BAY AREA WATER SUPPLY AND CONSERVATION AGENCY

BOARD OF DIRECTORS MEETING

March 21, 2019

Correspondence and media coverage of interest between February 5 and March 15, 2019

Correspondence

Date: March 11, 2019
From: Merced Irrigation District Water and Power
To: Governor Gavin Newsom
Subject: Appointments to the State Water Resources Control Board

Date: March 1, 2019
From: Office of London N. Breed, Mayor, City and County of San Francisco
Subject: Statement on Progress of Voluntary Agreement for Tuolumne River

Date: March 1, 2019
From: San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Watershed Stakeholders
To: Joaquin Esquivel, Chair, State Water Resources Control Board
Subject: Submittal of documents supporting Voluntary Agreements on Bay Delta Plan Update

Date: March 1, 2019
From: Karla A. Nemeth, Director, Department of Water Resources
Charlton H. Bonham, Director, Department of Fish and Wildlife
To: Joaquin Esquivel, Chair, State Water Resources Control Board
Subject: Voluntary Agreement Project Description for analysis by SWRCB

Date: February 15, 2019
From: Spreck Rosekrans, Restore Hetch Hetchy
To: Ann Moller Caen, President, SFPUC
Subject: Water Supply Reliability for San Francisco's Regional Water System

Media Coverage

Water Supply Condition:

Date: March 8, 2019
Source: The Weather Channel
Article: California's Drought Largely Wiped Out After Winter of Soaking Rain, Heavy Sierra Snowpack

Date: March 7, 2019
Source: Mercury News
Article: Here's how much recent rains have washed away California's drought

Date: March 5, 2019
Source: The Sentinel
Article: Sierra snowpack doubles in a month

Date: March 2019
Source: National Centers for Environmental Information
Article: A Long View of California's Climate

Water Supply Condition, cont'd.:

Date: March 5, 2019
Source: Popular Science
Article: Why California's droughts and floods will only get worse

Date: March 3, 2019
Source: Wall Street Journal
Article: California's Weather Cycle

Date: March 1, 2019
Source: San Diego Union Tribune
Article: How atmospheric river storms tamed California's drought

Bay Delta:

Date: March 7, 2019
Source: Maven
Article: Fishing and river groups weigh in on the Voluntary Agreements

Date: March 3, 2019
Source: Appeal Democrat
Article: Water agency finalizes proposal for state's Bay-Delta Plan

Date: March 1, 2019
Source: Modesto Bee
Article: Voluntary agreements shared with State Water Board. Will they replace disputed flow plan?

Date: March 1, 2019
Source: Maven
Article: Voluntary Agreements Progressing to Improve Habitat and Flow in the Delta and Key Watersheds

Date: March 1, 2019
Source: Turlock Journal
Article: Relicensing, litigation and potential agreements moving forward for TID

Date: February 19, 2019
Source: NRDC
Article: Dec. 2018 Bay Delta Agreements Were Only Smoke and Mirrors?

Date: February 17, 2019
Source: Modesto Bee
Article: Federal commission accepts MID, TID plan for river flows. Will state water board agree?

Date: February 5, 2019
Source: The Mercury News
Article: Opinion: Why Santa Clara Valley Water District filed lawsuit against California

Water Policy:

Date: March 13, 209
Source: Daily Democrat
Article: Twin Delta tunnels oversight bill advances in Legislature

Water Policy, cont'd.:

Date: March 7, 2019
Source: KQED Science
Article: Trump Pressure on California Water Plan Excludes Public, Rushes Science, Emails Show

Date: March 6, 2019
Source: Cal Matters
Article: Meet California's new environment czar, who walked the state to 'reset'

Date: February 19, 2019
Source: Cal Matters
Article: Water politics, bee health and CA sues over border emergency

Date: February 20, 2019
Source: Water Finance and Management
Article: Pricing California's Water During the Drought: Can Rate Structures Provide and Incentive for Conservation?

