UTILITIES DIVISION

1400 Broadway Street
Redwood City, CA 94063
(650) 780-7464
Fax (650) 780-7445

Nicole M. Sandkulla
Chief Executive Officer/General Manager
Bay Area Water Supply and Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

May 19, 2021

RE: Bay Delta Plan Water Supply Impacts and 2020 Urban Water Management Plan

Redwood City is writing this letter to express our concern regarding information provided by the San Francisco Public Utilities Commission (SFPUC) and BAWSCA in preparation of the 2020 update to the Urban Water Management Plan (UWMP), and the water supply reliability resulting from the implementation of the Phase 1 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan).

As you are aware implementation of the Bay Delta Plan will result in significant cutbacks greater than 50% in water supply during dry years for Redwood City, which purchases all of its drinking water from the SFPUC. This reduction in water supply represents a substantial challenge for Redwood City's water customers and community, and if such a reduction in demand is required the City will be forced to impose severe measures to meet the available supply. Some of these measures include a prohibition on irrigation with potable water; suspension of distribution system flushing; cutbacks for commercial, industrial and institutional customers by 30%; a moratorium on new development; and a reduction of residential indoor water uses to 27 gallons per person per day which raises concerns whether there will be sufficient water available to meet the basic health and safety needs, and economic vitality of our community.

Redwood City would like to bring to your attention two specific concerns regarding the information provided by the SFPUC and BAWSCA for inclusion and preparation of the 2020 UWMP. First is the fact that the Regional Water System supply allocations provided by SFPUC do not meet the Level of Service Goals included in the Water Supply Agreement and, therefore, SFPUC will not be meeting its contractual obligations to the Wholesale Customers. Second is the methodology used by BAWSCA to allocate an equal percent reduction across all agencies when average Wholesale Customers' shortages are greater than 20%. Redwood City is using this methodology in the 2020 UWMP, but is not agreeing to or adopting this methodology. We appreciate that BAWSCA recognizes this methodology is not ideal, and encourage BAWSCA to continue to facilitate discussions between all member agencies to develop a Tier 2 allocation plan that consider basic health and safety needs, identifies water needs of critical customers, and minimizes economic impacts across the region.

Redwood City has been and continues to be committed to using our limited water resources wisely through robust water conservation programs, and development of new supplies with recycled water. This past year Redwood City's Recycled Water Project supplied 856 acre-feet of water for non-potable uses that otherwise would have used potable water from SFPUC benefitting all users of the Regional Water System. The City continues to expand recycled water use, and in November of 2019 the City adopted a Recycled Water Development Standard which establishes guidelines for the safe use of recycled water for toilet and urinal flushing and other requirements which helps to ensure new buildings meet dual plumbing requirements, and are ultimately approved to use recycled water when completed and as the recycled water system expands.

Through our Recycled Water Project, Redwood City has the ability to assist neighboring member agencies with their plans to utilize recycled water, and offset potable water use from the Regional Water System. Currently Redwood City has identified up to 273 acre-feet per year of recycled water available to other agencies.

Thank you for taking the time to review our concerns, and we look forward to working through these issues with you, the other member agencies, and SFPUC.

Regards,

Justin Chapel
Public Works Superintendent
City of Redwood City
650-780-7469
jchapel@redwoodcity.org

Bay Area Water Supply & Conservation Agency

June 4, 2021

Mary Rogren
General Manager
Coastside County Water District
766 Main Street
Half Moon Bay, CA 94019

Subject: Letter to BAWSCA Dated May 28, 2021 Regarding 2020 Urban Water Management Plan Matters

Dear Mary,

BAWSCA received Coastside County Water District's (CCWD) letter dated May 28, 2021 within which CCWD conveyed its concern about the impacts of the drought supply scenarios provided by the San Francisco Public Utilities Commission (SFPUC) for the 2020 Urban Water Management Plans (UWMP) and urged the SFPUC and BAWSCA to aggressively invest in alternative water supplies to limit rationing to no more than 20 percent system-wide in dry years.

Impacts of the Bay-Delta Plan on Supply Reliability

BAWSCA recognizes the severe and adverse effect that implementation of the Bay-Delta Plan, as adopted in 2018, would have on BAWSCA member agencies. In a letter dated March 16, 2017, BAWSCA provided comments to the State Water Resources Control Board (State Board) on their 2016 Draft Revised Substitute Environmental Document (Draft SED) In Support of Potential Changes to the Water Quality Control Plan for the San Francisco Bay-Sacramento San Joaquin Delta Estuary: San Joaquin River Flows and Southern Delta Water Quality. In that letter, BAWSCA included the following statement related to the impacts of a 40% unimpaired flow requirement on BAWSCA member agencies:

> *"… using system-wide annual deliveries of 223 mgd, which is equivalent to Fiscal Year 2012-2013 RWS demand, if a 40 percent unimpaired flow objective were implemented on the Tuolumne River, the RWS deliveries to the Wholesale Customers would be cutback by 43 percent during the first 3 years of the drought, followed by 52 percent reductions in deliveries for the next 3 years…"*

In 2016 through to the present, BAWSCA has provided statements, both in writing and through oral comments, to the State Board, at WMR meetings, at SFPUC meetings, and to a number of other entities such as the Bay Area Council and San Mateo County's Harbor Industrial Association, discussing the severe impacts that the Bay-Delta Plan and its associated 40% unimpaired flow requirement would have on member agency water supply reliability. BAWSCA continues to voice strong concerns about the impact of the Bay-Delta Plan on water supply reliability for its member agencies and their water customers, press for the Tuolumne River Voluntary Agreement (TRVA) to be analyzed as an alternative to the adopted Plan, and urge the SFPUC to implement an Alternative Water Supply Planning effort to ensure it can meet its contractual and legal obligations to the member agencies.

SFPUC's Level of Service (LOS) Goals and Alternative Water Supply Planning Program

CCWD's letter referenced the fact that the SFPUC is contractually required under the WSA to meet Level of Service (LOS) Goals and Objectives. Those LOS goals require that the SFPUC have sufficient supplies available in times of a drought such that no greater than 20% system-wide cutbacks are required. BAWSCA successfully pressed the SFPUC to implement and properly fund an Alternative Water Supply Program, which began in early 2020. The SFPUC reports out on the status of projects identified in the Alternative Water Supply Planning Program on a quarterly basis. BAWSCA continues to closely track the progress of these projects and will urge the SFPUC to implement them in a timely manner.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Budget

BAWSCA intends to initiate an update to the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA initiates the update, yet it is not certain at this time.

CCWD's Water Conservation Programs

Finally, BAWSCA recognizes that CCWD has made considerable investments in its water conservation programs to improve water use efficiency. Every drop of water saved improves supply reliability and benefits all users of the RWS. BAWSCA continues to encourage all member agencies to make water conservation a way of life and appreciates CCWD's ongoing commitment to those efforts.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to BAWSCA's member agencies. It is BAWSCA's hope that BAWSCA's efforts to support the member agencies on their 2020 UWMP preparation efforts have proven to be of assistance. Please feel free to reach out to BAWSCA if CCWD would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Glenn Reynolds, CCWD Board President
Robert Feldman, CCWD Board Vice-President
Ken Coverdell, CCWD Board of Directors
Chris Mickelsen, CCWD and BAWSCA Board of Directors
John Muller, CCWD Board of Directors
Steve Ritchie, SFPUC Assistant General Manager

May 28, 2021

Nicole Sandkulla, Chief Executive Officer
Bay Area Water Supply Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402
Email: nsandkulla@bawsca.org

Mr. Steve Ritchie
Assistant General Manager, Water
San Francisco Public Utilities Commission
525 Golden Gate Avenue
San Francisco, CA 94102
Email: sritchie@sfwater.org

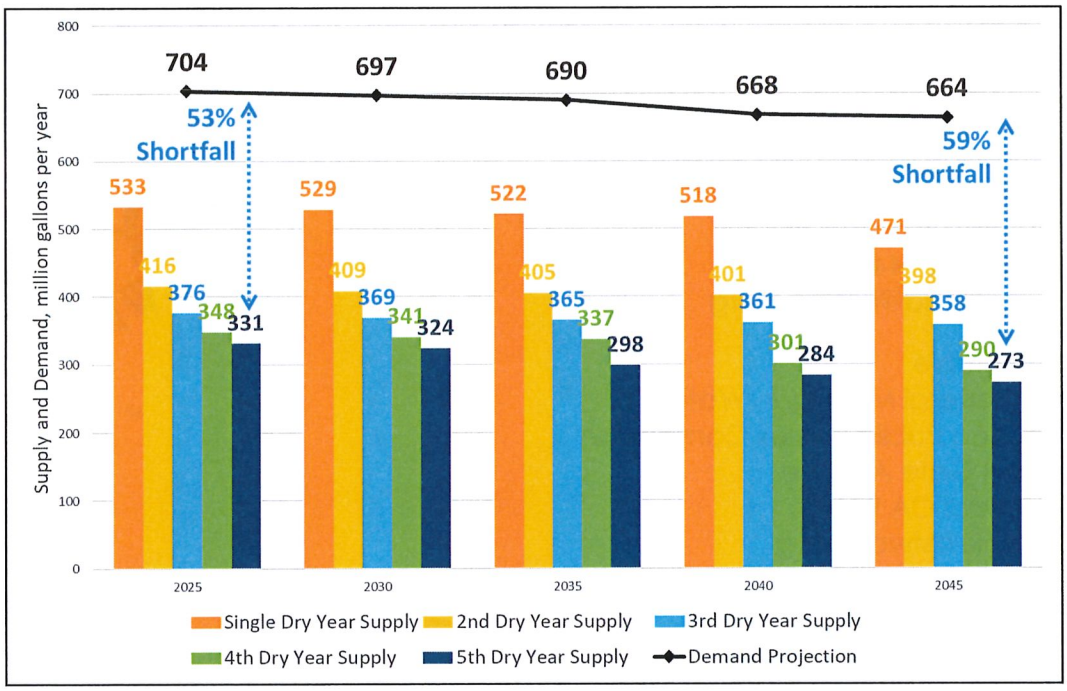
Re: Regional Water System (RWS) Supply Reliability and Drought Risk Assessment

Ms. Sandkulla and Mr. Ritchie:

Coastside County Water District (District) supports the ongoing efforts that the San Francisco Public Utilities Commission (SFPUC) and the Bay Area Water Supply and Conservation Agency (BAWSCA) have made to advocate on behalf of customers the RWS for an alternative voluntary Tuolumne River agreement.

The District anticipated that climate change and water conservation mandates would impact supplies and demand and has taken action to prepare for these impacts. These actions include investing in local surface water supplies and investing in water use efficiency. The District has met its final 2020 water use target under the Water Conservation Act of 2009 and has a low residential indoor per capita water use. District customers responded to voluntary and mandatory reductions in water use during the last drought cycle and many of those savings have become permanent savings. And with limits on growth from Local Coastal Plans and Coastal Development Permits, the District's water demand is projected to remain under our Individual Supply Guarantee (ISG) of 2.175 MGD.

The design drought supply scenarios, as modeled by SFPUC, result in rationing that would be devastating for the District's service area. The District does not have local storage for surface water and we rely on the RWS during drought years when our local surface water sources are impacted by the lack of precipitation and other constraints. The District is facing water shortages, under the design drought scenarios, of up to 59 percent. The following chart summarizes the shortfall scenarios for the District.



Confronted with these water shortage scenarios, the District has serious reservations regarding the cities of San Jose and Santa Clara becoming permanent customers of the RWS or providing them additional water supplies in normal water years.

The District urges SFPUC and BAWSCA to aggressively invest in alternative water supplies to be able to meet the level of service (LOS) objective of not more than a 20 percent system-wide shortage in any year of a drought scenario. With a small service area, the District faces challenges financing local alternative water supply projects, but when considered as part of a broader RWS supply portfolio, the benefits could offset the costs. Please consider additional water supply partnerships with smaller wholesale customers.

Since wholesale customers must now plan for RWS shortages greater than 20 percent and possibly as high as 50 percent, BAWSCA must open discussions with member agencies to negotiate an equitable approach to water allocations during RWS water shortages of up to 50 percent. An equitable approach would consider an agency's health and safety needs and an agency's ISG, among other considerations.

Thank you for your consideration and please contact me with any questions.

Best Regards,
Mary Rogren, General Manager

cc President Glenn Reynolds, Vice-President Robert Feldman, Director Ken Coverdell, Director Chris Mickelsen, Director John Muller

Bay Area Water Supply & Conservation Agency

June 10, 2021

Nicole Nagaya
Public Works Director
City of Menlo Park
701 Laurel Street
Menlo Park, CA 94025

Subject: Letter to BAWSCA Dated May 27, 2021 Regarding 2020 Urban Water Management Plan Matters

Dear Nicole,

BAWSCA received Menlo Park's letter dated May 27, 2021 within which Menlo Park took exception with the equal allocation of cutbacks methodology that was applied by BAWSCA to allocate the San Francisco Regional Water System (RWS) supplies available, for 2020 UWMP development purposes only, during shortfall conditions that would occur in either a single-year or multiple-dry year scenarios.

BAWSCA's Decision to Recommend Equal Allocation of Cutbacks for RWS Shortages Greater than 20 Percent

As acknowledged in Menlo Park's letter, and stated in BAWSCA's February 18, 2021 memorandum to the member agencies, there currently is no method for allocating drought supplies greater than 20%. Given the size of the system-wide shortfalls provided by the SFPUC, it was clear that the Tier 2 Plan, which allocates shortfalls of no greater than 20%, did not apply in all cases. Designing a technical approach to apply to system-wide cutbacks greater than 20% that all agencies would embrace within the 2020 UWMP development time frame was not possible. Developing such an approach requires significant time and detailed analysis, and further requires direct engagement with agency staff, agency-specific operational and system data, and feedback from the governing bodies. As Menlo Park knows, prior efforts to develop the existing Tier 2 Plan took multiple years prior to the final negotiations and adoption.

Given these circumstances, for the purposes of the development of member agency 2020 UWMPs, BAWSCA considers applying an equal allocation of cutbacks remains the prudent approach for 2020 UWMP preparation purposes. The approach to the allocation of shortfalls is informed by the 2018 Amended and Restated Water Supply Agreement (WSA). Paragraph 3.11.C.3 of the WSA states:

> *For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.*

It is at the discretion of Menlo Park, or any BAWSCA member agency, to propose a different allocation for use in their specific 2020 UWMP. We understand per the comment made in Menlo Park's letter to BAWSCA that for the purposes of Menlo Park's 2020 UWMP, Menlo Park intends to apply the shared shortfall approach. Other member agencies may elect to do so as well, but there is no mandate to do so.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Budget

As noted in Menlo Park's letter, BAWSCA intends to initiate an update of the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA initiates the update, yet it is not certain at this time.

SFPUC's Level of Service (LOS) Goals and Alternative Water Supply Planning Program

Menlo Park's letter referenced the fact that the SFPUC is contractually required under the WSA to meet Level of Service (LOS) Goals and Objectives. Those LOS goals require that the SFPUC have sufficient supplies available in times of a drought such that no greater than 20% system-wide cutbacks are required. BAWSCA successfully pressed the SFPUC to implement and properly fund an Alternative Water Supply Program, which began in early 2020. The SFPUC reports out on the status of projects identified in the Alternative Water Supply Planning Program on a quarterly basis. BAWSCA continues to closely track the progress of these projects and will urge the SFPUC to implement them in a timely manner.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to BAWSCA's member agencies. It is BAWSCA's hope that BAWSCA's efforts to support the member agencies on their 2020 UWMP preparation efforts have proven to be of assistance. Please feel free to reach out to BAWSCA if Menlo Park would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Nira Doherty, City Attorney
Christopher Lamm, Assistant Public Works Director
Pam Lowe, Senior Civil Engineer

CITY OF MENLO PARK

May 27, 2021

Bay Area Water Supply and Conservation Agency (BAWSCA)
Nicole Sandkulla, CEO / General Manager
155 Bovet Rd, Suite 650
San Mateo, CA 94402

Subject: BAWSCA Methodology for Cutbacks Greater than 20 Percent for the 2020 Urban Water Management Plan

Dear Ms. Sandkulla,

As we prepare our Urban Water Management Plan, we appreciate BAWSCA's support and assistance in clarifying the San Francisco Public Utility Commission's (SFPUC) Regional Water System (RWS) supply reliability data, obtaining and creating Urban Water Management Plans (UWMP) common language, and developing a methodology that the BAWSCA agencies can use for cutbacks greater than 20 percent.

As stated in your February 18, 2021 memorandum, because there is no method for allocating supplies for cutbacks greater than 20 percent, BAWSCA recommended "*when the average Wholesale Customers' RWS shortages are greater than 20 percent, an equal percent reduction will be applied across all agencies.*" With the close deadline for agencies to adopt and submit their UWMPs to the Department of Water Resources by July 1, we appreciate that BAWSCA could quickly develop a methodology that the Wholesale Customers could use in their respective UWMPs.

We have included BAWSCA's equal percent reductions for cutbacks greater than 20 percent in our 2020 UWMP for planning purposes, however, we must go on record that we are not in agreement with this methodology. We understand that the Wholesale Customers will begin discussing and negotiating new Tier 2 calculations later this year, a process that could take upwards of 18 months, and we look forward to be part of that process.

As you are aware, SFPUC's supply reliability data does not meet their contractual obligation (also known as level of service goals) to supply Wholesale Customers with not more than a 20 percent cutback (WSA Section 3.11C4). We know that BAWSCA, in its role of administering the contract on behalf of the Wholesale Customers, will continue to prioritize SFPUC's need to meet its contractual obligations and urge them to expedite water supply projects in order to meet the total 184 million gallons per day (MGD) supply guarantee to all of the Wholesale customers, including MPMW's individual supply guarantee of 4.456 MGD.

We appreciate BAWSCA's diligence and perseverance in administering the contract on behalf of the Wholesale Customers and ensuring that SFPUC meets its contractual obligations, specifically their level of service goals.

Sincerely,

Nicole Nagaya

Nicole Nagaya
Public Works Director

cc: Nira Doherty, City Attorney
Christopher Lamm, Assistant Public Works Director
Pam Lowe, Senior Civil Engineer

Bay Area Water Supply & Conservation Agency

June 11, 2021

Michael Hurley
Water Resources Manager
California Water Service
1720 North First Street
San Jose, CA 95112

Subject: Letter to BAWSCA Dated June 7, 2021 Regarding 2020 Urban Water Management Plan Matters

Dear Michael,

BAWSCA received Cal Water's letter dated June 7, 2021 within which Cal Water took exception with the "equal allocation of cutbacks" methodology that was applied by BAWSCA to allocate the San Francisco Regional Water System (RWS) supplies available, for 2020 UWMP development purposes only, during shortfall conditions that would occur in either a single-year or multiple-dry year scenarios.

BAWSCA concurs that the 2018 adopted amendments to the Bay-Delta Plan could have significant and adverse effects on San Francisco Regional Water System (RWS) supplies. BAWSCA also agrees that uncertainty about implementation of the Bay-Delta Plan as well as the lack of a voluntary agreement for the Tuolumne River complicated the process for member agencies preparing 2020 UWMPs updates.

BAWSCA's Decision to Recommend Equal Allocation of Cutbacks for RWS Shortages Greater than 20 Percent

As acknowledged in Cal Water's letter, there currently is no method for allocating drought supplies greater than 20% and there was insufficient time to develop an alternative shortage allocation plan to meet the UWMP submittal deadline. Given these circumstances, for the purposes of the development of member agency 2020 UWMPs, BAWSCA considers applying an equal allocation of cutbacks remains the prudent approach for 2020 UWMP preparation purposes. The approach to the allocation of shortfalls is informed by the 2018 Amended and Restated Water Supply Agreement (WSA). Paragraph 3.11.C.3 of the WSA states:

> *For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.*

It is at the discretion of Cal Water, or any BAWSCA member agency, to propose a different allocation for use in their specific 2020 UWMP. We understand per the comment made in Cal Water's letter to BAWSCA that for the purposes of Cal Water's 2020 UWMP, Cal Water intends to apply the shared shortfall approach. Other member agencies may elect to do so as well, but there is no mandate to do so.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Budget

BAWSCA intends to initiate an update of the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA initiates the update, yet it is not certain at this time.

BAWSCA acknowledges that Cal Water shared an alternative methodology for allocating drought supplies and that it may be transferable to the BAWSCA service area. BAWSCA intends to review that methodology and the underlying assumptions and welcomes Cal Water's engagement during the Tier 2 Plan update.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to BAWSCA's member agencies. It is BAWSCA's hope that BAWSCA's efforts to support the member agencies on their 2020 UWMP preparation efforts have proven to be of assistance. Please feel free to reach out to BAWSCA if Cal Water would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Robert Kuta, BAWSCA Board Member

CALIFORNIA WATER SERVICE
Water Resource Sustainability Department 1720 North First Street
San Jose, CA 95112

June 7, 2021

Nicole Sandkulla, Chief Executive Officer
Bay Area Water Supply Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

Re: Tier 2 Shortage Allocation Methodology

Dear Ms. Sandkulla:

As you know, the State Water Resources Control Board's (SWRCB) 2018 adoption of amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Amendment) could significantly affect the future reliability of the SFPUC's water supplies to its wholesale customers. This action, together with the subsequent failure to achieve a Voluntary Agreement between the SWRCB and the impacted parties, has certainly complicated the process of preparing our 2020 updates to the urban water management plans (UWMP) for our three districts receiving supplies from the SFPUC's Regional Water System.