Water Infrastructure:

Date: March 11, 2019
Source: California Department of Water Resources
Article: 5 Reasons Groundwater is Vital to Californians

Date: March 6, 2019
Source: AgAlert
Article: Wet winter aids groundwater replenishment

Date: March 6, 2019
Source: Fox News
Article: Despite California's long drought, trillions of gallons of rainwater wastefully flowing into sea

Date: March 6, 2019
Source: Palo Alto Weekly
Article: Stanford removes dam, giving endangered fish room to roam

Date: March 5, 2019
Source: The Press
Article: Department of Water Resources hits pause on WaterFix

Date: March 2, 2019
Source: Palo Alto Weekly
Article: Peninsula cities seek more oversight on water projects

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New Governor Brings Hope for a New Partnership on the Merced River

An open letter to Governor Newsom from the Merced Irrigation District Board of Directors

March 11, 2019

We, the Board of Directors of the Merced Irrigation District (MID), want to commend Governor Newsom for his recent changes in appointments to the State Water Resources Control Board (SWRCB). We believe those changes, together with other key appointments he has made in his administration, provide a new and much-needed opportunity to take a step back from the contentious last decade we have been living through in the water community. We have an opportunity to make real progress for Merced River salmon and water quality improvements in California.

As part of starting fresh with this new opportunity, we want to provide the Governor and the new appointees throughout his administration with some facts as to why, from our perspective, MID was unable to reach a framework for settlement with the State prior to the SWRCB's adoption of their Bay-Delta Water Quality Control Plan and SED. Quite simply – MID was being asked for far more water than any other party, on an equity or statistical basis, without any valid justification, support or documentation. The State never provided any documentation or data to support their water demands, and the state also never acknowledged the lack of equity in relation to our watershed yield and water storage ability compared to the settlements on other rivers and systems being embraced by the state negotiators.

To use a phrase commonly used in negotiations by others – the state has been looking to test a hypothesis. The hypothesis proclaimed by CDFW since 2012 – "We won't know what kind of natural production we're going to get until we start increasing flows to see what natural

production we can achieve." Wait, what? The state wants our community to give up our senior water rights, storage rights and our community's economy to "test a hypothesis?" And their hypothesis means the taking of water from our community – and sending it to the ocean with the faint hope that salmon numbers will improve? We can tell you there have been far more discussions about how much water can flow to the ocean than there has been about actual proven lifecycle management strategies to boost salmon populations. Some of the state's leaders have ignored the realities of anything but their own science and dismissed the impacts our disadvantaged community will bear. These include impacts to our community's drinking water quality and supply, as well as our local environment. How can MID negotiate the future of our region under these circumstances? It frankly cannot, and we will not.

Before we suggest a path forward, we need to stress we as a Board have an established track record of being realistic, progressive and pragmatic. If invited back to the settlement table, MID will continue to proactively negotiate in good faith, and we will support and embrace a settlement we and our biologists believe will address the core issues affecting salmon populations in our zone of influence, the lower Merced River. But we cannot defend a settlement plan that science and reality does not support. We cannot defend a plan that dumps precious water to the ocean without knowing exactly what benefits will be attained to finally solve the salmon issue. We are willing to do our part and then some, but we are not going to "settle" for the sake of settling.

The path forward involves the following: First, the fundamental ideas behind and driving the SED must be set aside. We understand the time and money involved in developing that plan, but anyone who has worked on any significant public or private project understands there sometimes comes a point when a reset button is needed. The flaws in the SED, both factual and legal, are obvious and undeniable. As painful as it may seem, the time to push the reset button passed a long time ago, but it is not too late. Second, a realistic comprehensive flow and non-flow salmon lifecycle plan needs to be negotiated for a set term encompassing several salmon lifecycles. We have been and continue to be willing to discuss new and significant new water releases into the Merced River. We support new flows coupled with in-stream and side channel river restoration projects, predation control, and physical and operational salmon hatchery improvements. We also support peer-developed and reviewed monitoring by a science panel to include local and national fishery experts. Monitoring is vital to the success of combined flow and non-flow actions to support the development of the best modern science to inform and address salmon lifecycle issues.

Opportunity has already been lost. If MID had been taken up on its offer to implement the S.A.F.E (Salmon, Agriculture, Flow and Environment) Plan years ago, significant new flows would have already been in the Merced River and vital habitat restoration projects would have

been completed. The S.A.F.E Plan would have created habitat for thousands of new spawning sites (Redd's), and floodplain rearing habitat would have been increased by 300%. But instead opponents of Merced ID have embraced the high-stakes game of 'take it all.' This is not productive.

We sincerely welcome this new opportunity to work with Governor Newsom, his staff, and the members of the SWRCB. We hold a genuine hope that the divisions that led us all to court can be set aside and new relationships can be built with the ultimate goal of improving salmon populations and their habitat. We are open to being a proactive part of a solution to some of the larger water quality issues that have plagued California for decades. But most importantly, we look forward to doing so in a way that protects our community, not destroys it.