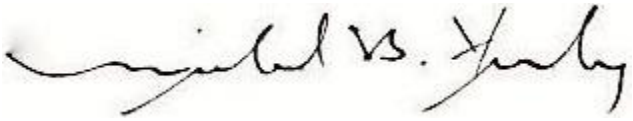
Cal Water appreciates the assistance that the Bay Area Water Supply and Conservation Agency (BAWSCA) has provided to its member agencies by coordinating with the SFPUC on the development and communication of the projected impacts of these potential cutbacks. Given the lack of time to develop an alternative shortage allocation method for distributing limited SFPUC supplies among the wholesale customers, Cal Water plans to adopt supply projections for its 2020 UWMPs based on the equal allocation cutback methodology discussed during the recent UWMP workshops and provided by BAWSCA. However, this letter serves as a formal notice that Cal Water does not agree to the methodology and our actions should not be considered as acceptance of this approach should an actual allocation of limited supplies be necessary in the future.

As you will recall, Cal Water shared an allocation methodology and accompanying tool that we feel could be easily transferable to the BAWSCA service area to create a more equitable allocation of available SFPUC supplies. This methodology is a "needs based" approach that considers factors such as basic health and safety needs, a wholesale customers reliance on SFPUC supplies, and overall efficiency to avoid drastic differences in retail level reliability. This seeks to minimize economic impacts on individual communities and the region.

We believe BAWSCA understands the problematic inequities that would occur if the equal allocation cutback methodology were employed, and we look forward to the discussion of alternative shortage allocation approaches among the Member Agencies to ensure that cutbacks are allocated equitably in the event of a severe drought.

CALIFORNIA WATER SERVICE

Sincerely,



Michael Hurley
Water Resources Manager

Bay Area Water Supply & Conservation Agency

June 16, 2021

Dr. Peter Pirnejad
City/District Manager
City of Foster City/EMID
610 Foster City Boulevard
Foster City, CA 94404

Subject: Letter to BAWSCA Dated June 11, 2021 Regarding 2020 Urban Water Management Plan Matters

Dear Peter,

BAWSCA received Estero Municipal Improvement District's (EMID) letter dated June 11, 2021, within which EMID took exception with the "equal allocation cutbacks" methodology that was applied by BAWSCA to allocate the San Francisco Regional Water System (RWS) supplies available, for 2020 UWMP development purposes only, during shortfall conditions that would occur in either a single-year or multiple-dry year scenarios.

BAWSCA concurs that the 2018 adopted amendments to the Bay-Delta Plan could have significant and adverse effects on San Francisco Regional Water System (RWS) supplies, and that as a single-source agency, impacts to EMID would be particularly acute.

BAWSCA continues to voice strong concerns about the impact of the Bay-Delta Plan on water supply reliability for its member agencies and their water customers, press for the Tuolumne River Voluntary Agreement (TRVA) to be analyzed as an alternative to the adopted Plan, and urge the SFPUC to implement an Alternative Water Supply Planning effort to ensure it can meet its contractual and legal obligations to the member agencies. EMID's support for BAWSCA's efforts on both fronts is acknowledged and appreciated.

BAWSCA's Decision to Recommend Equal Allocation of Cutbacks for RWS Shortages Greater than 20 Percent

As acknowledged in EMID's letter, there currently is no method for allocating drought supplies greater than 20% and there was insufficient time to develop an alternative shortage allocation plan to meet the UWMP submittal deadline. Given these circumstances, for the purposes of the development of member agency 2020 UWMPs, BAWSCA considers applying an equal allocation of cutbacks remains the prudent approach for 2020 UWMP preparation purposes. The approach to the allocation of shortfalls is informed by the 2018 Amended and Restated Water Supply Agreement (WSA). Paragraph 3.11.C.3 of the WSA states:

> *For Regional Water System shortages in excess of 20%, San Francisco shall (a) follow the Tier 1 Shortage Plan allocations up to the 20% reduction, (b) meet and discuss how to implement incremental reductions above 20% with the Wholesale Customers, and (c) make a final determination of allocations above the 20% reduction. After the SFPUC has made the final allocation decision, the Wholesale Customers shall be free to challenge the allocation on any applicable legal or equitable basis.*

It is at the discretion of EMID, or any BAWSCA member agency, to propose a different allocation for use in their specific 2020 UWMP. We understand per the comment made in EMID's letter to BAWSCA that for the purposes of EMID's 2020 UWMP, EMID intends to apply the shared shortfall approach. Other member agencies may elect to do so as well, but there is no mandate to do so.

BAWSCA Has Included an Update of the Tier 2 Plan in its FY 2021-22 Budget

BAWSCA intends to initiate an update of the Tier 2 Plan in FY 2021-22. That update will be a significant work effort. It is important that the updated Tier 2 Plan address system-wide shortages of between 10% and 20%. BAWSCA anticipates it will take at least a year or more to arrive at a new Tier 2 Plan that is acceptable to all member agencies. As part of that process, it may be possible to arrive at an updated Tier 2 Plan that would function for cutbacks greater than 20%. That can be determined as BAWSCA initiates the update, yet it is not certain at this time.

BAWSCA is aware that the preparation of 2020 UWMPs has presented significant challenges to BAWSCA's member agencies. It is BAWSCA's hope that BAWSCA's efforts to support the member agencies on their 2020 UWMP preparation efforts have proven to be of assistance. Please feel free to reach out to BAWSCA if EMID would like to further discuss these matters.

Regards,

Nicole Sandkulla
Chief Executive Officer and General Manager

cc: Sam Hindi, BAWSCA Board Member
EMID Board of Directors
Dante Hall, Assistant City/District Manager, Acting Public Works Director

City of Foster City

ESTERO MUNICIPAL IMPROVEMENT DISTRICT

610 FOSTER CITY BOULEVARD
FOSTER CITY, CA 94404-2222

RECEIVED
JUN 16 2021

June 11, 2021

Nicole Sandkulla, Chief Executive Officer
Bay Area Water Supply Conservation Agency
155 Bovet Road, Suite 650
San Mateo, CA 94402

SUBJECT: **REGIONAL WATER SYSTEM SUPPLY RELIABILITY AND CUTBACK ALLOCATIONS**

Ms. Sandkulla:

I write to you on behalf of the Estero Municipal Improvement District ("EMID"), a member of the Bay Area Water Supply Conservation Agency ("BAWSCA") and a Wholesale Customer under the Water Supply Agreement with the City and County of San Francisco dated November 2018 ("WSA"). As you know, EMID and the other Wholesale Customers are currently working to adopt new 2020 Urban Water Management Plans ("UWMPs") by the July 1, 2021 deadline. In January, the SFPUC issued a Regional Water Supply ("RWS") Reliability Letter, which was then updated in March, outlining the water supplies available to Wholesale Customers for use in drafting and adopting the 2020 UWMPs.

The RWS Reliability Letter outlines projected water supply available to the Wholesale Customers both with and without Bay-Delta Plan implementation. The Bay-Delta Plan is the water quality control plan, proposed in July 2018 and adopted by the State Water Board in December 2018, which established flow requirements to be implemented in 2022 for the Lower San Joaquin River, including the primary source of the water supplied to the Wholesale Customers.

Should the Bay-Delta Plan be implemented as planned in 2022, the projected RWS available to Wholesale Customers in dry years would potentially drop by up to 54%. This is a disastrous outcome for water suppliers like EMID. It is also well short of the Level of Service Goal included in Section 3.11(C)(4) of the WSA between San Francisco and the Wholesale Customers, which is to ensure no more than a 20% shortage in any year of the planned designed drought.

EMID understands that the City and County of San Francisco has joined a lawsuit challenging the implementation of the Bay-Delta Plan. It also understands that SFPUC is currently advocating, in conjunction with BAWSCA, for a Voluntary Agreement to supplant the Bay-Delta Plan with an approach designed to provide similar environmental benefits to the Bay-Delta Plan without imposing the same flow restrictions that would cause large RWS shortfalls. Additionally, EMID acknowledges the San Francisco Public Utilities Commission's (SFPUC) effort to implement the Alternative Water Supply Planning Program to supplement additional water supply. EMID supports each of these efforts.

Regardless of the outcomes of these efforts to halt implementation or replace the Bay-Delta Plan by Voluntary Agreement, EMID continues to support BAWSCA, as the administrator of the WSA and the representative for the Wholesale Customers in negotiations with San Francisco, to prioritize and focus its efforts on rectifying the supply shortfall and push the SFPUC to honor its contractual obligations to exercise "its best efforts to identify potential sources of dry year water supplies and establish the contractual and other means to access and deliver those supplies in sufficient quantity to meet a goal of not more than 20 percent system-wide shortage in any year of the design drought."

Although the Bay-Delta Plan was adopted more than two years ago, there has not been a consolidated effort to effectively plan for and negotiate the potential allocation cutbacks among the BAWSCA membership. While the WSA makes clear that the BAWSCA Member Agencies are free to negotiate a nuanced, equitable approach to supply shortages greater than 20%, negotiation of such allocation cutbacks has not been initiated, despite it appearing that shortfalls greater than 20% would result from the Bay-Delta Plan upon its adoption in 2018. For planning purposes under the 2020 UWMPs, BAWSCA recommends that the Wholesale Customers adopt an "equal allocation cutback," in which each Agency will have its supply reduced equally, and potentially up to 54%.

Per BAWSCA's direction, the EMID staff plans to recommend to the Board of Directors that it adopt a 2020 UWMP with the equal allocation cutback methodology. However, EMID does not agree to the methodology, as it would render inequitable results, threaten the health and safety of those in vulnerable communities, cause detrimental economic effects, exacerbate the region's housing crisis, and endanger critical institutions like schools and healthcare facilities.

We believe BAWSCA understands the problematic inequities that would occur if the equal allocation cutback methodology were employed and we expect, therefore, that BAWSCA will now proactively initiate the negotiation among the Member Agencies to ensure that cutbacks are allocated equitably in the event of a severe drought. We should not wait until we are already burdened by drought-related cutbacks to hold this negotiation.

Sincerely,

Peter Pirnejad
Peter Pirnejad (Jun 11, 2021 19:00 PDT)

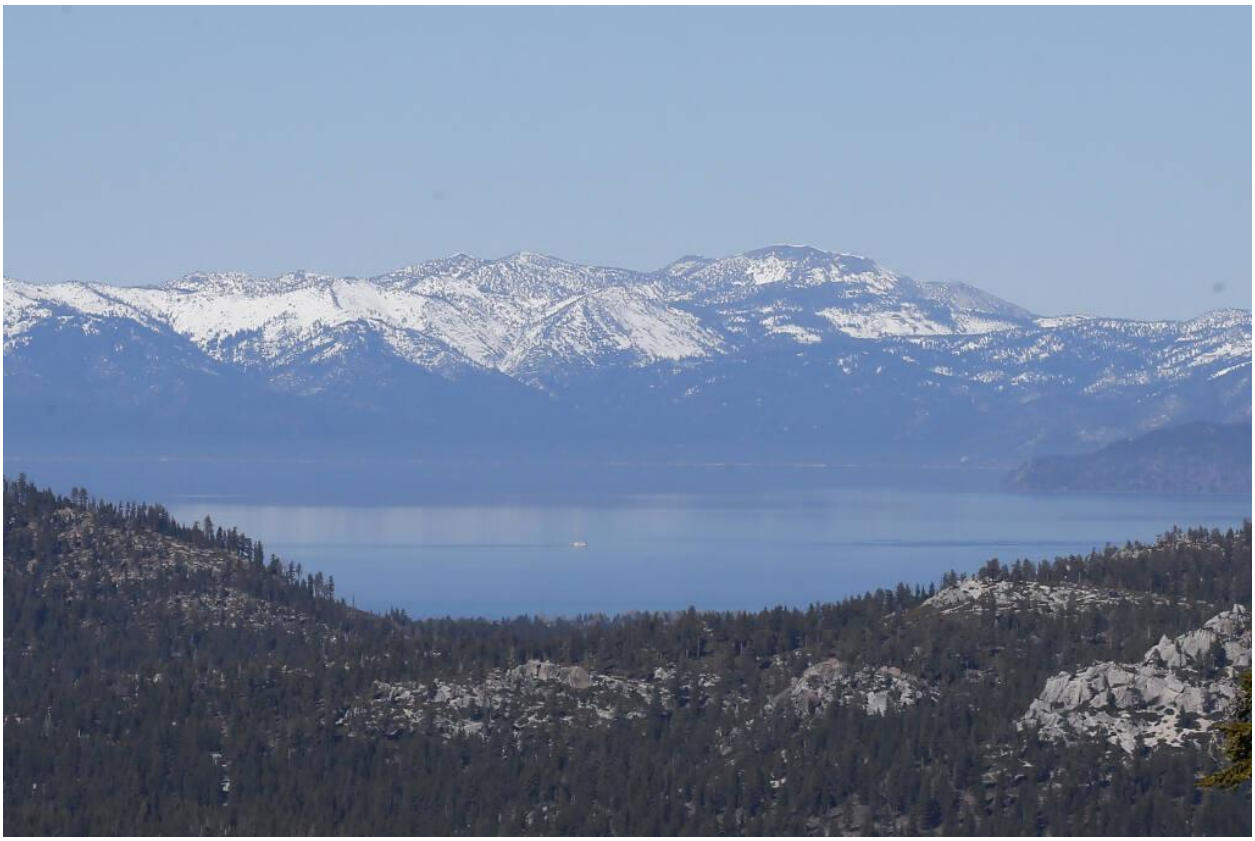
Dr. Peter Pirnejad
City/District Manager
City of Foster City/Estero Municipal Improvement District

cc: EMID Board of Directors
Dante Hall, Assistant City/District Manager, Acting Public Works Director
Subject/Chron

(This page was intentionally left blank)

Why so dry? Experts explain factors behind stubborn drought

The Press Democrat | June 24, 2021 | Austin Murphy



A sparse snowpack caps the mountains looming over Lake Tahoe, Calif., Thursday, Feb. 27, 2020. The California Department of Water Resources conducted the third snow survey of the season at Phillips Station, near Echo Summit and found the snowpack at 29 inches deep with a water content of 11.5 inches at this location. February is shaping up to be the driest on record for much of the state. (AP Photo/Rich Pedroncelli)

He's a weather guru with a growing national following, but Daniel Swain can't always be crunching numbers, tracking satellite feeds and laboring over meteorological models. The 31-year-old climate scientist and author of the influential blog Weather West also likes to get outdoors. During a May visit to Marin County, where he grew up, Swain went for walk around Phoenix Lake, at the base of Mount Tamalpais. Even as someone so deeply familiar with the consequences of a warming planet, he was unsettled by what he saw.

It wasn't just the sad state of Phoenix Lake, less than half full, much of its cracked, sunbaked bottom visible to the naked eye.

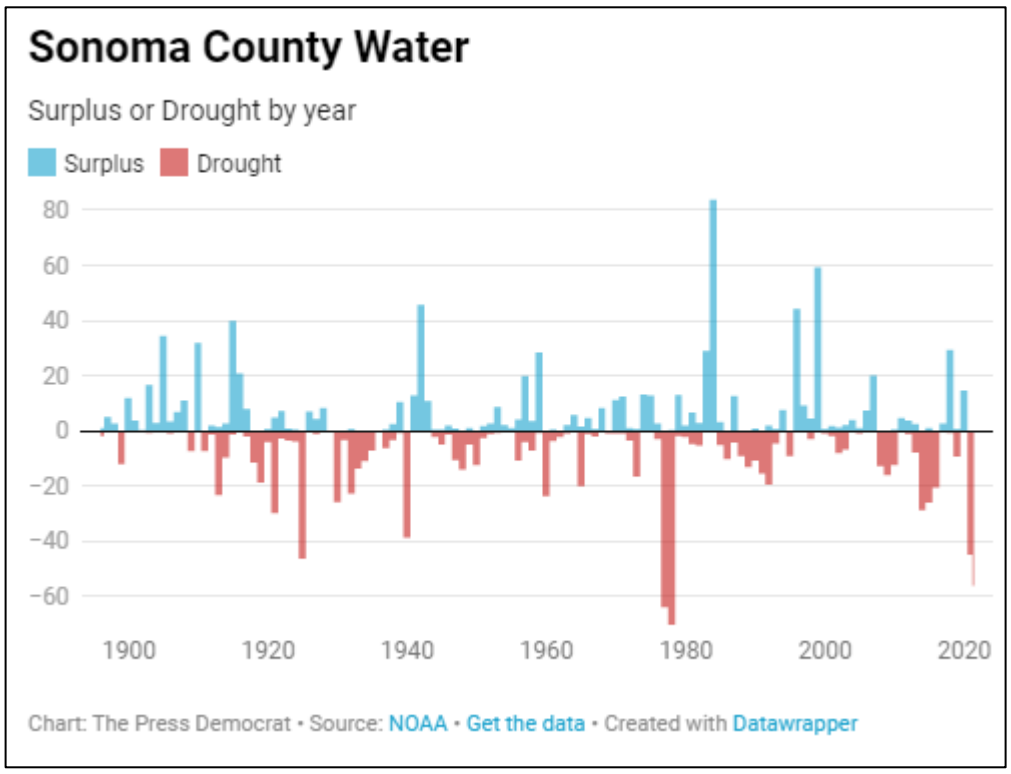
The surrounding vegetation, usually a vibrant green that time of year, "was super stressed," Swain recalled. "In some ways it looked worse than the middle of summer. There were manzanitas and oak trees dropping their leaves and turning brown. Those were trees that, a lot of years, don't do that at all. There were pretty clear signs of drought stress, and it was the very beginning of the dry season."

From low reservoirs to browning plant life and a disappearing snowpack in the Sierra Nevada, the signs of drought are inescapable. But what are the causes of it? To paraphrase the folk singer Pete Seeger: Where has all the water gone? And is it coming back?

Four meteorologists who were asked, basically, “Why so dry?” offered their explanations, identifying the forces and factors, in the atmosphere and oceans, that have resulted in soaring summer temperatures, and stubbornly minuscule amounts of rain these past two winters.

And they shared their outlooks, which can’t exactly be described as reservoir-half-full.

“There’s zero chance this drought gets better before the next rainy season,” said Swain, after pointing out that it doesn’t rain in California in the summer. “The best you can hope for is that it gets worse gradually, rather than quickly.”



Losing the coin toss

After “running some numbers” earlier this month, UC Merced professor and climate specialist John Abatzaglou determined that in the past 20 years, California on average has gotten 10% less overall precipitation “than in the prior 100 years.”

The state has endured bigger long-term precipitation shortfalls, in the 1920s and ’30s. The problem, he noted, is that the recent shortfalls are happening at a time when California is 1.5 to 2 degrees warmer than it’s been during previous long, dry spells.

The so-called atmospheric rivers bringing precipitation to the state are now warmer. As a result, said Noah Diffenbaugh, a climate scientist at Stanford, the snowline in the Sierra Nevada is getting higher. And the snow that does fall is more likely to melt early in the season — resulting in more runoff, and less water storage. This year in the Sierra Nevada, he noted, “we had one of the most rapid snowmelts in memory.”

Where a year of below-average rainfall did not always result in drought, the increasing “co-occurrence” of low precipitation and high temperatures, Diffenbaugh said, has greatly elevated the probability that low precipitation will produce drought.

“It used to be in California we were flipping two coins,” he explained. About a quarter of the time, both coins came up tails, he said: above average heat, below average rainfall. The long term warming of the state means that, more and more often, “the temperature coin is coming up tails.”

As result, the preconditions for drought — low precipitation, high temperatures — are falling into place more frequently. Because the Golden State is hotter, Diffenbaugh explained, abruptly shifting metaphors, “when we are dealt a bad hand in terms of precipitation” — such as in the past two rainy seasons — “it’s a much worse hand.”

While there is a general consensus among scientists that the warming trend in California and the West is anthropogenic — man-made — the same can’t be said of why we’ve gotten so little rain of late.

“We can’t point to human-caused climate change for the overall drop in precipitation,” Abatzaglou said. “My take is that this is a poor draw of the cards” — another bad hand, this one dealt by “natural climate variability that likely has its roots in the Pacific” and which “steered the storm track further north in the winter, limiting opportunities for California and the Southwest as a whole to cash in on beneficial precipitation.”

Using the atmosphere as ‘a dump’

Other scientists are finding links between extreme weather — heat waves, droughts, wildfires — and fundamental changes in the jet stream, which serves as a kind of steering current for the atmosphere. Michael Mann is a professor of atmospheric science at Penn State. In 2018, he and an international team of scientists released a study connecting the increase in severe summer weather with a change in how the jet stream is behaving in the summer — a change they attribute to the warming of the planet.

While it’s impossible to directly peg increased heat waves and wildfires in the Southwest, or flooding in the Southeast, to changes in the jet stream caused by climate change, such extreme events “are exactly what we expected to happen as we continue to use the atmosphere as a dump for our waste carbon,” said Jennifer Francis, a senior scientist at the Woodwell Climate Research Center in Falmouth, Massachusetts.

Her research has revealed that the Arctic region is warming two to three times faster than the globe as a whole. Shrinking that contrast, smoothing out the difference in temperatures between the Arctic and areas farther south, has led to some funky behavior by the jet stream, she said.

That behavior, she contends, contributes to “large scale weather like this big heat dome effecting many states out west, at the same time we’re seeing a very wet pattern in the Southeast. These things go hand in hand. The jet stream causes both of them.”

Ridiculously Resilient Ridges

In each of the past two winters, the jet stream deities placed enormous high pressure systems over the northeastern Pacific. Those systems, which Swain has dubbed Ridiculously Resilient Ridges, deflected storms away from Northern California, depriving the area of precipitation.

The summertime equivalent of those systems are the vast domes of intense heat — high pressure systems such as the one that camped out over Four Corners region earlier this month, “flexing its muscles in a spectacular way,” said Swain, “and producing some of the hottest temperatures a lot of the Southwest has ever seen, which is saying quite a lot.”

It’s no coincidence that those all-time highs were occurring in parts of west also experiencing severe drought. California’s increasing heat has accelerated a process called evapotranspiration, in which the atmosphere sucks moisture out of trees, plants, the soil.

That leaves them drier, more parched and flammable. But it also leads to hotter temperatures. These early season heat waves have been so intense, Swain said, “because it’s so ridiculously dry, in the soil.”

Another factor in the dry winter just past could be found in the Pacific Ocean, he believes. A warming of the western tropical Pacific, because of climate change, amplified the effect of a “fairly strong La Niña” — a cooling of the eastern tropical Pacific — and “did not help anything,” Swain said, when it came to rain for California.

Wet winters will return. While climate change may not be affecting the overall amount of precipitation in California, it appears to be influencing how the moisture is delivered.

Research done by Swain and others suggests we are in for an increased variability, or “spikiness,” as he put it: more dry winters offset by conspicuously wet ones. As this is happening, rainy season itself is shrinking.

While a shortened rainy season presents problems in the spring side, as well, “it’s the autumn side that matters, in Northern California, from a wildfire perspective,” he said.

For the arrival of the rains erases the fire danger associated with the offshore wind events of September, October and November.

“When they don’t come,” said Swain, “we’re in big trouble.”

# # #

The Record Temperatures Enveloping The West Are Not Your Average Heat Wave
NPR | June 19, 2021 | Eric Westervelt

Visitors feel the heat in California's Death Valley earlier this week. This record-setting heat wave's remarkable power, reach and unusually early appearance is giving meteorologists yet more cause for concern about extreme weather in an era of climate change. Patrick T. Fallon/AFP via Getty Images

It might be tempting to shrug at the scorching weather across large swaths of the West. This just in: It gets hot in the summer.

But this record-setting heat wave's remarkable power, size and unusually early appearance is giving meteorologists and climate experts yet more cause for concern about the routinization of extreme weather in an era of climate change.

These sprawling, persistent high-pressure zones popularly called "heat domes" are relatively common in later summer months. This current system is different.

"It's not only unusual for June, but it is pretty extreme even in absolute terms," says Daniel Swain, climate scientist at the UCLA Institute of the Environment and Sustainability. "It would be a pretty extreme event for August," Swain says, when these typically occur.

From the Great Plains to the coast, cities are setting record temps

This heat dome's reach is remarkable, too: It has set record highs stretching from the Great Plains to coastal California. And these aren't just records for that specific date or month, but in a few spots, they are records for the singularly hottest day in the entire period of record, sometimes stretching back 100 to 150 years. "That's a pretty big deal," Swain says.

"It's unusual in that it's more intense in terms of the maximum temperature," says Alison Bridger, a professor in the Meteorology and Climate Science department at San Jose State University. "And how widespread the impact is."

For example, Palm Springs, Calif., recently hit 123 degrees, equaling its highest recorded temperature.

Las Vegas set a daily record of 114 degrees. Phoenix reached a record 118 degrees, the earliest the city has hit that high a mark. It broke the previous record of 114 set in 2015.

Sacramento, Calif., set a new daily record of 109 degrees. The National Weather Service just extended its excessive heat warning through Sunday night in the Central Valley and parts of northern California.

Denver this week hit 100 for three straight days, the earliest date of such a streak on record, tweeted meteorologist Bob Henson. He noted that all of the 100-degree streaks in Denver's 150 years of climate record keeping have occurred in the last three decades.

And in the Plains, several cities including Omaha, Neb., set records, including a daily record high of 105 degrees. That breaks an Omaha daily record set in 1918.

Just last year, several cities in the West also hit record highs.

This current heat dome "fits with climate change ideas, global warming, meaning that it's just a little bit warmer than it would have been last year," Bridger says. "And if we have this next year, it'll be just a little bit warmer again."

The "heat dome" is making droughts even worse

It's also coinciding with and worsening record drought across big parts of the West. These two things, Daniel Swain says, are now making each other worse.

"The drought is leading to extremely low soil moisture, which is making it easier for these high pressure systems to generate extreme heat waves because more of the sun's energy is going into heating the atmosphere rather than evaporating nonexistent water in the soil."

And that is only making things hotter and drier.

"That's sort of the vicious cycle of drought and extreme heat in a warming climate," he says.

It's more evidence of human-caused climate change

The excessive heat and widening drought continues to elevate wildfire risk across much of the West. New federal data show that the number of new wildfires in the U.S. so far this year is at a 10-year high, signaling a long, potentially dangerous summer and fall for wildfires.

Experts say this current heat dome is yet more evidence of the impact of human-caused climate change.

Bridger at San Jose State says while that is most likely the case, "it takes a lot of work to figure that out. A lot of hard scientific work in order to be statistically sure that it's associated with climate change," she says.

Others are more certain.

"It's just so clear at this point," says climate scientist Swain, "when it comes to record-breaking heat events, the study has been run for event after event after event in region after region after region in year after year."

And the answer is almost always the same, he says: "There's a crystal clear human fingerprint on extreme heat and extreme heat events ... climate change is making these sorts of things worse."

And what was historically rare is now becoming almost commonplace: Forecasters say there's a chance of yet another heat wave of similar magnitude in the West about 10 days from now.

"That sounds crazy, except that last summer we saw like three to five of these, you know, 'unprecedented events' in different regions of the West," Swain points out.

# # #

(This page was intentionally left blank)

Reduced humidity increases wildfire threat in Southwest United States
Atmospheric moisture decreased by a third in California and Nevada, study finds
UCLA Newsroom | June 17, 2021 | David Colgan

When it comes to wildfires and climate change, it's not just the heat, it's the humidity.

A paper published today in Nature Climate Change found that, since 1950, humidity across the Southwest United States dropped an average of 22% on the hottest summer days. In California and Nevada, the effect was even more pronounced, with a decrease of 33%.

For an already arid region, that loss of moisture makes wildfire conditions even worse, according to UCLA climate scientist Karen McKinnon, lead author of the paper.

"In some cases we can't dry out much more," McKinnon said.

Relying on information from three separate databases, the study examined humidity changes at locations across noncoastal California, Nevada, Arizona, Colorado, Utah and New Mexico. In some places, such as the Central Valley area near Fresno, humidity decreased by as much as two-thirds.

For California, a state still reeling from the record-shattering 2020 wildfire season, lower humidity on hot days worsens fire risk in two major ways. First, it increases the number of high-risk fire weather days, which are determined by meteorological factors including temperature

and humidity. Secondly, because the low humidity coincides with the times when most land-based moisture has already evaporated, the dry atmosphere also sucks moisture out of plants, further parching dry vegetation that fuels wildfires.

Climate change is causing warmer air that can hold more moisture, so humidity is generally increasing globally. But the Southwest U.S. is an anomaly — the ground is already dry in the region and there are few major bodies of water to supply moisture to the atmosphere. Since storms from the Pacific Ocean are tracked north by wind currents, moisture from the world's largest body of water extends fewer than 100 miles inland.

One factor that could potentially mitigate the region's decreasing humidity could be an increase in summer rain, as many climate models project. The future climate is often projected to include drier winters and springs along with wetter summers.

"The X-factor is going to be precipitation," McKinnon said. "If you go into the summer with dry soils but it rains a lot, you're potentially getting your soil moisture back."

Ultimately, that means more uncertainty about the future, which poses a planning challenge for those who aim to protect wildlife, manage wildfire and make human communities more sustainable.

Wildfire mitigation measures are already being explored, such as better forest management, limiting human-based ignitions and clearing vegetation around homes. But the paper underscores the need to deal with the big problem of climate change by reducing carbon emissions and atmospheric carbon dioxide.

# # #

What's causing the drought in the West — and why it's so bad
KQED Science | June 30, 2021 | Choe Jones

Several Western states, including Arizona, California, New Mexico, Utah, Nevada and parts of Oregon and Colorado, are in the grips of a historic drought that has depleted key water sources to a frightening level as temperatures rise and wildfire risk increases. Many scientists are ringing alarm bells that it could mark a tipping point in the water crisis that threatens life in the West as we know it, particularly agriculture.

"The word drought just doesn't do it anymore," said John Fleck, a professor in water policy at the University of New Mexico. "Drought implies a dry spell that ends with a wet spell. And climate change is fundamentally changing things… The landscape is drying out, the headwaters are drying out. It's just a different world now with less water and warmer temperatures."

The conditions seen across much of the West this summer are part of what some scientists have called a "megadrought" that started in the year 2000, with some years drier than others. Other experts say it's one of a number of more severe droughts punctuating a two-decade-long dry spell. Whatever you call it, it's bad.

"It's one of the longest droughts that we've had in 100 years. The longest and the most severe," said Brian Richter, chief scientist for the Global Water Program of The Nature Conservancy. "It would have been bad even without climate change, but climate warming is accentuating it, it's making it worse."

How drought happens
Three main factors contribute to the natural phenomenon of drought: snowpack, soil moisture and temperatures.

The Western states depend on snowpack for a good portion of their water supply. Essentially, snow falls on the peaks of mountains in the winter, and spring temperatures melt the snow, which travels down the mountain into reservoirs like Lake Mead and Lake Powell.

But soil gets the first drink of water from the snowmelt as it makes its journey. The drier the soil, the more it drinks and less water will be captured in the reservoirs. And right now, the soil across the region is exceptionally dry. In Arizona, for example, 2020 was a typical year for snowpack, but the soil was so dry that not enough water entered the reservoirs, said Ted Cooke, general manager of the Central Arizona Project.

Then there's the heat. The region is smashing temperature records, with Northern California and the Pacific Northwest experiencing Southwestern-like triple-digit weather for the first time.

With higher temperatures, there is less snow and the snowpack melts earlier. Water also evaporates quicker when temperatures are high, which contributes to drier soil and receding water levels in reservoirs.

Lake Mead and Lake Powell, which provide water to over 25 million people in Arizona, California, Nevada and parts of Mexico, are at their lowest water levels in history: 36 and 34 percent capacity, respectively.

Saving water for the future

Governments and water managers are in a crisis mode trying to figure out how to conserve water while ensuring people still have access to it in the long-term. While most people will not feel the effects of any water cuts, farmers are among the first to feel the brunt of shortages. Agriculture uses about 80% of the water from the Colorado River which feeds Arizona, California, Nevada and parts of Mexico. In Arizona, some farmers will have their water allotments reduced in 2022, said Cooke. He added that the shortage will likely require further water reductions as soon as 2023.

Looking at a future of drier and drier conditions, some farmers are adapting to more water-efficient technologies and crops, but not all are able to make these changes because of financial or logistical constraints, said Felicia Marcus, former chairwoman of the California Water Resources Control Board. She said incentives for farmers to switch to more water-efficient strategies could help conserve water in the long-run. For those who can't farm efficiently enough to justify their water needs, incentives could help them retire or change careers.

While the situation is dire, water isn't going to run out any time soon. But think of the water supply as a bank account. The West has been overdrawing the account for years, and now it's time to catch up with overdraft fees.

Many cities get water from local reservoirs and manmade lakes that fill up faster and serve smaller populations. Cities and governments have efficient ways to store water underground that could sustain populations for 100 years or more.

How people use water will have to change to ensure adequate supplies further into the future. People in the West have to adapt to the reality of living drier, said Sarah Porter, director of the Kyl Center for Water Policy. This could mean letting lawns turn brown in the summer, using more efficient appliances and for corporations to better reuse water and wastewater.

Conserving water will not solve the water shortage, but it helps give municipal water managers more flexibility as they work to figure out solutions, said Tom Buschatzke, director of the Arizona Department for Water Resources. It also can help postpone curtailment, which would cut off and reduce water supplies.

Droughts are natural events in the West, and this particular one will not be the last. Preparing for these periods of dryness is essential in order to continue living in these regions — and in the meantime, hoping for rain won't hurt.

# # #

California's rain year just ended - and the data shows we're in trouble
San Francisco Chronicle | June 30, 2021 | Kellie Hwang

Houseboats whose owners chose to leave them in the lake, float at a water level nearly 200 feet below normal at the Lime Saddle Marina for Lake Oroville near Paradise, Calif., on Tuesday, June 8, 2021. Drought has caused the water level to drop in Lake Oroville several hundred feet, leaving houseboat owners to make a choice to leave their craft in the water or to remove them since boat ramps will not reach the low level of the water as it drops lower and lower. Carlos Avila Gonzalez / The Chronicle

California's rain year officially ended Wednesday, and the data reflects what the dry landscape in much of the Bay Area already shows: It wasn't pretty.

Data shows that for many of the major regions of California, the July 2020-June 2021 rain year was one of the top 10 driest ever.

Even more troubling is that the extreme dry spells are starting to stack up, especially in the Sierra Nevada watersheds that supply so much of the state's water.

Jan Null, a forecaster who runs Golden Gate Weather Services, compiled California rainfall data for the most recent season and compared it to historical seasons in one-, two-, three- and four-year periods.

Some of the two-year totals are also among the driest in history, especially in the Northern, Central and Southern Sierra.

Rainfall for the past season was 44% and for the past two seasons was 52% of normal in the Northern Sierra — the “most critical watershed in the state,” feeding into the Shasta, Oroville and Whiskeytown reservoirs, among others, Null said.

Two-year periods in the Northern Sierra with the least rainfall

Rainfall seasons are from July 1 to June 30

Rank	Period	Total inches	% of normal
1	1975-1977	45.8	43%
2	2019-2021	55.1	52%
3	1922-1924	59.8	56%
4	1932-1934	67.7	64%
5	1986-1988	67.9	64%
6	2013-2015	68.9	65%
7	1990-1992	68.9	65%
8	1923-1925	70.1	66%
9	1989-1991	71.8	68%
10	2006-2008	72.1	68%

Source: Golden Gate Weather Service

Data goes back to 1849.

The most recent three- and four-year totals for the Sierra are similarly dismal, he said — and the longer the dry period lasts, the harder it is to recover.

Data from the state Department of Water Resources in May showed California's snowpack was just 6% of normal for May 11, and 4% of the normal average for April 1, when it's typically at its deepest.

So far this year's drought conditions look dire, with Gov. Gavin Newsom declaring a drought emergency in a majority of the state's counties in the spring. The dry conditions also increase wildfire danger, since there's already so much fuel ready to burn.

Null said rainfall totals affect each county and water district differently, with some counties importing a significant amount of water. But many rely on stored water resources.

"It's very concerning," Null said. "Coming off a good year, the local water storage is up and groundwater is up. Coming off a dry year, all those resources are limited."

Many parts of the Bay Area this rain year reported one of their driest seasons on record, according to the National Weather Service. Totals reached about 30-40% of normal across the region.

Null found that San Francisco and San Jose had particularly arid seasons over the past couple of years.

For the July 2020-June 2021 season, San Francisco was at 39% of normal rainfall, the third-driest one-year period since record keeping began in 1849. The driest was 1850-51, at 32% of normal.

Two-year periods in San Francisco with the least rainfall

Rainfall seasons are from July 1 to June 30

Rank	Period	Total inches	% of normal
1	1975-1977	19.1	42%
2	2019-2021	20.7	45%
3	1862-1864	23.8	52%
4	1958-1960	25.9	57%
5	1850-1852	26.0	57%
6	1911-1913	26.0	57%
7	1897-1899	26.3	57%
8	1974-1976	26.4	58%
9	1916-1918	27.3	60%
10	1932-1934	27.8	61%

Source: Golden Gate Weather Service

Data goes back to 1849.

In San Jose, the most recent one-year and two-year periods were the driest ever recorded, with rainfall at 40% and 47% of normal, respectively.

“The really critical thing is we had back-to-back bad years,” Null said. While “California is pretty resilient” and can bounce back from one dry year, he said, San Francisco’s two-year total is 45% of normal. “That’s a really deep hole,” he said, “and makes a big deficit.”

Southern California fared better this rain year than Northern California. Rainfall was 41% of normal in Los Angeles, the seventh-driest in recorded history. But over the past two seasons, rainfall there was 73% of normal.

“They are better numbers, but Southern California gets a lot less rainfall,” Null said. “A lot of Southern California’s water comes from Northern California or the Colorado River, not mega reservoirs.”

If the next rainy season is another bad one, what does that mean?

“We’re going to start seeing more significant impacts on the various sectors that use water,” Null said. “Eighty percent of the water from the state is used by agriculture. ... We’ll see larger reductions being asked in the cities, which would be very similar to what we went through in the 2011-2015 period.”

# # #

Kellie Hwang is a San Francisco Chronicle staff writer. Email: kellie.hwang@sfchronicle.com
Twitter: @KellieHwang

(This page was intentionally left blank)

Where did Sierra snow go this spring? Not into California rivers and water supplies
Massive amounts of water the state was counting on soaked into the ground or evaporated
Mercury News | June 23, 2021 | Paul Rogers

Anthony Burdock, water resources engineer, left, and Sean de Guzman, chief of snow survey and water supply forecast for the California Department of Water Resources, conduct a snow survey April 1, 2021 at Phillips Station in the Sierra Nevada 90 miles east of Sacramento. (Florence Low / California Department of Water Resources)

California's severe drought was made worse this year by a shocking surprise.

Every year, much of the drinking water that flows through the taps of millions of Californians begins in the Sierra Nevada. Snow and rain fall on the vast mountain range during the winter months, and the water moves downhill into streams, rivers and reservoirs in the spring and summer.

But this year, in a trend that startled water managers, much of that runoff simply vanished.

State water planners say that 685,000 acre-feet of water that they had forecast as runoff in the Northern Sierra — or 40% more water than the city of Los Angeles uses in a year — failed to arrive. After two years of extreme drought, the ground was so dry that the water soaked in before making it down the mountain. Warmer-than-normal temperatures in April and May also caused significant amounts to evaporate.

“The snowpack was disappearing and the rivers weren’t rising,” said Sean de Guzman, chief of snow surveys and water supply forecasting for the California Department of Water Resources in Sacramento. “A lot of our forecasts were off.”

The expected water never made it to reservoirs, which now sit far below historic averages. That lack of runoff is contributing to water shortages in cities and farms across the state.

“We have 100 years of data saying if you have this much snow, you would expect this much runoff,” de Guzman said. “But that fell apart this year.”

The snowpack provides nearly a third of California’s water supply for cities and farms, including filling the Hetch Hetchy system and the Sacramento-San Joaquin River Delta that are critical water sources for the Bay Area.

The Northern Sierra, with the most precipitation, is the most important part.

In an average year, about 6.3 million acre-feet of runoff comes from the Northern Sierra, according to the Department of Water Resources. This, spring, following two very dry winters, state forecasters predicted 2.3 million would run off. But only 1.6 million arrived. An acre-foot is the amount of water it takes to cover an acre of land one foot deep.

Put another way, the missing 685,000 acre-feet is 223 billion gallons, or more than twice as much water as every home, business and farm in Santa Clara County uses in a year.

The Sierra snowpack is gone now. Apart from a few tiny pockets at high elevations, it has melted.

Earlier in the spring, the situation looked bad, but not terrible.

On April 1, the statewide Sierra snowpack was 59% of its historical average for that date, with the Northern Sierra doing somewhat better, at 66%. Then came the warm weather. By May 1, the snowpack fell to just 22% of normal for that date. And by June 1, it was at 0%.

Last year showed a similar pattern.

But two years ago, in 2019, there were massive amounts of snow. The April 1 snowpack then was 154% of normal. Squaw Valley Ski Resort near Lake Tahoe, which received more than 700 inches of snow that winter, kept its ski runs open until the Fourth of July weekend. This year, skiing closed two months earlier, in May.

Water experts say that climate change is causing more wild swings in the state’s rain and snow patterns. Hotter temperatures are making drought conditions worse by drying out soils, trees, grasses and bushes, which increases fire risk. But when there are big winter storms that come

off the Pacific Ocean, they are able to carry more moisture, because more water vapor evaporates into them due to the warmer temperatures.

California's water system was mostly built between the 1930s and the 1960s, for a climate that doesn't exist any more.

"The warming temperatures that we are experiencing as the global climate warms are pushing our water systems beyond the resiliency that's built into them," said Roger Bales, a distinguished professor of engineering at UC Merced.

Anticipating how much cities and farms should expect each year is becoming more difficult also.

"We're starting to see a lot the tools that we've used in the past to help us forecast water start to break down," de Guzman said, "because they can't take into account the effects of climate change and how dry the soils are, and other factors."

Bales, former director of the UC Sierra Nevada Research Institute, said that as temperatures continue to warm and runoff patterns become less predictable, California will need to store more water in wet years for dry years — not just for human use but also to keep salmon and other species alive.

Most of the main sites for dams on rivers are already taken, while others are politically unfeasible (think Big Sur or in national parks), he noted. But existing off-stream reservoirs can be expanded, huge amounts of water can be stored in underground aquifers, and cities can capture and reuse storm water, he said.

"Expect more changes," Bales said. "We aren't entering a new normal. We are entering a period of change."

# # #

(This page was intentionally left blank)

Here are some things to know about the extreme drought in the Western U.S.
Los Angeles Times | June 19, 2021 | Celina Tebor

A riverboat moves across Lake Mead on the Colorado River in 2015, another period of historically low water levels. The reservoir is now only about one-third full.(Jae C. Hong / Associated Press)

Almost half of the U.S. has been in a drought since the start of 2021.

Compounding factors, including low rainfall and snowpack, climate change and persisting droughts from previous years, have escalated into extreme dryness.

The prolonged dryness means low water levels are endangering fish species in Oregon and Colorado, 30% of California's population is in a drought emergency, and the nation's two biggest reservoirs on the Colorado River — Lake Powell and Lake Mead — are two-thirds empty.

"What we see in our major reservoirs on the Colorado River really give us a good indication of water and drought in the West, and whether we're in a good or a tough spot," said John Berggren, a water policy analyst at Western Resource Advocates, a nonprofit organization. "And right now, we're definitely in the latter category."

Such water shortages can encourage wildfire spread, force water use restrictions and stretch states' power supply that rely on hydroelectric dams.

As the drought shows no sign of letting up, here's a rundown of what's happening and what may come next.