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OFFICE OF THE MAYOR
SAN FRANCISCO

LONDON N. BREED
MAYOR

FOR IMMEDIATE RELEASE:
Friday, March 1, 2019
Contact: Mayor's Office of Communications, 415-554-6131

*** STATEMENT***
MAYOR LONDON BREED ON PROGRESS OF VOLUNTARY AGREEMENT FOR TUOLUMNE RIVER

San Francisco, CA— *Mayor London Breed has issued the following statement on the updated Voluntary Agreement solution for Tuolumne River submitted to the State Water Resources Control Board. The City and its partners developed the agreement as an alternative to the updated Bay Delta Plan approved by the State Water Resources Control Board in December.*

"Today, San Francisco joined a broad coalition of stakeholders in support of advancing the Voluntary Agreement solution for the Tuolumne River. The plans laid out today, which include specific costs and timelines for restoration projects on the river, are further evidence that we remain fully committed to that cause.

I have always maintained that a Voluntary Agreement between stakeholders is the best option to quickly advance solutions that we know will promote a healthy ecosystem that supports the fish and wildlife on the Tuolumne River.

There is still much more work to be done and I pledge that San Francisco will continue our commitment to work with the State Water Board and our environmental stakeholders.

I want to thank Governor Gavin Newsom and his team for their leadership in advancing these important and complex discussions over the past two months. I also want to thank Senator Dianne Feinstein, various environmental organizations, the irrigation districts, and numerous other public and private entities for their support."

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SAN FRANCISCO, CALIFORNIA 94102-4681
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March 1, 2019

Joaquin Esquivel
Chair
State Water Resources Control Board

Members
State Water Resources Control Board

Eileen Sobeck
Executive Director
State Water Resources Control Board

Dear Chair Esquivel, Members of the Board, and Ms. Sobeck:

On January 7, 2019, Governor Gavin Newsom reinitiated discussions among interested parties to seek Voluntary Agreements that the State Water Resources Control Board (Water Board) could consider in its Water Quality Control Plan update for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and Watershed. These discussions have centered on how we can achieve multiple water quality, water supply, and sustainable water management objectives. The organizations listed below have actively participated in discussions over the past several weeks.

These efforts have made significant progress since the Water Board meeting on December 12, 2018. Today, the Directors of the Department of Fish and Wildlife and the Department of Water Resources are submitting two documents that demonstrate this progress and identify additional work that is needed.

The first document is a Project Description of a set of Voluntary Agreements that is submitted for further analysis by Water Board staff. It is based on the framework agreement outlined on December 12 and must be assessed for legal and scientific adequacy. The second document is a Planning Agreement that outlines an approach to implementation and terms for the work effort still before us. These documents are intended to integrate flow and non-flow measures to establish water quality conditions that support (1) the viability of native fishes in the Bay-Delta watershed, and (2) the achievement of related objectives in the Bay-Delta Plan, as amended. Today's submission does not represent agreed-upon Voluntary Agreements. Rather, it is an important step that is worthy of further analysis and discussion.

As individuals representing our respective organizations in this process, we are committed to continue working with the California Natural Resources Agency, the California Environmental Protection Agency, the U.S. Department of the Interior, and other interested parties in an open and transparent process to assess and further develop this proposal. We remain committed to try to reach Voluntary Agreements that advance California on the path toward sustainable water management.

Sincerely,

Gene Mancebo
Amador Water Agency

Steve Rothert
American Rivers

Gary Justeson
Biggs-West Gridley Water District

Mark Orme
Butte Water District

Ernest Conant
US Bureau of Reclamation, Mid-Pacific Region

Chuck Bonham
CA Department of Fish and Wildlife

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Jeffrey Volberg
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Christopher White
Central California Irrigation District

Marguerite Patil
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Kim Delfino
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Michael Tognolini
East Bay Municipal Utility District