What is a drought?

The classic image that may come to mind when thinking about a drought is dry, cracked ground where perhaps a healthy river once flowed. Droughts can and do occur throughout every season of the year, and aren't dictated by temperature, but rather moisture levels.

A drought occurs when precipitation is lower than normal, leading to a water shortage, according to Brad Pugh, a meteorologist at the Climate Prediction Center, a federal agency.

There are five categories of drought severity, determined by streamflow, soil moisture, rainfall and snowpack levels, and other factors. The least extreme is the abnormally dry category, growing in severity from moderate to severe, extreme and exceptional drought. An abnormally dry drought can lead to short-term dryness, slowing crop growth and lingering water deficits, while an exceptional drought creates widespread crop loss and water emergencies.

Which areas of the U.S. are being affected?

Almost every part of the Western U.S. is in a drought.

Montana, Idaho, Washington, Oregon, California, Nevada, Arizona and New Mexico are all experiencing extreme and exceptional droughts, the two most severe types, according to the U.S. Drought Monitor, a weekly drought map produced by the U.S. government and the University of Nebraska-Lincoln. A drought is classified in these categories if soil moisture and streamflow fall into the bottom 5th percentile of typical numbers, along with lower than average precipitation.

Colorado, Utah, North Dakota and Illinois are also facing drought conditions, said Curtis Riganti, a climatologist at the University of Nebraska-Lincoln's National Drought Mitigation Center.

Although drought hasn't struck all of the U.S., the dry conditions can create ripple effects throughout the country because agriculture and other industries are connected nationwide.

If you're buying leafy greens during winter, there's a high chance it was irrigated in California, Berggren said.

If droughts become more extreme, they could lead to higher prices for leafy greens nationwide — similar to how meat prices surged across the U.S. in spring 2020 when processing plants closed due to COVID-19.

What role does climate change play?

Climate change, caused by humans' use of fossil fuels, deforestation and unsustainable agriculture, has raised air and ocean temperatures, increased the risk of forest fires and

worsened air quality. The United Nations' Intergovernmental Panel on Climate Change lists electricity and heat production, land use — including forestry and agriculture — and industry as the economic sectors emitting the most greenhouse gases.

Some climate researchers believe that climate change has pushed California into a "megadrought," an intense drought that lasts for decades, although Pugh says the current drought conditions mirror typical 10-year trends.

Berggren said the drought is "unequivocally connected" to climate change.

"Droughts have been around in the West forever — that's just a function of life in the West," he said. "The connection is that climate change is making drought more common and making it more difficult for us to recover."

Hot and dry autumns due to climate change lead to less soil moisture, which in turn make vegetation need more water — water that isn't available due to drought.

Droughts versus heat waves

Much of the Western U.S. has been in the midst of a heat wave in recent days.

Drought conditions can often lead to heat waves, particularly in the summer. Low soil moisture from drought causes more evaporation and exacerbates high temperatures, Riganti said.

While droughts and heat waves can go hand in hand, they're not the same thing.

Droughts are measured by water levels, but heat waves are determined by temperature. The World Meteorological Organization, a United Nations agency, defines a heat wave as when the daily maximum temperature is above the average maximum temperature by 9 degrees Fahrenheit for five days straight.

Drought, heat waves and wildfire

Dryness from drought and the high temperature from heat waves have analysts worried about fires. As heat builds and soil dries out, the dry ground becomes a place for wildfires to spark and spread.

In the Northwest, massive wildfires last year burned more than 1.6 million acres, killing at least 12 people and forcing tens of thousands to evacuate. Thousands of homes were destroyed in the fires, which cloaked the region in thick smoke for weeks.

Washington state has responded to 475 blazes so far on public land since the beginning of the year, compared with 318 by this time last year, according to the state Department of Natural Resources. Oregon is also seeing more fires than usual, and a warm, dry spring has produced drought conditions in both states as well as northern Idaho.

“The warm conditions have resulted in low snowpack, which is the case pretty much across the mountains in the West,” said Deepti Singh, a Washington State University climate scientist. “The heat and rapidly declining snowpack levels are both pretty certainly attributable to climate change.”

Drought-parched vegetation and forests overstocked with trees from decades of fire suppression are a flammable mix, she said.

In Oregon, water accessibility threatens native species and farmers’ crops

Analysts say drought can reduce cover, food and water sources, and habitat for wildlife. And droughts have caused some farmers to stop growing crops altogether.

In Oregon, native fish are dying and many farmers are cut off from their water supply.

The Klamath Basin, which stretches across Oregon and California, is a vital source of water for many. The Upper Klamath Lake houses two endangered fish species that hold significance for the Native tribes in the area both as a food source and in cultural importance.

Low streamflow in the Colorado River is also endangering four fish species, according to the Western Resource Advocates.

The fish have been dying due to several factors, including habitat destruction from agriculture and wetland loss. A compounding factor is the lake’s historically low water elevation. Many farmers use water from the lake for their crops, but with the drought, there isn’t enough water for everyone.

The Bureau of Reclamation announced that the canal feeding water from the lake to irrigators would be closed for the season, which means many farmers won’t have access to any water. Even with the canal’s closure, there still may not be enough water for the endangered fish, the bureau said in a press release.

Colorado River Basin reservoirs, ‘the lifeblood of the West,’ fall to record low water elevations

Millions visit Lake Powell each year, with many intending to boat on the lake. But tourists who visit it now may be disappointed; multiple launch ramps are closed because of low water levels.

Lake Powell also serves an important purpose other than tourism: It’s the country’s second largest reservoir, behind Lake Mead. The two reservoirs can together hold four years’ worth of annual Colorado River flow. The river provides water to more than 40 million Americans and 4 million irrigated acres of farmland.

And both reservoirs are only about a third full.

“A lot of people call [the Colorado River] the lifeblood of the West, and I think that’s true,” Berggren said. “It’s also the canary in the coal mine of the West.”

The water levels in the reservoirs dictate whether states get their allocated water supply. The Colorado River Basin Drought Contingency Plan will short states of their water if Lake Mead falls below certain water elevations.

The Bureau of Reclamation has forecast that the reservoir will hit a historic low of 1,065 feet by the end of 2021.

# # #

(This page was intentionally left blank)

Rep. David Valadao introduces emergency drought relief legislation
KGET Local News | June 18, 2021 | Eytan Wallace

BAKERSFIELD, Calif. (KGET) — As the heat continues to scorch the Central Valley, Kern Congressman David Valadao has introduced legislation he says will provide emergency drought relief to the Valley.

“The situation that we’ve got in the Valley is dire and people are in really bad shape,” Valadao said, speaking bluntly about the California drought with Kern considered in the worst possible “exceptional drought” category.

“Some of the reservoirs — they’re at record-low numbers,” Valadao said as he explained the basis behind the legislation that he argues will create more water storage infrastructure, and will help to bring and to keep more water in the Valley. Dubbed the “NEED Water Act,” part of the bill seeks to cut what Valadao calls the red tape surrounding the movement of water between certain areas.

“There are farmers and communities that may have excess water,” he said. “So what my bill would allow is those areas who may have the ability to transfer water out or sell that water, it would allow them to do it a little bit quicker and streamline the process.”

Much of the Central Valley’s Water comes from the Sacramento-San Joaquin Delta.

“Avenal, Coalinga, and Huron totally rely on 100% of their water from the Delta,” Valadao said. “[The legislation] would allow communities like that and communities growing our food the ability to find water, purchase water, and transfer water to their farms.”

But environmentalists have pushed back against taking more water from the Delta, and so has the Democratic-backed legislature, essentially constraining the amount of water that can be pulled from the delta. The reason, per environmentalists: to save the endangered Delta Smelt Fish species.

Valadao insists his bill is backed by science and he is urging members on both sides of the aisle to support it.

“Right now Washington D.C. is pretty partisan. On this issue, at least in the Valley, we’re pretty unified. Is there room for bipartisan on this legislation? I believe that’s there. We’ve got to make sure our ideas are out there before we get to something the majority of the Valley supports.”

This bill comes with a sunset clause, meaning the legislation will end when the drought officially “ends.”

Both chambers must pass the bill before it reaches the Pres. Joe Biden’s desk. No word if the president would sign it into law.

# # #

Drought + Heat = Increased Impacts
Department of Water Resources | June 17, 2021

Dry conditions in the area of Lake Mendocino in Mendocino County following two critically dry years. Photo taken April 20, 2021

***This is part 5 in a series of articles DWR is publishing about California's 2021 water year and dry conditions.

As we approach the official start to summer, California and much of the Southwest are experiencing a heatwave that will set new temperature records in some areas. Warm temperatures are affecting drought impacts. Runoff this year in key mountain watersheds remains on a par with that of 2014 and 2015, the two warmest and driest years of California's last drought, despite this year's statewide April 1 snowpack being at 59% of average as compared to 25% of average in 2014 and 5% of average in 2015. The decrease in runoff efficiency (the runoff that occurs in response to a given quantity of precipitation) is a troubling, yet expected, outcome of a warming climate.

Outcomes of this shift in conditions were seen earlier in the spring when forecasted Sierra Nevada and Cascades runoff failed to materialize, triggering the May 10 expansion of the Governor's drought emergency proclamation to cover Central Valley watersheds in response to needs for water rights administration actions to preserve reservoir storage. Estimated statewide reservoir storage at the end of May was 67% of average.

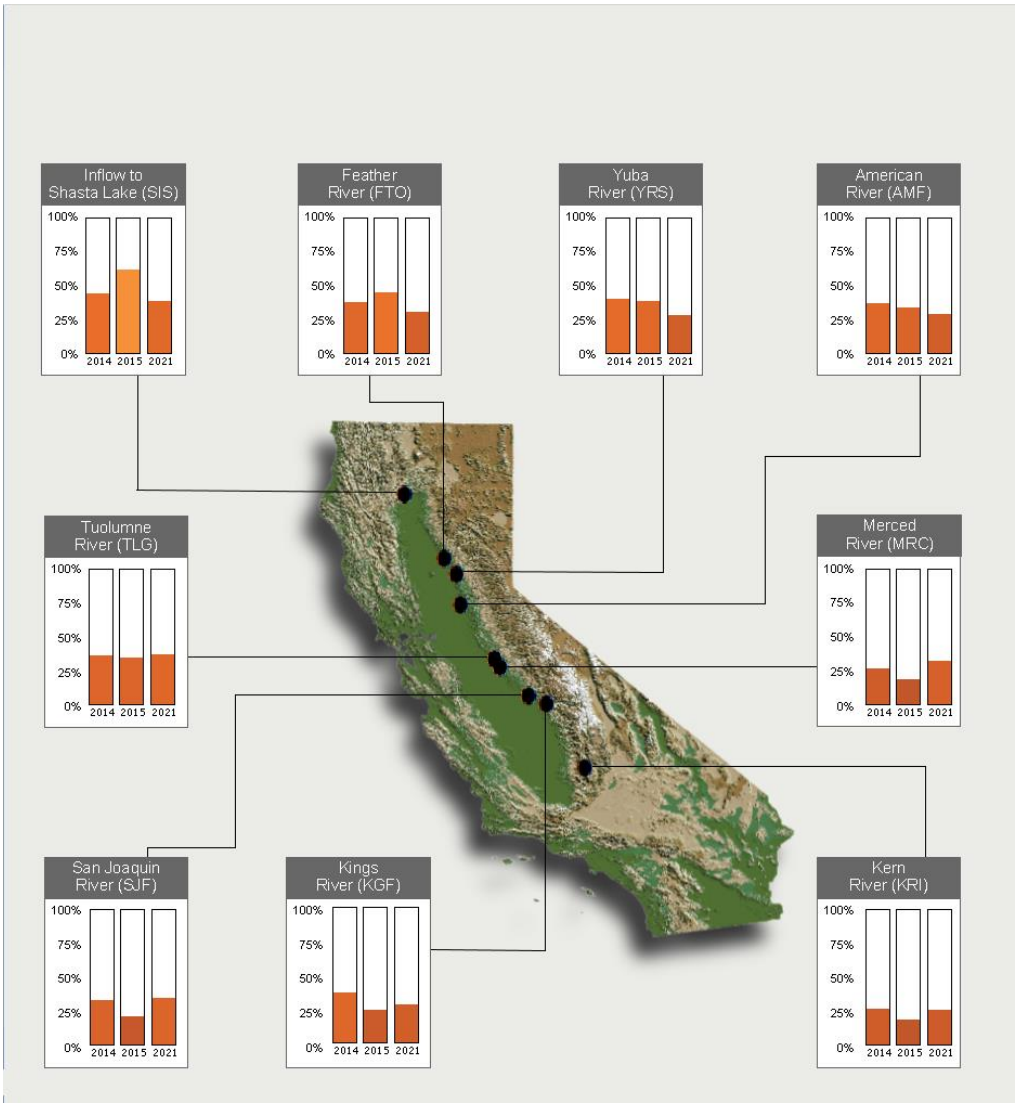
Changing hydroclimate conditions have implications beyond decreased water supplies. New runoff forecasting technologies must be developed to replace old methods that relied on simple linear regression techniques based on historical data that is no longer reflective of present conditions. Increased wildfire risk is occurring, as demonstrated by the number of records set in recent years for damage costs and number of acres burned. Wildfire damage to water infrastructure is increasing, with catastrophic damage occurring at municipal distribution systems such as those in Santa Rosa and Paradise. In recent years, wildfires have forced precautionary evacuations of personnel at the U.S. Bureau of Reclamation's Keswick Powerplant and DWR's Hyatt Powerplant.

Water Year 2020 was California's 13th driest based on statewide precipitation and 5th driest based on statewide runoff. It is likely that the present water year will end up being drier, possibly coming in at second driest for runoff (behind 1977) for some parts of the state. Present very dry and warm conditions increase the risk of a dry 2022 because of moisture deficit in the

hydrologic system, including depleted soil moisture. Above-average precipitation would be needed to achieve average runoff.

The Colorado River Basin, an important water source for Southern California, has also been experiencing prolonged warm and dry conditions, resulting in storage in both Lake Mead and Lake Powell having fallen to about 35% of capacity with a first-ever Lower Basin shortage forecasted for 2022. Although California's allocation of Colorado River water would not be cut based on the projected Lake Mead elevation, the shortage declaration is a warning of future water supply risk to an historically highly reliable source.

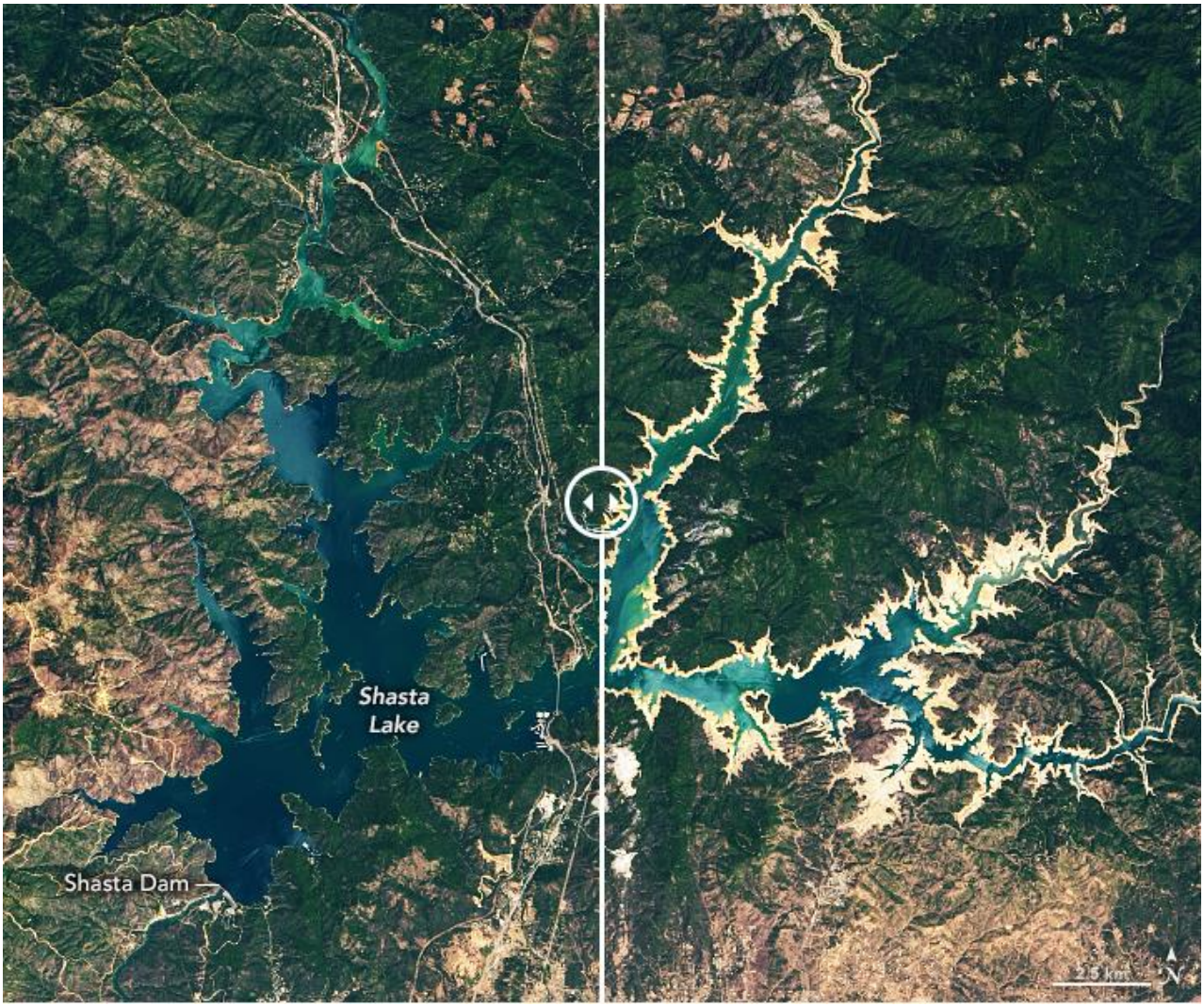
Although we're just approaching the first official day of summer, we should be planning ahead for responding to impacts of continued dry conditions in the coming winter.



Full Natural Flow at DWR Forecast Points on Selected California RiversShown as a percent of Average to DateData as of Midnight: 16-Jun-2021

# # #

California Reservoirs Reflect Deepening Drought
Earth Observatory, NASA | July 16, 2021



July 13, 2019 June 16, 2021

Just four years after emerging from a severe multi-year drought, California has descended into dry conditions not seen since 1976-77. Evidence of the new drought stands out in satellite images of the state's two largest reservoirs.

The images above and below, acquired by the Operational Land Imager (OLI) on Landsat 8, show Shasta Lake and Lake Oroville this year and in June 2019 (more typical conditions). The tan fringes around the water in 2021 are areas of the lakebed that are underwater when the reservoirs are filled closer to capacity. The phenomenon is often referred to as a "bathtub ring."

Managed by the US Bureau of Reclamation, Shasta Lake is the largest reservoir and third largest water body in California. Situated north of Redding, the reservoir feeds into the Sacramento River watershed and is a key water source for the rich agricultural lands of the

Central Valley. As of June 16, 2021, Shasta Lake held 1.87 million acre feet (maf) of water, or about 41 percent of capacity and 49 percent of the historical average for this time of year. From the time of the 2019 Landsat image to this week, the lake level dropped 106 feet (32 meters) in elevation.

Lake Oroville, managed by the California Department of Water Resources, has seen a precipitous drop as well. From June 2019 to June 2021, the water level on the state's second largest reservoir fell 190 feet (58 meters), from 895 to 705 feet above sea level. According to the Associated Press, the record low is 646 feet, set in September 1977.

On June 16, Cal Water reported that Lake Oroville stood at 35 percent of capacity and 43 percent of average—just slightly better than the historically dry years of 1976-77. According to several news reports, eight out of ten boat launches around Oroville have been closed, and resource managers are concerned that the reservoir's hydroelectric power plant might have to be idled if water levels drop much more.

Water storage in reservoirs is complicated and not entirely tied to recent conditions. State and federal resource managers adjust flows to provide water allotments to farmers and cities and to maintain habitat for native and sometimes endangered species. (For instance, salmon need cold water from the reservoirs to spawn.) In some parts of California, water is also managed to prevent saltwater intrusion into freshwater supplies.

Even with management for drought, the situation in many California reservoirs is growing serious as air temperatures have been unusually warm for months and precipitation has been between 35 to 50 percent of normal. In the Northern Sierra (Sacramento) water region, mean precipitation since October 1 has been 23.1 inches; the average (1966-2015) is 51.8 inches. It has so far been the driest year since the 1976-77 drought. (October 1 is the beginning of the "water year.") The San Joaquin water region is now in the third driest stretch behind 1976-77 and 2014-15; the Tulare Basin has seen its least precipitation on record. These rain and snow deficits follow well-below average precipitation in 2019-20.

The reservoir deficits have been exacerbated by a lack of snowmelt running down from the Sierra Nevada range. Mountain snowfall was already below average this winter, and much of it melted quickly amid high spring temperatures. Large volumes of meltwater were also absorbed by soils still parched from last year. Altogether, water authorities estimate anywhere from 500,000 to 800,000 acre-feet of meltwater never made it out of the mountains. (One acre-foot can supply roughly two households with water for one year.)

"This extra dryness and the unusual warmth has made this second year of drought more like the third or fourth year of the previous drought (2012-2016). So California is having to react faster than usual," said Jay Lund, co-director of the Center for Watershed Sciences at the University of California, Davis. "On the other hand, the recent 2012-2016 drought has more of the institutions and plumbing already tuned-up for managing drought . In some ways we are better prepared. But it is like a hurricane on the East Coast: you can be prepared, but it is still a hurricane, and there will be damage."