Jim Abercrombie
El Dorado Irrigation District

Maurice Hall
Environmental Defense Fund

Marcus Yasutake
City of Folsom

Jason Phillips
Friant Water Authority

Thad Bettner
Glenn Colusa Irrigation District

Ricardo Ortega
Grassland Water District

Donnie Stinnett
Joint Water Districts Board

Curtis Creel
Kern County Water Agency

Jeff Kightlinger
Metropolitan Water District of Southern California

John Davids
Modesto Irrigation District

Jay Ziegler
The Nature Conservancy

David Guy
Northern California Water Association

Andrew Fecko
Placer County Water Agency

Lewis Bair
Reclamation District No. 108

Sean Earley
Richvale Irrigation District

Roger Cornwell
River Garden Farms

Richard Plecker
City of Roseville

Jim Peifer
City of Sacramento

Dan York
Sacramento Suburban Water District

Michael Carlin
San Francisco Public Utilities Commission

Christopher White
San Joaquin River Exchange Contractors Water Authority

Paul Helliker
San Juan Water District

Norma Camacho
Santa Clara Valley Water District

Roland Sanford
Solano County Water Agency

Jennifer Pierre
State Water Contractors

Brad Mattson
Sutter Mutual Water Company

Jeffrey Sutton
Tehama-Colusa Canal Authority

Brian Johnson
Trout Unlimited

Casey Hashimoto
Turlock Irrigation District

Ted Trimble
Western Canal Water District

Thomas Birmingham
Westlands Water District

Curt Aikens
Yuba County Water Agency

State of California * Natural Resources Agency

Gavin Newsom, Governor

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March 1, 2019

Joaquin Esquivel
Chair
State Water Resources Control Board

Members
State Water Resources Control Board

Eileen Sobeck
Executive Director
State Water Resources Control Board

Dear Chair Esquivel, Members of the Board, and Ms. Sobeck:

Please find attached a Project Description for analysis by water board staff as part of its Substitute Environmental Document for its Bay Delta Plan Update. Included in the Project Description are appendices submitted by water districts that detail their proposed implementation. The appendices are included in the spirit of transparency and have not been fully reviewed by our departments. As such, we are not seeking board analysis of those elements at this time. You will also find attached a Planning Agreement describing milestones and a process looking forward. Finally, we include a letter from our colleagues willing to keep working on these complicated and important issues for California.

Sincerely,

Karla A. Nemeth
Director
Department of Water Resources

C. Bonham

Charlton H. Bonham
Director
Department of Fish and Wildlife

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February 15, 2019

Ann Moller Caen, Vice President, San Francisco Public Utilities Commission
Via Email

Re: Water Supply Reliability for San Francisco's Regional Water System

Dear Vice President Caen:

Overview

Restore Hetch Hetchy provides these comments in response to recent presentations by San Francisco Public Utilities Commission (Commission) staff regarding potential additional investment in water supply projects to meet customer needs. Prospective compliance with the State's Bay-Delta Plan has presented an increased urgency to consider additional water supplies but, as noted, other factors also warrant additional investment in supply and/or demand management.

While it is the clear intention of the Commission to avoid, through litigation or negotiation, the bulk of water supply impact that would accompany full compliance with the Bay-Delta Plan, it is important to consider that significant additional flow in the lower Tuolumne River may ultimately be required as early as 2023. The Commission should quantitatively assess its potential obligations and determine what actions it would take to assure equivalent water supply reliability for its customers.

As described below, many California water agencies have complied, albeit unwillingly, with requirements to reduce withdrawals of fresh water from California's rivers and streams. While all water agencies operate under different parameters, the Commission should closely review how these agencies have responded to obligations imposed upon them.

It is in the public interest, locally and statewide, for the Commission to engage proactively, developing both supply- and demand-side measures, to assure that customer needs are met under a wide variety of potential future conditions. Potential programs and projects presented by staff to date should be further fleshed out in public fora, and additional alternatives should be considered as well.