The state government has issued drought proclamations for 41 of California's 58 counties, and people in many communities are being asked to conserve water. Federal and state authorities have also reduced annual water allocations to farmers and cities in several areas. The cutbacks will likely remain in effect until winter rain and snow falls.

NASA Earth Observatory images by Lauren Dauphin, using Landsat data from the U.S. Geological Survey. Story by Michael Carlowicz.

# # #

(This page was intentionally left blank)

Santa Clara County Declares Drought Emergency; Water Conservation Urged in Unincorporated Areas

KPIX 5 | June 25, 2021

SAN JOSE (CBS SF) — Santa Clara County has declared a local emergency due to extreme drought conditions, and is urging residents and businesses in the county's unincorporated areas to immediately start conserveing water.

The county said in a press statement that under extreme drought conditions, fire season lasts year-round and fires may occur even in typically wet parts of the state. With the snowpack depleted and the rest of the state under similarly dry conditions, there is limited availability to import water.

Earlier this month, the Santa Clara Valley Water District declared a water shortage emergency and imposed mandatory water usage reductions of 15% compared to 2019 levels. Other water districts in the county and in the Bay Area have already issued mandatory restrictions in their communities. The county's declaration applies to unincorporated areas and urges residents to voluntarily take on similar usage reduction goals.

"As Californians, we all know how precious water is. During the last drought, many of us learned that every drop is valuable, and we all came together to find creative new ways to conserve this incredibly important resource," said Board of Supervisors President Mike Wasserman in a statement. "We did it before and we can do it again – every small step we can each take to stretch our water supply is critical right now."

"The reality is we live in an arid region that will continue to experience droughts. Water conservation is something we must all do together, and this includes the County and the many facilities we operate," said Jasneet Sharma, Director of the County's Office of Sustainability in a statement. "There are many steps that we should all take, from large scale conservation projects and household level water conservation retrofits to simple household changes like turning off the faucet when you brush your teeth. Each one is an important part of sustainability."

In 2015, Santa Clara County approved a number of permanent water waste restrictions for unincorporated areas that continue to be in effect:

- Do not water outdoor landscapes in a manner that causes runoff
- Do not use a hose to wash a vehicle, unless the hose is equipped with an automatic shut-off valve
- Do not use water to hose off paved areas and hardscapes, such as driveways, parking lots, and sidewalks
- Do not use water in a fountain or decorative water feature, unless the water is recirculated
- Do not water outdoor landscapes during the daylight hours of 9 a.m. and 6 p.m., unless using a bucket, hose equipped with an automatic shutoff valve, or low-flow drip-type irrigation system
- Fix outdoor water leaks within seven days of notification by the County

For businesses, the following water uses are prohibited (unless it's necessary to address an immediate health or safety need, or to comply with a term or condition in a permit issued by a county, state, or federal agency):

- Service of water at a restaurant or public place where food or drinks are sold, unless upon request
- Use of non-water conserving dish wash spray valves at a restaurant or public place where food or drinks are sold
- Failure to use recycled or non-potable water for dust control or soil compaction purposes in construction activities when a source is readily available
- Installation or use of any new single pass cooling systems that circulate water only once to cool equipment before disposing the water
- Installation or use of any new non-recirculating water systems in commercial conveyor car wash systems
- Installation or use of any new non-recirculating water systems in commercial laundry systems
- Failure of a hotel, motel, or other commercial lodging establishment to provide customers with the option of declining daily towel and linen laundry services.

The County asks that all water waste complaints in unincorporated Santa Clara County be directed to the Santa Clara Valley Water District in any of the following ways:

- Drought response hotline (408-630-2000)
- Email (WaterWise@valleywater.org)
- Free app for smartphones (available at http://www.valleywater.org/avwapp/)

For residents and businesses who want to do their part in saving our water, the Santa Clara Valley Water District has a number of conservation programs that offer rebates for the following:

- Converting residential or commercial high-water use landscapes to drought-friendly ones
- Installation of Graywater Laundry-to-Landscape Systems
- Equipment changes at commercial, industrial, and institutional facilities to reduce water usage
- Installation of submeters and water meters

# # #

California can learn much from Israel on how to conserve water, manage drought better
Sacramento Bee | June 20, 2021 | Ron E. Hassner, Special to Sacramento Bee

U.S. Sen. Dianne Feinstein Feinstein discussed the difficulties of crafting water legislation following a meeting with The Sacramento Bee Editorial Board on Wednesday, March 30, 2016. BY CHRISTOPHER CADELAGO

When Donald Trump referred to the COVID pandemic as a “plague,” he was implying that it was an act of God that couldn’t be blamed on the government.

We are now told that the acute water shortage in California is the result of a “drought” that has, once again, lead to water restrictions. This biblical term obscures the responsibility that our local governments bear for this crisis. Countries facing far harsher climates and much scarcer water supply, like Israel, have adopted straightforward policies to avoid such crises. We should learn from their example.

Having grown up in Israel, I smile wryly whenever I drive across the Sacramento River and think of California’s alleged “water shortage.” Israel’s only river, the Jordan River, is a small stream that flows at a rate of 565 cubic foot per second. The Sacramento River, in contrast, pours 489,000 cubic feet of water into the Bay every second, nearly 1,000 times the amount of water for half as many people. There are dozens of other large rivers in Northern California alone.

There is no shortage of water here, only a shortage of good water management.

In part, our water is too cheap: Israelis pay three times as much for water than Californians and, as a result, consume 30% less water per capita than Californians do. They treat water as a precious resource. Israel recycles 90% of its wastewater. California recycles 13%.

Our dams and reservoirs are small and decrepit. When it does rain in the Bay Area, most of the water is not captured and utilized before it flows into the Bay. It just disappears down the storm drain.

OPINION

California farming policy bears prime responsibility for our water shortage. California agriculture uses up four times as much water as urban users. Most Israeli farmers use drip irrigation to minimize water loss through evaporation, while most California farmers still employ wasteful flood irrigation and grow water intensive crops such as alfalfa, rice and cotton.

Nuts are the most notorious culprit. California produces 80% of the world's almonds — 2 billion pounds a year — at a staggering cost of 2,000 gallons of water per pound of almonds. Ten percent of California's water is guzzled up by almonds. That alone equals the volume of water used by all of California's cities combined.

It's preposterous to expect individual households to take the lead in conserving water rather than revise our state's industrial and farming policies. In the midst of successive droughts, California is exporting its water overseas in the form of produce. The solution to our water crisis cannot be shorter showers. A fistful of California almonds, shipped to Europe or Asia, uses up more water than the average shower.

If we refuse to recycle water, store more water or divert it away from irresponsible agriculture, we have to invest in desalination. Israel has five desalination plants, all constructed after 2005. It is now producing a surplus of water, more than enough for the entire country and the Palestinian Territories, addressing a key sticking point in Israeli-Palestinian negotiations.

Israel's two largest desalination plants provide about 160 million gallons of drinking water a day each and a third plant of similar size is in the works. In parallel, Israel, Jordan and the Palestinian Authority have launched a joint $1.5 billion project, "The Red Sea-Dead Sea Project," to produce 150 million gallons of desalinated water a day for shared use. This ambitious project would bind the three governments in ties of mutual dependence and benefit.

In contrast, California's largest desalination plant, recently constructed in Carlsbad by an Israeli company, produces a mere 50 million gallons a day. It's a promising sign that California is drawing on Israeli expertise. In 2015, Israel signed a Memorandum of Understanding with California to establish joint projects and research on water conservation. The first Israel-California Water Conference brought together 300 leaders and experts from both states in 2016. It's a good start, but it's not enough.

We still lag behind much of the industrialized world in water recycling, conservation and desalination. Environmental lobbies oppose expanding our reservoirs, drawing more river water and constructing desalination plants. Agricultural and industrial lobbies have opposed diverting water away from farming and business and toward personal use. Taxpayers have refused to fund recycling and conservation infrastructure and have balked at higher water costs. In bowing to these interests, we have prioritized conservation and profit over access to water. That is our free choice, not an act of God.

We can no longer pretend to be surprised by global warming. California experienced droughts in 11 of the last 15 years. The question is not whether another drought is looming. The question is: Why aren't we better prepared?

# # #

(This page was intentionally left blank)

12 Bay Area drought survival tips for a long, dry season

Bay Area News Group | June 12, 2021 | Martha Ross

Water officials say all residents can do their part to help alleviate the drought emergency we're in, while also saving money on their water bill

Tenant Randy Monroe gets a free residential water survey from Contra Costa Water District conservation technician Dennis Vigil, not picture, as they stand in one of the lawns of his home in Concord, Calif., on Wednesday, April 15, 2015. Monroe will cut his water usage from four days to two days per week after technician Vigil setup the irrigation timer per Monroe's request. (Ray Chavez/Bay Area News Group)

The hills around the Bay Area have been brown and dry for weeks, a daily reminder that we're in a serious drought that's expected to last at least through the end of the summer.

Already, the drought has plunged much of California into a state of emergency, pushed up the start of fire season and prompted Santa Clara County, the most populous county in Northern California, to imposeF mandatory water restrictions that are mainly aimed at reducing landscaping and lawn watering, which totals up to 50 percent of urban water use during the summer.

Whether or not mandatory restrictions will be imposed in other Bay Area communities, water officials say residents can do their part to help alleviate the emergency by reducing their daily water use.

Some tips for households are pretty well known, especially to veterans of previous California droughts, who learned long ago to install high-efficiency toilets and not let the tap run unnecessarily.

But here are some steps people may not have thought of, as well as information about free services, apps, devices and rebates available from local water districts. These services can help residents track water usage, install simple water-saving devices in the bathroom and kitchen, and even get serious about buying new water-efficient appliances and redoing their yards with sustainable landscaping.

Quick and easy indoor tips

— Run full loads of laundry and dishes.
— Turn on the tap only when you need to rinse — while brushing your teeth or shaving, or washing vegetables and dishes. Fill a sink or tub for quick rinsing instead of having a constant stream of flowing water. Scrape food off plates, instead of rinsing, before loading the dishwasher.
— Take showers, instead of baths, and make them short, 5-minute showers. Showering uses almost a fifth of all water in the home, and each minute you cut saves 2.5 to 5 gallons.
— Use buckets to capture water while your kitchen, shower or bath water is heating up. Use that water for washing up or watering plants.

Quick and easy outdoor tips

— In the summer, water your garden early in the morning or at night, preferably between 6 p.m. and 10 a.m.
— Check and adjust sprinklers to make sure they're watering your plants, not your walls or sidewalk.
— Add mulch to planting areas to reduce reduce water loss, as well as improve soil quality, and keep soil temperatures cooler.
— Don't use your hose to wash your patio or driveway.
— Take your car to a commercial car wash that recycles their wash water. If you must wash your car at home, use a bucket and sponge, not a hose.
— If you have a pool, keep it covered and reduce the temperature in warmer months to prevent evaporation.
— Only run garden fountains or waterfalls when entertaining.

If you want to get more serious: Free services, devices and rebates

Check your local water district for water-conservation services, rebates and devices, such as apps or kits that can help you calculate your water usage or detect potential leaks in indoor or outdoor plumbing or irrigation systems.

Valley Water in Santa Clara County and some other districts offer free low-flow showerheads and aerators for faucets. By replacing old showerheads with high-efficiency showerheads, you can save hundreds of gallons each month.

Each district also offers tips on choosing water-efficient toilets and clothes and dishwashing machines in order to save water, energy and money. Toilets are often the main source of water use in the home, accounting for nearly 30 percent of an average home's indoor water use.

The districts also offer different rebates, mostly for replacing lawns with water-efficient landscaping. Valley Water, for example, offers rebates of up to $2,000 for qualifying residences.

Through the Bay Area Water Supply and Conservation Agency, residents covered by the Alameda County Water District, the Mid-Peninsula Water District and other South Bay and Peninsula communities can qualify for rebates of up to $200 to install high-quality rain barrels and discounts for smart controllers for sprinkler systems.

Meanwhile, the East Bay Municipal Utilitity District offers rebates of up to $200 to install flowmeter devices to give customers information about their water use and potential leaks and rebates of up to $50 towards the purchase of a graywater valve to divert water from the clothes washer to outdoor landscaping.

For any rebate offered by water districts, you must be a resident of that district and submit an application.

# # #

(This page was intentionally left blank)

One reporter's view on fish, farms, and the fight over the Delta's water.
SF Estuary Magazine | June 2021 | Alastair Bland

As drought parches California, obliterates its snowpack, and reduces rivers to trickles, a familiar feud over water has resurfaced. Farmers want more of it to irrigate their crops, while fishermen and environmentalists want more left in rivers to protect the state's Chinook salmon.

Mainstream news outlets often portray the struggle as one between two groups ravaged by environmental whims and climate change. However, this interpretation weaves a false equivalence through the narrative. Whereas the state's Chinook and coho salmon runs have withered to about a tenth of their historic magnitude, California's agriculture industry has seen steady and soaring growth since its inception 150 years ago. Today, California's farms occupy millions of acres, use 80 percent of our stored water supply, and produce about $50 billion in products each year, the majority of which is consumed out of state. Even in dry years, most of California's farm acreage receives plenty of water, and total farm revenue does not substantially decline.

The deterioration of the Central Valley's aquatic ecosystems as the agriculture sector thrives represents the failure of a particular tenet of state policy known as the coequal goals. The Delta Stewardship Council is tasked with carrying out this objective, which mandates providing a

reliable water supply for human users and protecting, restoring, and enhancing the state's natural resources and wildlife. "The coequal goals," the Council's website states, "shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place."

John McManus, president of the Golden State Salmon Association, a fishery advocacy group that lobbies for habitat restoration projects and improved flow conditions for salmon, feels the coequal goals initiative has not significantly influenced policy. "It's pretty clear that the coequal goals are only equal on paper," he said in an interview. "In the real world, the big agricultural operations have always gotten more of the state's water than any other community or group."

Drought tends to reveal this inequality. While most irrigated farm acreage receives water even during dry years, rivers tend to shrink away when supplies dwindle, often causing disastrous die-offs in fish populations. This year, disease is ravaging Chinook in the Klamath, where trickling flows have warmed to lethal temperatures. A similar crisis is expected in the Sacramento this summer as spawning salmon lay and fertilize their eggs in what environmental advocates fear will be deathly warm outflow from Lake Shasta.

Susan Tatayon, chair of the Delta Stewardship Council, told Estuary News that agencies "are working toward achieving the coequal goals" and that measuring success is complicated. A set of "performance measures," described at the Council's website, was introduced several years ago. They address water quality, people and property, river flows, and water exports, among other variables.

"Achieving these coequal goals will be going on for generations," Tatayon said, adding that finding a sustainable balance in water use "is urgent" as species like Delta smelt and several runs of Chinook salmon decline. She believes coequality between water uses will arrive through "ecosystem-based management," which looks at entire ecosystems rather than taking a species-by-species regulatory approach.

Art by Sophia Zaleski

This spring, Governor Newsom declared the drought a formal emergency. This declaration could ease the way toward waivers on environmental protections that would allow water to be more easily funneled out of the Delta. That's what happened during the last drought, leading to prematurely drained reservoirs and lethal spawning conditions downstream of Shasta Dam, where sun-warmed outflow killed nearly every Chinook salmon egg laid in the summers of 2014 and 2015.

Farmers also feel the burn of drought. In the Sacramento Valley, rice plantings have been scaled back by 20 percent of average acreage — what headlines have featured as an agricultural disaster. However, it's a relatively small cut for growers, and as soon as plentiful rainfall returns, those fallowed acres will be farmed again.

In the western San Joaquin Valley, some farmers — especially those with junior contracts for water in years of surplus — are plowing over producing trees for lack of delivered water. But such growers are the minority, points out Jon Rosenfield, a senior scientist with the organization San Francisco Baykeeper. "These junior contractors do not represent all or even most California farmers, or even all or most Central Valley farmers," he said.

Most of the state's orchards will receive the water they need this year to produce profitable crops. "When surface allocations are low, during droughts, farmers often turn to groundwater," said Peter Gleick, a professor emeritus with the Pacific Institute, an Oakland research thinktank. "That's one reason why farm income rarely drops very much during droughts."

In fact, the last major dry spell, though publicized as devastating to farmers, cut a relatively small $4 billion in sales from the state's agriculture industry from 2014 through 2016, according to recent reporting by CalMatters.

This year, in spite of cries for more water in the state's farmlands, California farmers are poised to harvest 3.2 billion pounds of almonds — yet another in a long string of record crops for the booming industry.

To Rosenfield, the plight of the state's salmon fishing industry illustrates the lopsided version of coequality for which society has settled. "In 2008 and 2009 after the salmon runs collapsed, fishermen were shut down completely, and this year they've lost half their season, and based on what's happening now, it's possible they'll get shut down again in three years," he said. "But if a farmer gets cut by 30 percent, people react emotionally, because God forbid a crop should be fallowed."

The notion of coequality in California's water use is an illusion created by drastically shifted ecological baselines. As a society, we have forgotten what it means for a river to be a healthy and productive system. We live in a recalibrated paradigm where anything less than economic growth is a crisis, and endangered listings and depleted stocks are the status quo for native fish species. Allocating even minimal flows of water to keep these creatures from disappearing is controversial when it cuts into farm production.

California leaders talk about restoring rivers and wetlands, but these ecosystems, once destroyed, are rarely fully revived. Recently, a San Joaquin River restoration effort was celebrated when it coaxed a few salmon back to a watershed that once hosted hundreds of thousands. In her 2015 book The Narrow Edge, naturalist Deborah Cramer wrote, "We so easily

settle for the diminished world around us …. Unaware of what we have lost, we can't imagine what we might restore."

This cultural amnesia continues, drawing us down the slippery slope of progress. Last month, a political figure in the San Joaquin Valley suggested declaring the Delta smelt extinct to ease water-pumping restrictions intended to protect the fish, which Republicans have often pointed out is small and economically worthless. Indeed, California would have a real shot at achieving its coequal goals if some water users just disappeared.

# # #

Top photo: Alastair Bland after a dive at the mouth of the Russian River.

A wake-up call for water resilience in the West
The Hill | July 5, 2021 | Maurice Hall


© Justin Sullivan/Getty Images

As someone working on water issues in the West for more decades than I care to admit, I have found myself repeating the same mantra over and over again: When you're in a drought, it's too late to prepare.

Well, we're in drought, again, and I can't help feeling a sense of personal failure for how ill prepared we are. This time is worse, however — worse because surely, we should have learned by now to prepare better and worse because record-breaking heat and early wildfires indicate the climate change ratchet has clearly clicked several notches tighter.

An unbearable 114 degrees in Portland, Oregon. Wildfires raging already, in June, in northern Arizona and northern Colorado. These seemingly impossible events, tragic as they are for the people and ecosystems affected, signal a whole new level of challenge when it comes to our water supplies. Even what we should have done 10 or 20 years ago to prepare our water supplies for droughts is inadequate for the future we face.

This year should be a blaring wake-up call for a far bolder, more proactive approach to build water resilience to this climate crisis in the West. Our response should include investing heavily to diversify our water supplies, reducing demand and unprecedented cooperation on targeted solutions for all users, including the environment, disadvantaged communities and Native American tribes — groups that have been overlooked in water policy for far too long.

Diversified water supplies

We can draw valuable lessons from the cities and water agencies that are best prepared, perhaps most notably in Southern California. Those cities and agencies in the best position have taken a clear-eyed view of their drier futures, accepting long ago that climate change is real. They have invested billions to diversify their water portfolios, including reducing demand, desalination, recycling and storing water above and below round.

We have to apply this diversification strategy across the board, not just for well-resourced cities, but also for farms, disadvantaged communities and the environment. We can start by more strategically leveraging water storage capacity — and the most storage capacity can be provided by our groundwater basins. We need proactive groundwater management, as enabled by the Sustainable Groundwater Management Act in California and active management areas in Arizona.

We must now extend new authorities so that a wider diversity of communities, such as those across rural Arizona, can proactively manage their water futures. With solid management in place, we can then operate groundwater storage projects in concert with improved operation of reservoirs to compensate for reduced snowpack and mitigate for more extreme flooding caused by climate change.

Reducing demand, repurposing land

However, storage can only help if there is enough water to store. Unfortunately, in some areas, it's clear there simply isn't enough water to support all the existing uses.

In the second straight year of drought, California already has had to make unprecedented cuts in water deliveries to farms. The severity of cuts has been intensified by extraordinarily warm temperatures in April and May and extremely dry soils, which have absorbed runoff water from snowpack far more than expected.

In the Colorado River basin, Lake Mead has dropped to the lowest level since its creation by Hoover Dam in the 1930s, which will trigger cutbacks to those who depend on the reservoir's storage. Arizona farmers will take much of the brunt of these cuts.

Switching to less thirsty crops is one option in some arid regions. But taking land out of production also will be inevitable. In California's Central Valley, it's been estimated that at least 750,000 acres of farmland — an area the size of Yosemite National Park — will have to be taken out of production to balance groundwater supply and demand in the next 20 years.

The impacts of these changes will be painful, so it's important that we ease the transition as much as possible while making sure to repurpose these lands to uses that bring new benefits to communities and wildlife, including solar farms, habitat corridors and outdoor recreational spaces. Fortunately, California Gov. Gavin Newsom (D) sees this opportunity and has proposed $500 million in funding to incentivize farmers to repurpose their lands to deliver these new benefits.

A grim picture for the environment
The environment is often the last in line when water supplies shrink. So, it's no surprise that the water picture for the environment is more alarming than ever this year.

The Klamath Basin on the California-Oregon border is ground zero for the water crisis, with one of the worst drought years in four decades causing a major die-off of juvenile salmon. Migratory birds that stop in the Klamath Basin and Central Valley are also in grave danger because of limited water.

If we want water-dependent ecosystems and species to thrive, or in some cases merely survive, this climate crisis, we have to more proactively provide the necessary water flows and habitat conditions in our streams, rivers and wetlands. We simply have to manage our highly engineered water system for ecosystems as we do for people.

The whole suite of strategies used successfully by the most proactive local jurisdictions also provides the most promising pathway for ecosystems: diversity of water supplies, water storage and banking, water transfers, collaboration with neighbors and secure and healthy funding streams.

Washington listening to the West
It is encouraging that this water wakeup call from the West is being heard in Washington, D.C. The recently announced bipartisan infrastructure package dedicates $55 billion to water infrastructure, $5 billion for western water storage and $47 billion for resilience.

President Biden recently met with a bipartisan group of western governors and pointed to the package as key for tackling the drought and wildfires. At the same time, he also has been moving a package that addresses the two largest sources of climate pollution — transportation and electric power — that are putting our water supplies and even our lives at greater risk.

In addition to acting on crucial funding bills, Congress should move quickly on a host of bipartisan bills that tackle drought through water recycling, efficiency improvements and more.

As we scramble to deal with the multiple emergencies of this latest drought, let's also seize the moment to invest at federal, state and local levels in solutions that ensure we are far more prepared for the next one.

Let's stop repeating errors of the past, forgetting about the last drought and waiting until the next one comes around to respond, because the extreme events of past few weeks make one thing all too clear: The next drought may very well be worse than anything we've seen before. The time to prepare for it is now.

# # #

Maurice Hall is vice president of Environmental Defense Fund's water for the Ecosystems Program, working to manage groundwater more sustainably and revitalize working rivers and their ability to provide a resilient water supply.

(This page was intentionally left blank)

Thanks to Long-Term Water Strategy, Southern California Is Weathering the Record Drought

CalMatters | June 29, 2021 | Rachel Becker

The expanded San Vicente Dam and reservoir in East County helps San Diego avoid the drought. Courtesy of the San Diego County Water Authority

In Los Angeles, people have been hearing about the dangers of drought for decades. But in this land of infinity pools and backyard putting greens — better suited for rattlesnakes and scrub — water never seems to run out.

Yet little Redwood Valley in Mendocino County, which gets a bountiful 38 inches of rain in an average year and sits near the headwaters of the Russian River, has been devastated by this year's drought. Each resident has been told to use no more than 55 gallons per day — enough to fill a bathtub and flush a toilet six times.

And in San Jose, where less than half of its usual rain has fallen this year, people have been asked to cut water use by 15% — a target that could become mandatory if locals fail to comply.

When it comes to the impact of drought, location is key. Rain and snow vary greatly across California's myriad microclimates, leaving some towns, mostly in the north, accustomed to

yearly refills of their rivers, reservoirs and aquifers. Others farther south have fewer natural supplies of their own, and in parts of the Central Valley, the drought never really left.

But drought resilience is manufactured, too. Decades of planning and extraordinary engineering and technology keep the water flowing to arid places.

“There is, of course, no single Northern California or Southern California when it comes to water,” said Peter Gleick, founder of the Pacific Institute, a global water think tank. “Water is a very local phenomenon. And every region and every water district has a different mix of water supply options and water demands.

During the last drought, in 2015, Californians were ordered to cut their water use by an average of 25% statewide. This time, there is no statewide emergency, no universal mandate and no standardized water waste rules.

Instead, residents are facing a patchwork of restrictions. Bracing for a crisis, towns relying on the hard-hit Russian River have imposed stringent mandates on residents and coastal communities may have to truck in water to make it through the year. At the same time, most of California’s urban hubs are prepared to weather the summer with only voluntary cuts and limited restrictions that in many cases are holdovers from previous droughts.

A CalMatters survey of the state’s 10 largest water agencies found only one — in San Jose — has issued new limits on watering yards, washing cars and other outdoor uses. Eight, including Sacramento, already had rules curbing irrigation and water waste on the books. And four, including water agencies in the East Bay and Riverside, have asked people to voluntarily cut back between 10% and 25%.

Even though Southern California is more arid, it’s better hydrated, too: That’s because it has largely relied on water transported from elsewhere, dating back more than 100 years in Los Angeles and 50 years in neighboring cities and counties. About half of the water that flows from taps in the region is imported, while half comes from carefully nurtured groundwater reserves and recycled sewage.

As a result, Los Angeles residents are unlikely to face new water restrictions this summer. After a soggy 2019 plus declines in water use since the last drought, the Metropolitan Water District, which supplies imported water to 19 million people in six counties, entered 2021 with record levels of water in storage.

The grip of drought even varies within single counties. For instance, one Mendocino County town is flush with recycled water and groundwater stores, but in another, residents are ordered to reduce use.

“We have a patchwork in part because (water) is managed locally,” said Felicia Marcus, who led the state’s response to the 2012-2016 drought under former Gov. Jerry Brown.

“The situation is dire in some places, and those places are making calls for higher levels of conservation,” Marcus said. “In other places, they may be prepared, or they may be dreaming.”

Southern California’s Manufactured Resilience

Southern California goes to extraordinary lengths to take water from elsewhere. This nature-defying engineering keeps the region replete with water even when little falls from the sky. (Downtown Los Angeles averages about 14 inches per year, about a third as much as Mendocino.)

First came the city of Los Angeles’ aqueduct — backed by San Fernando Valley investors and approved by voters in 1905 — sucking up mountain-fed streams and lakes in the Owens Valley and transporting it 137 miles.

But it wasn’t enough.

Then came the Metropolitan Water District’s aqueduct, drawing from California’s share of the Colorado River, snaking through the desert and tunneling through mountains to deliver water to the Los Angeles basin in 1941.

But that wasn’t enough, either.

Finally, the state in the 1960s began building a massive system to carry river water from Northern California, pumping it over the Tehachapi Mountains and through 700 miles of pipelines and channels to deliver it to San Joaquin Valley farmland and 27 million people, mostly in Southern California.

And that is enough — for now.

These three extraordinary engineering feats have made much of Southern California able to pull water from a variety of places all at once, transforming its landscape and satisfying the region’s thirst.

Los Angeles County also pioneered recycled water, building the nation’s first reclamation plant in 1962 to treat sewage and use it to replenish its aquifers. Neighboring Orange County has been a world leader in recycling water, purifying its own sewage and capturing the Inland Empire’s to feed its groundwater.

San Diego, too, has built up its resilience since the last drought. For decades it was almost totally reliant on Metropolitan Water District’s imported water. But since the 1990s, the San Diego County Water Authority has added desalinated and recycled water, built one dam and raised another, pumped groundwater and cut a deal to get Colorado River water from Imperial

County. The water authority announced the region is “drought-safe this summer” with “no shortages or mandates in the forecast.”

The giant desalination plan in Carlsbad. Photo by Chris Jennewein

Stephanie Pincetl, director of UCLA’s California Center for Sustainable Communities, who has studied Southern California’s reliance on distant water sources, said the decisions had far-reaching, if unintended, consequences: Los Angeles’ water grab from the Owens Valley exploited distant ecosystems, and urban sprawl was fueled by the Metropolitan Water District’s imports.

“It’s really the growth machine of Southern California … by providing all this water to inland places, and allowing the sense that there’s unlimited water and the sense that you can build as far as the eye can see,” Pincetl said.

Still, she said, “You can point fingers a lot, but you can also be reassured that you can actually turn the tap on and have water come out of it, most of the time.”

But is it enough to weather droughts aggravated by climate change?

This year, California regulators announced that they would deliver only 5% of the State Water Project’s supplies because of extreme drought conditions.

Metropolitan, flush with funds from the cities and agencies it supplies, has spent billions to store water, nearly doubling its reservoir capacity with the completion of the $1.9 billion reservoir at Diamond Valley Lake in 2000.

Between stowing water in reservoirs, pouring it into aquifers and banking it in Lake Mead, Metropolitan Water District's storage has increased 13-fold since 1980, shoring up supplies for residents from Ventura to San Diego to San Bernardino.

Los Angeles also doesn't anticipate issuing new water use restrictions, at least not yet.

"We don't see any need right now, because storage levels are still very good," said Delon Kwan, the Los Angeles Department of Water and Power's assistant director of water resources. "If you still have water in storage, why are you asking customers to do more?"

But water experts caution about the potential for more dry days ahead, exacerbated by climate change, so a gallon of water used now is one less saved for later.

"Maybe Southern California is happy this year and jumping up and down. But if this drought continues for two more years, what will happen? Would they be as happy in two years?" said Newsha Ajami, director of urban water policy at Stanford University's Water in the West program.

Deven Upadhyay, Metropolitan's chief operating officer, said that it could take several dry years in a row before the district imposes mandatory reductions in Southern California. "If we just continue to get dry year after dry year after dry year, there's going to come a time where we're going to be wrapping up messaging and asking for mandatory reductions. But that's not where we are right now," he said.

Still, some parts of Los Angeles County are already struggling.

Palmdale, an aerospace hub in the Mojave Desert north of Los Angeles, draws water from snowmelt off the San Gabriel Mountains, taps into the State Water Project directly and pumps groundwater to supply more than 120,000 people.

The Palmdale Water District doesn't have enough storage to bank water during wet years or enough money to easily increase its supply.

"We're not as financially nimble as some of the really big players," said Peter Thompson, Palmdale's director of resource and analytics. "We're just getting to the point where we can start investing in those projects that have already benefited places like Metropolitan."

Residents of this desert city, where less than an inch of rain has fallen this year, were asked in the spring to voluntarily cut water use by 15%. In July, the water district's board may consider making it mandatory.

"Out in the desert, you need more water to keep things alive. So when we experience drought, then you also experience increased demand," Thompson said. "That's one of those double-edged swords that we deal with out here."

Mendocino County's Isolation Means No Resilience

Water is much more precarious in Mendocino County, which is isolated from state and federal aqueducts. Instead, residents rely on patchy aquifers and water that's stored in Lake Mendocinoand released into the Russian River.

Properties for sale along the oak-lined roads of Redwood Valley boast their water sources in the listings. One $675,000 home touts a water district hook-up and a seasonal spring. Another $699,000listing flaunts its "elaborately designed 22,000 gallon water storage system."

Known for its wine, weed and wild coast, Mendocino County was one of the first places where California Gov. Gavin Newsom declared a drought emergency.

In other parts of the state, "when there's a problem, there's a pipe and there's a canal, and you can connect one water system to the next," said Mendocino County Supervisor Glenn McGourty in a June meeting of the county's drought task force. "We don't have things like that in Mendocino County, so we're going to have to be really creative in our solutions."

This year's drought is the most dire situation they've faced in decades. At the end of May, Lake Mendocino hit a record low of just 40% capacity. Earlier this month, the county faced projections that the reservoir could be dry by the end of the year. In response, the state adopted emergency regulations that could stop 2,400 water right holders from diverting water from the Russian River as early as July 5.

Although Redwood Valley lies just north of Lake Mendocino, its water supply is never guaranteed. Residents rely on sales from a nearby water agency and any surplus left in the reservoir by nearby communities.

But at this point, there's no surplus. Agricultural connections have been shut off in Redwood Valley and residents are limited to 55 gallons per person per day — enough for just a 22-minute shower and nothing else.

"My dream was to garden," said Darrell Carpenter, a 61-year-old artist and handyman whose family has lived in Redwood Valley for three generations. Carpenter moved back full time after his partner died six years ago. When the water restrictions and rate changes were announced, he wondered, "Do I sell and move?"

Carpenter was lucky, able to restart an inactive well on his property and keep his garden alive, which he has slowly been converting to native plants and succulents. Still, he worries that his luck and the water will run out as more people stick straws into the ground.

"It might be a false sense of security," he said.

The water district's cuts have left the reservation for the Redwood Valley Band of Pomo Indians with nothing to refill its tank for irrigating a community garden and filling its fire truck. Hydrants

are still operating, but outdoor water use is banned and rancheria officials are investigating whether they can draw water from an old well.

“We don’t have any access to any other water,” said tribal administrator Mary Camp. “We’re really concerned.”

Farther out along the coast, in the town of Mendocino, residents depend on private wells pumping from rain-fed groundwater stores. The town declared a stage 4 water shortage emergency in May requiring residents to use 40% less water than allotted.

“I’m nervous. I’m definitely nervous,” said Mendocino City Community Services District Superintendent Ryan Rhoades. “I’m sure that some wells will run dry this year, probably more than last year.”

McGourty, the Mendocino County supervisor, blamed the county’s predicament on its limited water storage.

“We’ve been lulled into the idea maybe that we have lots and lots of water. And we do have lots and lots of water. The problem is that we don’t store lots and lots of water,” McGourty told water officials across the region. “We’re in a different world now, because of climate change.”

Ukiah, just ten miles from hard-hit Redwood Valley, is weathering the drought much better because of steps taken after the last dry spell.

Five decades ago, the Doobie Brothers described Ukiah as a land where “mountain streams that rush on by show the fish a jumpin.’” Today the city is facing extremely dry conditions in the Russian River, which typically makes up about half of the supply for its 16,000 residents.

Ukiah will lean more heavily on groundwater, bolstered after the last drought with a state grant that helped pay for three new wells. The city also built a $34 million recycled water plant that pumps out irrigation water, making up a third of its supply.

“The city saw the writing on the wall, and was looking to improve our drought resiliency, before it was cool,” said Sean White, director of water resources for the city of Ukiah.

“It’s kind of a disparate tale. If you live in the city of Ukiah, (the drought) is really not that big of a deal … If you live in some of the adjoining ones, it’s either bad or terrible.”

Silicon Valley’s Perfect Storm

In Silicon Valley, aging dams and drought have collided this year, making Santa Clara County among the hardest hit in the Bay Area. Storage in reservoirs has dwindled by 74%. And supplies from state and federal aqueducts have dropped far below expected levels.

Making matters worse, the area's largest reservoir is all but empty, drained last year to retrofit it for earthquakes. Without it, the amount of water stored locally for 2 million people in San Jose and nearby communities has been cut by more than half.

"We're seeing the perfect storm building up and it's right in front of us," said Rick Callender, Valley Water's CEO, at a June board meeting. "We're indeed in a dire situation."

If dry conditions persist through next year, land could sink and wells could go dry. In the southern part of Santa Clara County, groundwater is the only drinking water source.

"The aggressiveness and the severity of this drought, the way the drought is increasing is much greater than the previous drought," Aaron Baker, chief operating officer at Valley Water, said at the hearing. "Conditions will be far worse in 2022 if drought conditions continue and no action is taken."

Valley Water's board this month ordered a mandatory 33% cut in residential water use from 2013 levels — a 15% reduction from 2019. Individual water providers will enforce it, which means rules for residents could vary depending on who sends water to their taps.

Cupertino's director of public works, Roger Lee, warns that if water providers fail to coordinate, it could lead to a patchwork of restrictions in neighborhoods served by multiple retailers.

"We can have customers with one set of rules on one side of the street and different sets of rules on the other side of the street," Lee said at the hearing. "It gets very difficult with messaging."

Marin County's largest water provider, too, has been hit hard by shortages in its own reservoirs and those in Mendocino and Sonoma counties. Marin Water, which aims to cut use across the county by 40%, has banned watering plants during the day and limited sprinklers to two days a week, among other mandatory restrictions,

Most of the Bay Area isn't in such dire straits — at least not yet. Residents of the East Bay were asked to reduce water use by 10%, and San Francisco golf courses, parks and other irrigation customers were asked to cut back. Both water districts already prohibit wasteful use, like washing down sidewalks.

And both, like Los Angeles, pipe water from far away.

The East Bay's aqueducts snake about 90 miles from the Pardee Reservoir in the Sierra foothills, delivering the vast majority of the utility's supply.

"Our forefathers (thought) to create this massive infrastructure that has been our source, our lifeline to the East Bay and has positioned us well during these dry times," said Tracie Morales,

an East Bay Municipal Utility District spokesperson. Still, Morales said, “We’re concerned about what another dry year will bring.”

San Francisco, where residential use per person falls well below the state average, draws about 85% of its water from Yosemite’s Hetch Hetchy, which was dammed in 1923, flooding the territory of the Tuolumne Me-Wuk people. San Francisco’s reservoirs remain in decent shape at 75% of maximum storage, said spokesperson Will Reisman.

“The Santa Clara Valley used to be orchards here, but we didn’t have the population that San Francisco had and we didn’t have the impetus of the 1906 quake and the resulting fires to go grab the Hetch Hetchy water,” said Gary Kremen, vice chair of Valley Water’s board of directors. “They were there first, so they got the better deal.”

Counties Urgently Seeking State Help

Some areas, like Santa Clara, are looking for Newsom to expand drought emergencies that could unleash greater enforcement powers and reduce regulations to speed construction products and ease pricey purchases of emergency water supplies.

Compared to the counties already under drought emergencies, “we’re in just as bad shape as them, if not worse,” Kremen said at a press briefing.

Palmdale spokesperson Judy Shay also said her water district is looking for stronger messaging from the state as it ramps up its drought response.

“We also don’t want to be the ones making all those strict rules,” Shay said. “We also need direction from the state.”

The Pacific Institute’s Gleick calls for urgent collective action throughout the West.

“The speed with which the western drought is accelerating and worsening makes it urgent that the governors of the western states declare water conservation mandates and targets and provide resources to help cities and farms cut water use,” Gleick said.

The issue is bigger than simply responding to the current drought, said UCLA’s Pincetl. Californians will need to reimagine what the future could look like and rethink their relationship to water.

“We don’t actually know where we live … we live in this kind of irrigated bubble that insulates us from the actual California,” Pincetl said. “And having easily accessible water is part of that story.”

# # #

CalMatters is a public interest journalism venture committed to explaining how California’s Capitol works and why it matters.

(This page was intentionally left blank)

Why some of the world's biggest companies are increasingly worried about water scarcity

CNBC | June 29, 2021 Sam Meredith

Key Points:

- *In a research note published June 14, analysts at Barclays identified water scarcity as "the most important environmental concern" for the global consumer staples sector, which includes everything from food and beverages to agriculture and tobacco.*
- *Sustainable investors, meanwhile, seem to be prioritizing other environmental concerns.*
- *"Water scarcity is really important because when it runs out you have really serious problems and because of its low price, it is one of those classic externality risks," Beth Burks, director of sustainable finance at S&P Global Ratings, told CNBC via telephone.*

Dry cracked earth is visible along the banks of Phoenix Lake on April 21, 2021 in Ross, California. Justin Sullivan | Getty Images

LONDON — Major companies from across a range of sectors are increasingly concerned about the cost and availability of the world's ultimate renewable resource: water.

The availability and relatively low cost of water does not tend to capture much attention until it effectively runs out. Yet, with the climate crisis seen as a "risk multiplier" to water scarcity, analysts warn that even companies with relatively limited financial exposure to water risk should brace for disruption.

It comes at a time when water prices are rising around the world. The average price of water increased by 60% in the 30 largest U.S. cities between 2010 and 2019, according to data

compiled by Barclays, while California Water Futures have regularly jumped as much as 300% in recent years.

In a research note published June 14, analysts at Barclays identified water scarcity as “the most important environmental concern” for the global consumer staples sector, which includes everything from food and beverages to agriculture and tobacco.

Consumer staples, which was said to be the most exposed of all sectors to water risk, faces a $200 billion impact from water scarcity, analysts at the U.K. bank said.

This came down to a strong reliance on agricultural commodities, an extreme vulnerability to water price fluctuation and operational risks — including disruption from extreme events such as droughts and flooding, and fines and lawsuits linked to pollution.

The bank found that water-related comments in company transcripts last year jumped 43% when compared to the end of 2019, which it said reflected a growing corporate awareness of the risks associated with clean water and sanitation.

Sustainable investors, meanwhile, seemed to be prioritizing other environmental concerns. “Our recent conservations with investors suggest that many are instead focusing mainly on the potential impact of rising carbon costs,” analysts at Barclays said.

The research found the potential financial impact from water risk was likely to be three times higher than carbon risk.

Cost of inaction

“Water scarcity is really important because when it runs out you have really serious problems, and because of its low price it is one of those classic externality risks,” Beth Burks, director of sustainable finance at S&P Global Ratings, told CNBC via telephone.

“It needs to be managed very carefully and thoughtfully and you don’t always have that natural pricing signal that helps us conserve it.”

Water prices do not tend to reflect its scarcity, particularly because its use is often at a very low cost or even free. However, the availability of water underpins many parts of the economy and analysts at Barclays have attributed the latest rise in global water prices with the asset’s growing scarcity.

The bank estimated that the so-called “true cost” of water was three to five times greater than the price companies currently pay, once direct and indirect costs of water shortages and other risks were incorporated.

Addressing the issue of proactive water management would cost the global consumer staples sector $11 billion, the bank estimated. This puts the cost of inaction roughly 18 times greater than the cost of action.

Agricultural exposure was identified as the “key determinant” of financial risk from water scarcity, with agribusinesses — such as ABF and Tyson Foods — facing a 22% EBITDA impact, the bank said, referring to the acronym for earnings before interest, taxes, depreciation and amortization.

Of the companies most at risk, global consumer foods giant Unilever, consumer products company Colgate and cleaning products maker Reckitt Benckiser were all said to face a 40% to 50% EBITDA impact, even in the less-extreme of Barclay’s possible scenarios.

Reckitt Benckiser says it plans to be “water positive” in water-stressed locations (it currently has 20 such sites) by 2030. The company has started a series of “listening sessions” with key stakeholders to discuss climate change and water risk.

“We recognized the impact that water stress has on people, their lives, their health and also on our business,” a spokesperson at Reckitt Benckiser told CNBC via email.

“That’s why, through our brands we’ve been enabling better access to safe water and sanitation in many water-stressed locations,” they added, citing India, Pakistan and Bangladesh.

Unilever and Colgate did not respond to a request for comment.

Physical, reputational and regulatory risks

S&P Global Ratings said that while water scarcity “rarely” has a direct effect on a company’s creditworthiness, the issue can have a more subtle impact.

These risks can be physical, reputational or regulatory.

For example, in Germany, cargo barges on the Rhine River, one of the continent’s most important shipping routes, faced loading and transportation issues in 2018 as a result of critically low water levels. It resulted in production coming to a halt in places, with increased manufacturing costs and disrupted supply chains in some parts of Europe’s industrial heartland.

Elsewhere, Constellation Brands in Mexico and Coca-Cola in India have both been forced to abandon plans to build new facilities in recent years. The projects were dropped following widespread protests about the quantity of water these facilities would require.

Fines related to water pollution have also been on the rise, analysts at Barclays said.

“I don’t think water prices in themselves are likely to rise significantly because of the social implications of making that choice. So, the ways that you can potentially see the more hidden

costs of water scarcity impacting financial outcomes would be through the sourcing of alternative water sources when your water is insufficient," Burks said.

"If you're having to pipe in water from far away, if you're having to set up desalination to increase the amount of fresh water available, then that all comes with increasing infrastructure costs [and] increasing energy costs," she added.

# # #

Drought Conditions Prompt Restrictions For Some Delta Water Right Holders
Maven | June 15, 2021 | State Water Resources Control Board:

With extremely dry conditions continuing throughout the Sacramento-San Joaquin Delta, the State Water Resources Control Board today sent notices of water unavailability to approximately 4,300 right holders in the watershed, urging them to stop diverting to preserve dwindling water supply for both this year and the next. The letters also inform approximately 2,300 water users with more senior rights that continued drought later this summer could impact their ability to divert.

“Due to severe drought in the West, the water supply in many parts of California, including the Delta watershed, is not enough to meet demands,” said Erik Ekdahl, deputy director of the Division of Water Rights. “We do not come to this decision easily. We are asking people to reduce their water use, and we recognize this can create hardships. However, it’s imperative that we manage the water we still have carefully as we prepare for months, perhaps even years, of drought conditions.”

California has experienced an unprecedented loss of runoff this spring as water was either absorbed by parched soils or evaporated amid unusually warm temperatures before reaching streams and reservoirs. High temperatures also prompted water users to use water earlier and in greater volumes than in previous critically dry years.

These developments resulted in the unexpected loss of nearly 800,000 acre-feet of water, enough to supply more than one million households for a year and nearly the entire capacity of Folsom Reservoir. In response, on May 10, Governor Gavin Newsom issued a drought proclamation that now covers 41 of 58 counties and encompasses 30 percent of the state’s population, including the entire Delta and its abundant wildlife, dozens of islands and levees, and miles of winding waterways.

Water users work together in the Delta to prevent salinity intrusion, minimize ecosystem stress, and preserve water in storage. Today’s notices are likely to remain applicable for many users until winter rains restore natural flows.

Under California law, a water right holder can use surface water for beneficial purposes such as agriculture, municipal supply, recreation, and protection and enhancement of the environment. The age and type of right, be it appropriative (acquired natural or abandoned water) or riparian (natural water connected to land), generally informs how water can be diverted during drought conditions. In times of shortage, those with more junior rights typically are required to stop diverting from rivers and streams before limitations apply to more senior right holders.

Today’s notices applied to more junior post-1914 appropriative rights holders. Current projections indicate that water is also likely unavailable this summer for a subgroup of more senior pre-1914 appropriative and possibly riparian water right claims.

The board encourages diverters to collaborate with each other on voluntary agreements that help local communities adapt to water shortages, prevent impacts to other legal water right users, and benefit fish and wildlife.

The board website contains additional information about drought, notices of water unavailability and an updated methodology used to determine when water in the Delta is unavailable. Staff held a public workshop May 21 on the methodology and demonstrated the Unavailability Visualization Tool.

# # #

State Water Resources Control Board

June 15, 2021

Water Right ID Login: «WR_ID»
Password: «RMS»

«MAIL_RECEIVER_NAME»
«MAIL_RECEIVER_ADDRESS»
«CITY», «STATE» «ZIP»

In Regard to Water Right: «WR_ID»

Primary Owner: «PRIMARY_OWNER»

NOTICE OF WATER UNAVAILABILITY FOR POST-1914 WATER RIGHT HOLDERS AND WARNING OF IMPENDING WATER UNAVAILABILITY FOR PRE-1914 AND RIPARIAN CLAIMANTS IN THE SACRAMENTO-SAN JOAQUIN DELTA WATERSHED1

State Water Resources Control Board (State Water Board or Board) records show you hold a «WR_TYPE». Please note that you will be receiving a similar notice for each water right or claim for which you are listed as the mail receiver.

Current information indicates that, as of the date of this letter, water supply in the Sacramento-San Joaquin Delta (Delta) watershed is insufficient to support lawful diversion under any post-1914 appropriative water right. While water may be physically present at post-1914 appropriative water right holders' points of diversion, that water is expected to either be needed by more senior water right claimants downstream or to consist of storage releases necessary to meet other downstream purposes, such as salinity control in the Delta.

Information also indicates that water will become unavailable this summer for some **pre-1914 appropriative water right claimants and riparian claimants**. The State Water Board is currently in the process of evaluating the seniority at which water may be unavailable for pre-1914 appropriative and riparian claimants, and when, and plans

[1] For the purposes of this notice, all registrations and stockpond certificates in the Delta watershed are considered post-1914 appropriative water rights for which water is currently unavailable.

to issue further notices of water unavailability (notices) via email and to post water unavailability information on the Board's website as described below.

As a water right holder, it is your responsibility to monitor current conditions and pay attention to the information provided by the State Water Board. **Future notices of water unavailability and updated information regarding your water right will be sent by email through the State Water Board's Delta Drought list**. To stay informed and ensure you receive future communications regarding water unavailability for your water right(s), you are **strongly encouraged to subscribe to the Delta Drought list** on the State Water Board's Email Lists webpage at: https://www.waterboards.ca.gov/resources/email_subscriptions/swrcb_subscribe.html

Additionally, the State Water Board urges you to frequently visit the following webpage where updated information will also be posted: https://www.waterboards.ca.gov/drought/delta/

The State Water Board is using its Water Unavailability Methodology for the Delta Watershed (methodology) to identify which water rights in the Delta watershed face insufficient supplies for diversion. For more information about the methodology and for ongoing updates as the methodology is refined, please visit the following webpage: https://www.waterboards.ca.gov/waterrights/water_issues/programs/drought/drought_tools_methods/delta_method.html

Request to Complete a Water Unavailability Certification Form

If you have a post-1914 appropriative water right, please submit the Water Unavailability Certification Form (Form) within **seven days** of the date of this letter. If you have a pre-1914 appropriative or riparian claim, you do not need to complete the Form now, but you may be asked to do so in the near future. Please subscribe to the above referenced Delta Drought email list to receive any such future notices. You should not expect to receive hard copy mail notices of future changes in water unavailability that may affect your water right or claim; hard copy mail may be sent for other related matters, but only as required by law or regulation.

The Form requests information about whether you will cease diversions, if you have alternative sources of water, and if you seek an exception due to a need to divert water for human health and safety. Your timely response helps the State Water Board better identify and protect senior water rights and assists all water users to better manage severely limited water supplies.

Please follow the steps below to submit the Form:

1. Visit: https://public.waterboards.ca.gov
2. Login using the unique Water Right ID and Password listed next to your address at the top of this letter
3. Complete the Form

If you have a pending application and you do not have a unique Water Right ID Login and Password, please download a Form from the State Water Board's website at: https://www.waterboards.ca.gov/drought/delta/. Additional instructions for completing and submitting the Form are provided on the website.

If you receive a notice of water unavailability for your water right, the State Water Board may be able to assist you with identifying alternative sources of water or provide an exception on a case-by-case basis. If you divert under any of the following circumstances, you should identify it on the Form and provide the information requested:

- Your diversion is your only source of water to meet human health and safety uses, you have no other water supply, **and** you already conserve as much as possible;
- Your diversion is for a non-consumptive use (e.g., hydroelectric generation) and you return all water you divert to the originating stream on a time step that does not affect availability for other users; or
- You have a contract or transfer order allowing you to divert stored water released from a reservoir.

Potential Emergency Regulations and Future Curtailments

In accordance with the Governor's May 10, 2021 Proclamation of a State of Emergency, the State Water Board is considering emergency regulations to curtail water diversions when water is not available at water right holders' priority of right or to protect releases of stored water. Therefore, emergency regulations may require water right holders, including those diverting under pre-1914 appropriative or riparian claims, to curtail their diversions. As noted above, all water right holders should subscribe to the Delta Drought email list to receive notice of and to participate in the public process for State Water Board consideration and possible adoption of emergency regulations.

Potential Enforcement

This notice is solely informational. It alerts water users that the State Water Board's best available information indicates that water is not available to post-1914 appropriative water rights, and warns pre-1914 appropriative and riparian claimants that water may be unavailable at their claimed priority of right in the near future. It also reminds water users of their obligations under California's water rights system. This notice is not an order or directive from the State Water Board to stop diverting.

California water law provides that you are not authorized to divert when water is unavailable under your priority of right or according to the nature of your right/claim. Diverting water that is not lawfully available for your water right may subject you to a cease and desist order, prosecution in court, or administrative fines as high as $1,000 per day of violation and $2,500 for each acre-foot of water you divert or use that is not lawfully available under your water right. (See Wat. Code, §§ 1052, 1055.)

If you have any questions regarding this notice, you may send an email to Bay-Delta@waterboards.ca.gov, or call the Delta Drought phone line at (916) 319-0960. For additional information, visit the State Water Board's drought webpage at: http://www.waterboards.ca.gov/drought

Sincerely,

ORIGINAL SIGNED BY

Erik Ekdahl
Deputy Director, Division of Water Rights
State Water Resources Control Board

Irrigation districts agree to send water from New Melones south to drought-stricken farmers

The Union Democrat | June 18, 2021 | Alex MacLean

New Melones Reservoir was 54% full when this photo was snapped on Tuesday.

As much as 100,000 acre-feet of water — enough to meet the annual demand of more than 40,000 Tuolumne County residents for at least five years — that's currently stored in New Melones Reservoir could soon be sent south to aid drought-stricken farmers under an agreement between the Oakdale and South San Joaquin irrigation districts.

On Wednesday, the districts announced their respective boards had approved the proposal that would benefit agricultural contractors on the west side of the San Joaquin Valley who've been cut off from their typical annual water supplies through the federal Central Valley Project due to the drought conditions.

The districts have senior water rights on the Stanislaus River that entitle them to the first 600,000 acre-feet each year that flows into the reservoir, which is the fourth largest in California at a total capacity of 2.4 million acre-feet.

General managers of the districts said they had already secured this year's water supply for their own customers and set some aside in case drought continues into next year to provide the

water from the reservoir, which was about 54% full at nearly 1.3 million acre-feet as of Wednesday.

“The water is there because we’ve planned for droughts and implemented measures to make sure that it would be there when we need it,” Steve Knell, general manager of OID, said. “The emergency that exists demands extraordinary actions to mitigate the impacts of the drought emergency, and we are pleased to be in a position to help farmers on the west side of the Valley.”

Specifically benefitting from the transfer would be agencies that are members of the San Luis and Delta Mendota Water Authority, which would pay $400 per acre-foot, or up to $40 million.

The San Luis and Delta Mendota Authority consists of 27 member agencies that provide water to more than 2 million people, 1.2 million acres of irrigated pasture and 130,000 acres of wetlands within the western San Joaquin Valley, as well as San Benito and Santa Clara counties.

Proceeds from the transfer would be split between SSJID and OID to be used for improving their water conveyance and distribution systems, the districts said.

Peter Rietker, general manager of SSJID, added that his district’s board was also “very concerned for the communities in the San Joaquin Valley who have endured over a year of COVID-19 and are now heading into the irrigation season with almost no water supply.”

Water would be sent from New Melones Reservoir beginning July 1 down the Stanislaus River and into the Delta, where it would be pumped south in the federal Central Valley Project canal that typically provides the authority’s water supplies.

Due to the drought conditions this year, the CVP did not provide any water to agricultural contractors south of the Delta.

The proposed transfer still must be approved by the State Water Resources Control Board and federal U.S. Bureau of Reclamation, the latter of which owns and operates the reservoir that was constructed mainly for irrigation water supply, flood control and hydropower production.

“A zero allocation leaves us little option other than to reach out to other agencies who have available water supplies,” Frederico Barajas, executive director of the authority, said. “Fortunately, OID and SSJID have answered the call. The next step is for the state and federal government to quickly approve the transfer.”

Providing the water to the authority would have additional statewide benefits by helping water officials save as much cold water as possible in Oroville and Shasta reservoirs that could be sent down rivers in the fall to aid Chinook salmon returning to spawn, the districts said.

Having cold water for the endangered fish is important because their eggs can be “cooked” if the releases are too warm, the districts said.

California is currently in the midst of one of its driest years on record, with most of the state’s major reservoirs about half full. Gov. Gavin Newsom declared a drought emergency on April 21 that he later expanded on May 10.

More than 85% of California, including all of Tuolumne and Calaveras counties, was in “extreme drought” on a map by the U.S. Drought Monitor released last Thursday.

The upper Tuolumne River watershed in the high southeastern end of Tuolumne County was in the most dire stage of drought — designated “exceptional drought” on the monitor’s scale.

As of Wednesday, the Stanislaus River and Tuolumne River watersheds had received just 18.3 inches of precipitation since Oct. 1, when the current water year began, according to a state Department of Water Resources five-station index that includes Calaveras Big Trees and Hetch Hetchy Reservoir.

The current water year total is seven-tenths of one inch less than the 19-inch total the Central Sierra region received for the entire 2014-2015 water year, the most recent severe drought year endured by Mother Lode residents.

Tuolumne County currently doesn’t have access to any water from New Melones Reservoir and benefits mostly from the recreational tourism it attracts, in addition to providing local public agencies with low-cost power.

Negotiations are ongoing between the Bureau of Reclamation and attorneys for Tuolumne Utilities District, the county’s largest water purveyor, on a potential agreement that would provide a portion of water from the reservoir in times of need.

The talks, which began under former TUD General Manager Tom Haglund, were expected to take at least two years when the TUD board approved entering a negotiating agreement with the bureau in late 2019.

# # #

Contact Alex MacLean at amaclean@uniondemocrat.net or (209) 768-5175.

(This page was intentionally left blank)

BUREAU WATER RELEASES OUT OF NEW MELONES WORRY SSJID

Agency using Stanislaus River water to ease drought impacts on Shasta, Folsom storage

Manteca/Ripon Bulletin | June 19, 2021 | Dennis Wyatt

This sand bar on the San Joaquin River south of the Airport Way bridge that was exposed until earlier this month is now almost covered with water the Bureau is replacing from New Melones to replace water from Shasta and Folsom dams that are supposed to help maintain Delta water levels.

New Melones water is being sacrificed to meet Delta outflow requirements in a bid to conserve water behind Shasta Dam and Folsom Dam.

The move — not allowed in the operating agreement that South San Joaquin Irrigation District and Oakdale Irrigation District entered into with the Bureau of Reclamation— has both districts concerned.

New Melones has never been tapped to address Delta flows. That has been a function of both Shasta and Folsom reservoirs. All three dams are part of the Central Valley Project that the Bureau operates.

SSJID General Manager Peter Rietkerk noted that the Bureau is trying to “think out of the box” in order to weather a severe drought situation. However, the possibility New Melones could become a replacement for water releases from Shasta and Folsom to address Delta water needs in future dry years or even normal or above years has both districts concerned.

That's because it could lead to more water being made available for those that depend on water from Shasta and Folsom including 2.5 million people in various cities that are allocated 600,000 acre feet in addition to farms and water that goes to wildlife refuges and help keep rivers flowing year round by permanently raiding the Stanislaus River basin.

Shifting the Delta flow requirement onto the Stanislaus River watershed beyond this year could have major ramifications on water availability for the two districts as well as the cities of Manteca, Lathrop, and Tracy.

Rietkerk pointed out 2021 hydrology is shaping up as the fourth or fifth driest year in the 120-year history of measurements and record keeping on the Stanislaus River Basin.

That means based on the current Delta strategy the Bureau is deploying it could have serious ramifications for the farms and cities the two districts serve if 2022 ends up also being a dry year.

Stanislaus River flows from New Melones managed by the Bureau serve multiple purposes concurrently. The purposes include water supply for riparian water right holders, fishery management objectives, dissolved oxygen for fish, and assure basic water quality at Vernalis south of Manteca where the Stanislaus River flows into the San Joaquin River.

OID and SSJID have rights to the first 600,000 acre feet of water that flows into New Melones each year. That is based on a 1988 agreement that acknowledges the district's historic water rights. Melones Reservoir the two districts built in 1925 was inundated in order to build New Melones with its 2.4 million acre feet of capacity.

As of Thursday New Melones was at 54 percent of capacity and at 84 percent of average for June 17.

That compares to Shasta with a maximum capacity of 4.5 million acre feet that is now at 41 percent capacity and 49 percent of average for June 17.

Folsom can hold 977,000 acre feet. It is currently at 33 percent capacity and 40 percent of average for June 17.

New Melones on Thursday was releasing 3,111 cubic feet per second (CFS) against inflows of 409 CFS.

The Bureau, instead of tapering down releases due to the drought has kicked them above what would be normal for operating procedures in a dry year.

# # #

To contact Dennis Wyatt, email dwyatt@mantecabulletin.com

Drought: Marin district details water pipeline, desalination plans
Marin Independent Journal | June 19, 2021 | Will Houston

Traffic crosses the Richmond-San Rafael Bridge and heads into San Rafael on Thursday, June 17, 2021. (Alan Dep/Marin Independent Journal)

The Marin Municipal Water District has taken the first steps toward building an emergency water pipeline across the Richmond-San Rafael Bridge for the first time in nearly 50 years to avoid potentially running out of water next summer.

The district said Friday that it has hired a consulting firm, Woodard & Curran, to find potential water rights holders in the Central Valley willing to sell their allotments. This water could be pumped across the bridge via the pipeline and into Marin's water system should the drought stretch into winter.

"That team is out at the moment searching for a source of water," Paul Sellier, the district's operations director, told the board at a meeting on Friday.

During the major drought of the late 1970s, the district built a temporary 6-mile pipeline across the bridge because it faced running out of water within 120 days. The pipeline was removed in 1982 after the drought ended and at the urging of Caltrans in order to restore a blocked traffic lane on the bridge.

Nearly 50 years later, the district and the 191,000 central and southern Marin residents it serves face the prospect of running out of water by next summer should this winter be as dry as the last and conservation efforts do not improve. Ben Horenstein, the district general manager, said it is unlikely a similarly dry winter would occur two years in a row, but the district must be prepared for that worst-case scenario.

Horenstein said the district's focus remains on conservation being the primary tool to retain local supplies, but it is considering the pipeline and a temporary desalination plant as insurance policies. The district estimates said these options would likely cost tens of millions to hundreds of millions of dollars, though no concrete estimates were provided on Friday.

"I also want to assure the board and the public that this work is happening in parallel with all of our conservation work," Horenstein told the board.

A decision on both the pipeline and desalination plant could come as soon as December.

The district is looking for potential water sellers in the Sacramento River, Mokelumne River and Los Vaqueros watersheds, Sellier said. The district has also made inquiries with Sonoma Water, but they are unlikely to yield any options given the drought situation there, Sellier said.

Any sale would need to obtain approval either from the state or federal government, depending on the source, and would need to studied for environmental impacts. Also, the district is in early talks with the East Bay Municipal Water District and Caltrans to use its facilities to transfer the water to Marin and build the pipeline across the bridge.

Water sales options could come back to the board for consideration as soon as July, Sellier said. From there, the district would need to secure approvals from various agencies between August and November to not only build the pipeline but also get the water from the Central Valley to the Bay Area. The district board would then decide whether to proceed with the project in December or January.

If it approves the project, the district would work to have the pipeline and supporting facilities such as pumping stations built by June 2022 — a similar construction timeframe to 1977.

The pipeline could pump in about 10,000 to 15,000 acre-feet of water per year to be used only for the bare essentials, Sellier said. For comparison, that amount of water is about half of the potable water demand by district customers in all of 2020.

For a temporary desalination plant, the district has hired a consulting firm to identify potential vendors and consider options for purchasing or lease agreements. A plant and any financing for it would require voter approval under a 2010 ordinance, with staff eyeing November for a potential vote. Board members said a desalination plant would likely result in the district having to consider 20% rate increases for a decade.

“We will be bringing back a lot of details in terms of the costs, more granularity as we understand it of what the projects can look like,” Horenstein told the board.

The drastic options are being considered after the district saw its second-lowest rainfall on record this past winter, about 20 inches. The past 18 months were the driest ever in the district’s 143 years of records.

Projections show the district’s seven reservoirs in the Mount Tamalpais watershed could run out of water between June and early August 2022 assuming next winter is just as dry and residents only maintain 20% conservation. This past week, residents were conserving about 19% more water compared to average use from 2018-2020, well short of the district’s 40% conservation mandate imposed in April and just 1% percent more than the previous week.

The district receives about 25% of its supply from Sonoma Water, which is set to cut imports by 20% beginning in July.

The district staff outlined a conceptual timeline for the bridge pipeline and desalination projects on Friday. Each would require a rapid months-long turnaround.

These timelines raised concern with board president Cynthia Koehler, especially considering the staff did not have cost estimates yet and because she said the district has yet to invest what is needed into conservation efforts.

“We all want to be prepared in the event of the worse, but this is all proceeding as if we have done everything else we can do and we have no other choices,” Koehler said. “And I am concerned about the precipitousness of this timeframe in light of how little we have invested so far in those other options.”

Monty Schmitt, a member of the board, said the district needs look into these options in order to make informed decisions.

“This is going to be an investment,” Schmitt said. “And whether it’s a short-term or a long-term one, we just need to understand the numbers so that we make the right decision given the situation that we are in.”

# # #

(This page was intentionally left blank)

OID and SSJID revive water sale to West Side farmers after rechecking conditions
Modesto Bee | June 19, 2021 | John Holland

California water officials on April 1, 2021, reported the statewide snowpack is just 59% of average for this time of year as the state continues to experience one of the driest years on record. BY DAVID CARACCIO | RANDALL BENTON/AP | DWR

Drought-stressed farmers on the West Side will get water after all from the Oakdale and South San Joaquin irrigation districts.

They had decided in April to cancel a sale of up to 100,000 acre-feet to users as far south as Kern County. Worse than expected conditions in the Stanislaus River watershed prompted that move.

Managers took another look at how the water year is playing out and announced Wednesday that the sale is back on. And the price will be higher: $400 per acre-foot, vs. $250 in the original deal.

OID and SSJID have long sold surplus water to keep rates low for their own farmers and to upgrade their canal systems. They will evenly split up to $40 million from the 2021 sale.

The deal is with the San Luis & Delta Mendota Water Authority. Most of its member districts are getting zero water this year from the federal Central Valley Project. Drought and fish protections in the Sacramento-San Joaquin Delta are to blame.

The sale will not mean any cutbacks for OID and SSJID farmers, a news release said. They have about 200,000 acre-feet of excess water in New Melones Reservoir.

”The water is there because we’ve planned for droughts and implemented measures to make sure that it would be there when we need it,” OID General Manager Steve Knell said.

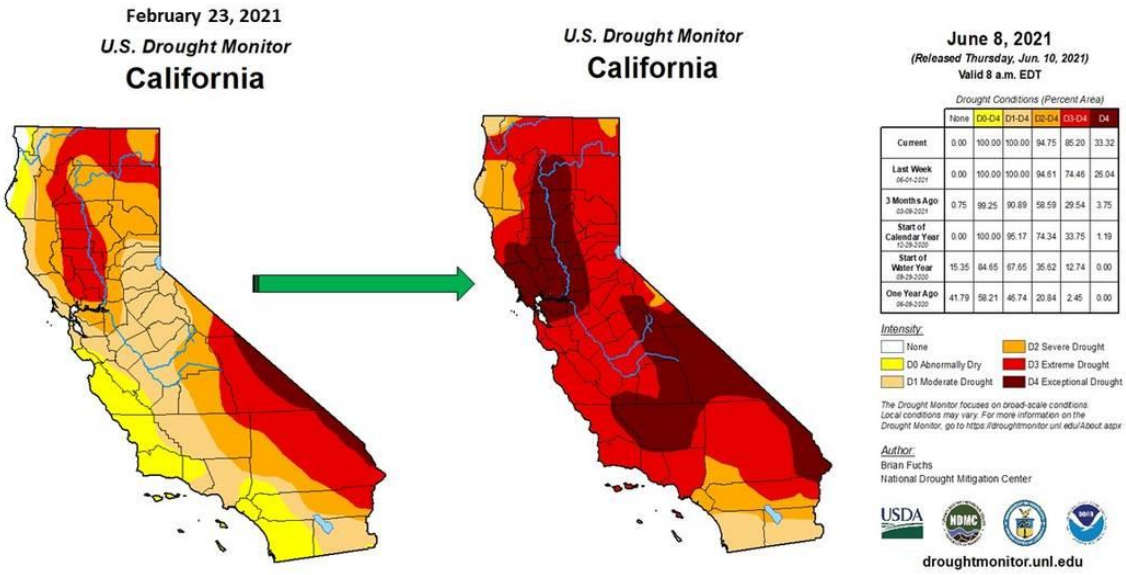
The water could be delivered as soon as July 1 if state and federal agencies sign off. They generally support such transfers during droughts.

The water would flow down the Stanislaus to the Delta. An equal amount would be pumped south from there to authority members.

”A zero allocation leaves us little option other than to reach out to other agencies that have available water supplies,” said Federico Barajas, executive director of the authority.

# # #

As drought ravages California, Biden's infrastructure bill could help store more water
Sacramento Bee | June 30, 2021 | David Lightman and Dale Kasler



A U.S. Drought Monitor graphic shows the shift in drought conditions in California from February 2021 to June 2021. U.S. DROUGHT MONITOR

As California and the West suffer through an epic drought, President Joe Biden and Senate Republicans and Democrats have included $5 billion for Western water projects in their infrastructure deal.

The prospect of federal money comes as several big-ticket water projects are on the drawing boards in California — although many are still years from completion and probably wouldn't get finished in time to help California with the current drought.

But the federal dollars, which are probably months and several more negotiations away from possible approval, could enable California to jump-start projects that have been in the works for years.

It's "the largest federal investment in western water storage in U.S. history. More than the Hoover Dam and other similar investments," Eric Olsen, spokesman for Rep. John Garamendi, D-Walnut Grove, told The Sacramento Bee.

Heather Engel, director of communications at Association of California Water Agencies, said they were "waiting on the legislative language to understand what it means for California."

Garamendi, who has been active in water storage issues for several years, said the $5 billion storage funds will “help California and neighboring states claw out of the current drought conditions.

“We aren’t going to solve these issues by maintaining the status quo. This drought requires bold solutions and investments in climate-resilient water storage infrastructure,” he said.

The water could be stored in a variety of ways, his office said, citing dams and reservoirs as one popular method that this funding could support.

Garamendi, a member of the House Water Resources and Environment subcommittee, had helped secure several billion dollars to build Sites Reservoir near his district, for instance, and there are several major reservoir projects proposed throughout California that could be supported by this funding.

Gov. Gavin Newsom has declared a drought emergency in 41 of the state’s 58 counties, and experts say this is already shaping up as worse than the drought that ended in 2017. Most farmers are getting little to no water from the state and federal water projects, and government scientists say conditions are so dire on the major rivers that massive deaths are likely among winter-run Chinook salmon and other species covered by the Endangered Species Act.

So far Newsom has resisted calls to institute mandatory cutbacks in urban usage of the type that his predecessor Jerry Brown ordered in 2015. But Newsom’s aides say such an order could come next year if winter rains don’t materialize.

What was shaping up as a difficult year turned much worse this spring, when an early heat wave caused much of the Sierra Nevada snowpack to evaporate or disappear into dried-out soils — instead of trickling into the reservoirs and rivers. The heat cost the state an estimated 700,000 acre-feet of water, enough to fill about three-quarters of Folsom Lake.

Sites Reservoir is a nearly $4 billion project proposed for Colusa County, northwest of Sacramento, that’s been in the planning stages for years. Due to be completed in 2030, it would be the first mega-reservoir to open in California since New Melones was completed in the late 1970s.

As it stands now, the reservoir, to be built about 10 miles west of the Sacramento River, would be largely funded with state taxpayer dollars, from a 2014 voter-approved bond, and money from farm-irrigation districts and municipal water agencies that would own a portion of the water in the facility.

There are also methods to capture rainwater as it seeps into groundwater to ensure it stays within existing water supplies instead of washing into the ocean.

But Garamendi's office warned that "California does not currently have adequate water storage and recycling infrastructure to capture and reuse the rainwater that we do receive. A lot of it is used once and then sent off into the ocean."

In the meantime, California lawmakers are eager to see what the infrastructure deal could bring.

"We can't point to anything for sure at this point, but the two projects this would likely benefit are the Del Puerto project and the Delta Mendota canal in our district," said Andrew Mamo, spokesman for Rep. Josh Harder, D-Turlock, who has been active on water issues.

The Delta Mendota Canal is one of three major canals running through the San Joaquin Valley that are in need of major repair. Along with the California Aqueduct and the Friant-Kern Canal, the Delta Mendota has lost a significant amount of its carrying capacity in recent years because of the phenomenon known as subsidence — literally, the sinking of portions of the Valley floor because of relentless pumping of groundwater during the last drought.

The over-pumping caused the canals, which operate on gravity, to buckle at key points, crimping their ability to deliver water to farms and cities.

Newsom's budget includes $371 million over two years for the three repair jobs, but it's believed federal dollars are needed to get them completed. The California Aqueduct, built during former Gov. Pat Brown's administration, is the main vehicle for delivering water on the State Water Project. The Friant-Kern and Delta Mendota are owned by the U.S. Bureau of Reclamation.

CAN WASHINGTON HELP?

A White House fact sheet said the deal's intention is to "eliminate the nation's lead service lines and pipes, delivering clean drinking water to up to 10 million American families and more than 400,000 schools and child care facilities that currently don't have it, including in tribal nations and disadvantaged communities."

The deal now has to become formal legislation, and that will probably take months. It also faces all sorts of hurdles. The water money is part of a $579 billion, five-year package that includes money for roads, bridges, broadband, power and more.

And while Biden, five Republican and five Democratic senators reached agreement on the broad contours of the deal, there's still concern about how to pay for it. The deal lists 13 different ideas for raising revenue, but again gives no specifics.

# # #

(This page was intentionally left blank)

New MWD GM Adel Hagekhalil Commits To "One Water" Agenda
The Planning Report | June 14, 2021 |

TPR is proud to share this timely interview with Metropolitan Water District's newly confirmed General Manager, Adel Hagekhalil. Throughout his career, from his time as president of the National Association of Clean Water Agencies to overseeing LA City's wastewater, stormwater, and watershed programs as Assistant Director of City of LA's Bureau of Sanitation (LA SAN), and most recently by delivering integrated multibenefit infrastructure as General Manager of LA's Bureau of Streets Services, (StreetsLA), Adel has championed a holistic approach to water and infrastructure. In this VX Interview, Hagekhalil shares his One Water agenda for securing water resilience through integration, innovation, and inclusion and emphasizes his commitment to bringing all of Met's member agencies and stakeholders to the table to enhance local supplies and deliver on Met's mission to provide reliable, affordable water to the region.

Adel, yesterday the MWD Board approved your contract as its new GM. It was also a day when national and global media reported the significant challenges the West and California face with respect to drought. Share with our readers both your vision for MWD and agenda going forward to address this and related challenges?

Adel Hagekhalil: I want to first thank the Board of Directors for their trust and expressed support at the board meeting, but also all the political, water agency, environmental, labor and community leaders from across our region for testifying and submitting letters of support.

This is a critical moment in MWD's history and a critical moment in our future. We all know life is anchored in water. Without water there is no life, no economy, and no environment.

Following a competitive selection process with many highly accomplished candidates, it is now time to focus

"I will bring people together through compromise, transparency, integrity, and listening...As we move forward, I am determined to focus on what unites us."

"We need to invest in infrastructure, but the infrastructure we're investing in today is not going to look like the infrastructure that was done in the last 100 years. It's not going to be focused on piping water from across the state or across the region. There will be new ways to reduce demand, reduce water loss, harness local water supply, recycle water, capture rainwater, recharge our groundwater aquifers, and create storage.—Adel Hagekhalil

on what unites us. What brings us together is serving our communities and providing a future of resilient, affordable, reliable water supply for everyone. None of us want to turn on the faucet one day and not have water come out. Everyone should be able to afford their water bill, no matter where you are.

We need to deal with the supply shortages we're facing. We're seeing a changing climate with drier, hotter days. Whether it's Lake Mead or the amount of water we have to put in the State Water Project, our supply is shrinking. All the metrics confirm that climate change is happening.

As leaders, we all need to adapt, adjust, and think differently. I use the three 'I's as the pillars of any transformation: integration, innovation, and inclusion.

Every water drop that we're losing, is a water drop that we need. Whether it’s lost to leaky pipes or evaporation, we need to double down on our local water supply and demand management, reduce our consumption, and address the loss of water.

We need to integrate smart water management into our infrastructure. Working with our partners in agriculture and in communities, how can we increase access to local water supplies by recycling water and groundwater remediation and also by investing in technologies that reduce the loss of water and make our water use more resilient?

We need to prioritize investments in our underserved communities to uplift communities while addressing water loss and reducing water consumption.

We need innovation. The conveyance canals from the Colorado River or from the State Water Project show that we are losing 30 to 35 percent of our water to evaporation. Can we think about covering the canals with solar panels to reduce evaporation? Imagine if we can reduce evaporation by 10 percent, that’s 10 percent more water that we can store and use—increasing our supply while producing renewable energy. Maybe it's a crazy idea, but we need ideas that will move us forward.

At the end of the day, the biggest "I" of all of them is inclusion. Without people coming together, we cannot move forward. We are a diverse region, and we may not agree on everything, but one thing we agree on is making sure we have an accessible, affordable, reliable water supply for all of us. I want to bring all voices including our member agencies, environmental groups, businesses, and community groups, in creating our water future together – resilient, sustainable, reliable and affordable for all .

I want to focus on this common agenda and develop a plan to move us forward working with the governor and the federal government to ensure that we are investing in our community’s resilience. I want to demonstrate to the state and the federal government how every investment in our local water supply is an investment that's going to help resolve issues in the Bay Delta and the Colorado River as we're negotiating new agreements. If we are reducing our dependence on imported water, it helps everybody else resolve this conflict. So, invest in us;

your investment in Southern California and our water future is an investment in our state and in our country.

I want to empower staff to reach and go beyond their grasp. We are committed to partnering with our labor partners and staff to create a Metropolitan that is inclusive. We have the best people, so I want to really create a culture of inclusion, respect, empowerment, and motivation to get us to move in partnership with our communities. As I always say, my office door is open to ensure that everybody can come in and be part of this journey to the future.

It's common knowledge in the West that water is fractious, but your nomination brought together both the San Diego and the LA MWD delegations—who have been warring with each other for decades—to support you for GM. Speak to what your acknowledged ability to bring disparate interests together portends for your agenda going forward?

I am going to be a Met General Manager for every member agency, small or large. They trusted me not because I would agree with their views or needs, what they recognized is that I'm someone who can bring people together through compromise, transparency, integrity, and listening. As we move forward, I am determined to focus on what unities us. My goal is to soon meet with every member agency to understand their needs, issues, and priorities and integrate that into our long term plan. Whether we call it an IRP or One Water Metropolitan, these are things I want to work on.

In this month's VX News interview with outgoing MWD GM Jeff Kightlinger, he said of California's current water challenges, "We're going to have to capture rainwater and move it into reservoirs in days not months...which means bigger pipes that sit empty for long stretches and bigger, stronger, higher dams and reservoirs.... we've got to start with serious backbone infrastructure investment in seawalls, in our coastline, and in how we move and store our water supply." What are your thoughts on his observations and the challenge that he leaves for you now to address?

Jeff has been a great leader for Metropolitan for the last 16 years as General Manager. I applaud and thank him for the work he has done. A big reason we're able to deal with the drought challenges that we're seeing today is because of his vision and this agency's vision on storage and the work that he has done across the board.

I agree that we need to think differently. We need to invest in infrastructure, but the infrastructure we're investing in today is not going to necessarily look like the infrastructure that was done in the last 100 years. There will be new ways to harness local water supply, recharge our groundwater aquifers, and to create storage.

Stormwater capture is still huge for me, because every time it rains in Southern California, large volumes of water are washed out into the ocean. How can we harness that? Through our work with Measure W, alongside partners in LA County and Director of Public Works Mark Pestrella, we have introduced that idea. I want to see how Met can play a bigger role. They're partnering

on groundwater recharge, but there are opportunities to invest in stormwater capture at a Metropolitan scale. We've talked in the past about creating water storage in the LA River for emergencies. We've talked about different ideas that we can build on. I agree that we need to invest in infrastructure, not just demand management.

We need to figure out the challenges we have. Whatever the gap is in our water supply we need to sit down and figure out how we can meet that gap in the most cost effective, efficient, and environmentally sound way; that's what's called integrated planning. We're going to do that through stakeholder process and in collaboration with scientists, the state, and the federal government.

We need to invest but that investment cannot only burden our ratepayers. It's something that's meeting the needs of the entire state and entire country. The California economy is the fifth largest economy in the world, and Southern California is the eighth. We deserve to protect that investment without forgetting our underserved communities because that's critical.

How do you envision collaborating with California Governor Newsom & his administration to achieve your Metropolitan One Water agenda?

I'm grateful for the Governor, he called last night to congratulate me, and I look forward to working with him. What we need is a coordinated water strategy for California. Southern California cannot do their own water strategy, independent of California's water strategy. We need to have a balance between science, environment, and water supply.

We do that with help from our stakeholders and our partners in the farming community, working with Wade Crowfoot at Natural Resources, Karla Nemeth at Water Resources and others to be part of this collaborative effort.

Throughout my career I've worked to build consensus, diffuse conflict, and find common ground, and that's what I'm going to do, and that's what I think the Governor wants us to do. We can't fight; we need to come together. There needs to be a balance. Between the environment, science, water supply, water consumption, and funding, all of it needs to be figured out and we can't do it alone. There has to be collaboration, and everybody has to pay for their share. I'm excited and grateful for the opportunity to work together with the Governor and Wade and all of the stakeholders in developing a coordinated, integrated water strategy for California—all of California, not just one part.

You have been chair of National Association of Clean Water Agencies (NACWA) and contributed to the Obama Administration's Homeland Security's report on infrastructure and resiliency. What could / ought the federal government— the Biden administration and Congress—do to help Metropolitan's One Water agenda?

During the Obama administration, I worked with more than 50 experts to help develop the water resilience report for the US. Homeland Security saw water as a security threat to the US—a

threat to our future and our economy. They recommended collaboration, coordination, efficiency and stormwater capture and what came out of it was One Water.

I'm proud that I was able to be at the national level working with leaders at NACWA and at the U.S. Water Alliance to create excitement and commitment from communities across the US about One Water. There's One Water in Miami, Kansas City, Louisville - there's One Water everywhere, and that started here in California, in Los Angeles.

We need to look at all water as one whether it's wastewater, stormwater, recycled water, rain, potable water, groundwater – it's all water. What people sometimes forget is that the "One" in One Water is people. We are one. It's not just the water that is one. We, as a collective, are one.

I'm excited that we have a federal administration that is talking about investment in water and infrastructure. We have a federal government that's willing to invest in local communities on the low-income white water and wastewater subsidy and support. My friend Radhika Fox, now Assistant Administrator of Water at US EPA, former CEO of the US water Alliance—we were partners on One Water and also worked together at San Francisco PUC. I'm looking forward to our partnership, and helping the administration's infrastructure planning, investing and building in any way I can.

I talk about One Water but also about One Infrastructure. I really want to move the envelope on this nexus between transportation and water. We always build roads, highways, airports, but we don't always think about the water component of it, and I want to challenge everyone to start thinking differently; every time we build anything, let's figure out how we can integrate water components.

When I was at StreetsLA, one of the projects we had was an active transportation corridor on Broadway and Manchester with a focus on equity and Vision Zero. We added a component to provide shade and shelter, but also, by integrating elements for stormwater capture and reuse we were able to secure Measure W funding and leverage LA's systematic investments in water capture to deliver a multibenefit project. That is One Infrastructure and should be how we approach everything we build.

I want to make sure that Met expands collaboration in that area and figure out how we can partner with Caltrans, regional, county and municipal transportation agencies to create more stormwater capture and reduce our dependence on imported water and reuse.

Everyone understands water is a critical element of our future and as a critical infrastructure. I want to continue advocating with our members of Congress to really put in the money and investments now because every dollar invested here, is a dollar that's going to save many times over for our ratepayers and is going to make all of us more resilient and sustainable

In VX News' interview with Jeff Kightlinger, he addresses MWD's relationships with seven western states and the drought each confronts—Colorado, Arizona, Nevada, and

the others. Elaborate on your plans to continue and build on these important water policy relationships.

We're all in this together. Seven states, the tribal nations, and Mexico are all a part of the Colorado River discussion. We have a finite amount of water that's shrinking and also increased demand. I would applaud Jeff for his work on getting the agreements on the drought contingency plans and bringing people together to start cutting down as the water levels go down in Lake Mead and Lake Powell and the different reservoirs.

But I think we need to come together to figure out how we can manage this conflict between water demand, water supply, and rights. That's the coordinated strategy that I talk about. California has to come to the table united as we negotiate with the federal government and the other states. We also need to talk about how our investments here and ideas that we are using to reduce our demand on imported water are going to help defuse that tension and the fight. We can do it in a good way, and Jeff started that discussion with the Southern Nevada Water Authority to invest and partner with us on the Regional Recycled Water Recharge project. That partnership is great because they see what our investments here in recycled water means for their water supply. That is the formula I want to apply, but also addressing evaporation.

The science and technology have evolved over time. I still think there's so much we're losing in terms of water by evaporation that we need to think a little bit differently. There are smart people around the world, and we can challenge them to come up with solutions. There are a lot of ways to do it without taking the risk with performance-based contracting, where you pay with a share of the savings, whether it's revenue from renewable energy or savings from reducing evaporation. There's a lot of water being lost, and we need to harness it.

I think by us coming together and including our investments locally in negotiations, you make the pie bigger. And I think we need to make the pie bigger. If people see that the investments here a benefit to them, then I think we can work something out.

In January 2022, VerdeXchange Institute hopes you again will personally participate in the 15th annual VerdeXchange Conference & Water Charrette. What might you share, six months into your tenure, re MWD's accomplishments?

In six months, I want to assure everyone that we're working together. As Henry Ford said, "Coming together is a beginning, staying together is progress, working together is success." I'm going to tell you that in six months, we have succeeded, we're working together. We will have issued a holistic Integrated Resource Plan for Met that is anchored in integration, innovation and inclusion.

We're going to have partnership and investments from the federal government and the state already committed to us. We'll be on the way to negotiating agreements for the Colorado River. People will believe and trust that we will be transparent and will use science to drive us. We're going to be come together and balance the environment and our water supply future in a very

sustainable way. I look forward to it. Six months is not far, but there's a lot of work ahead of me. And the first thing is coming together, staying together, and hopefully in six months, we're going to be working collaboratively together.

# # #