San Francisco's potential obligation under the Bay-Delta Plan

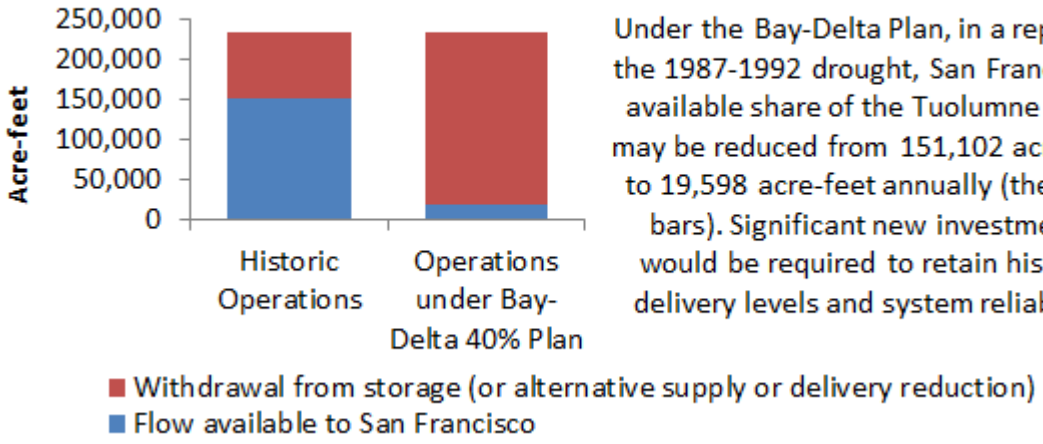
Figure 1, below, provides an illustration of how full compliance with the Bay-Delta Plan might affect San Francisco's ability to divert Tuolumne River supplies during a repeat of the hydrologic conditions experienced during the 6-year drought from 1987 to 1992 (the most challenging period, from a water supply perspective, experienced by the City since the 1930's).[1] The bar at the left represents actual San Francisco Tuolumne River water rights and project operations during this period. The blue bar represents the average annual flow to which the City was entitled under its junior water rights – 151,102 acre-feet. The red bar represents the average annual withdrawal from storage (82,559 acre-feet) in Hetch Hetchy, Cherry, Eleanor and Don Pedro Reservoirs during this period, which was necessary to convey an annual average of 233,661 acre-feet of water to the Bay Area though the San Joaquin pipelines.

The bar at the right in Figure 1 shows the challenge of conveying the same amount of water during a repeat of the 1987-92 drought under the Bay-Delta Plan. Only an average 19,598 acre-feet would be available to San Francisco if the Tuolumne River must be allowed to retain at least 40% of its natural flow between February and June and it must meet 51.7 % of that required increase in flow.[2] On average, 214,063 acre-feet would need to be delivered from storage and/or provided through new supplies.

The loss of Tuolumne water supply over this period would be 131,054 acre-feet per year or 789,025 acre-feet over the 6-year period.[3] This value should provide guidance to the Commission as it seeks to avoid loss of reliability as a result of the Bay-Delta Plan.

Figure 1

San Francisco's diversions from the Tuolumne River watershed from 1987-1992



Recently Implemented Ecosystem Restoration Programs in California

Over recent decades, many water supply agencies in California have been required to dedicate additional water to restore rivers, lakes and other waterways. These requirements have come about through a variety of legislative, judicial and administrative processes. San Francisco is now faced with a similar challenge.

Table 1 below provides a summary of some of these ecosystem restoration programs, which are designed to restore ecosystems and wildlife populations on rivers and in wetlands in the Central Valley, at Mono

Lake, in the Bay-Delta and on the Trinity River. These programs have posed challenges for the agencies that they have affected, but most agencies have found ways to invest in additional supplies and/or use water more efficiently.

Table 1: Recent Aquatic Ecosystem Restoration Programs[4]

Program	Water Supply Dedication *(acre-feet per year)*[5]		**Description**
	Avg. Year	Dry Year	
Central Valley wildlife refuges[6]	250,000	200,000	Signed in 1992 by President George H.W. Bush, the CVPIA dedicates additional water to the environment for both fisheries and wildlife refuges in the Central Valley. Only the refuge portion is shown here.
Mono Lake[7]	46,000	30,000	Decision 1631, signed in 1994 by the State Water Resources Control Board, reduces the amount of water that the Los Angeles Department of Water and Power is allowed to divert from streams that feed Mono Lake, reversing the decline in the lake's water level. Mono Lake is an important habitat and breeding area for a wide variety of water birds.
Water Quality Control Plan (Bay-Delta Accord) [8]	316,000	430,000	The Bay Delta Accord, signed in 1994 by stakeholder groups, was adopted in 1995 by the State Water Resources Control Board as the Water Quality Control Plan[9]. In the springtime, Delta outflows are increased and diversions are reduced to protect fish from direct entrainment in the Delta export pumps
Trinity River[10]	83,000	155,000	The Trinity River Mainstem Fishery Restoration program was jointly developed by the federal government and the Hoopa Valley Tribe. Signed in 2000 by Interior Secretary Bruce Babbitt, the program includes increased releases from Trinity Dam to maintain and restore the river channel and to assist in the outmigration of young chinook and endangered coho salmon.
Endangered Species Act[11]	980,000	572,000	Federal court rulings to protect Delta smelt (2007) and salmon (2008) include several protective operating criteria in the Delta, most prominently restrictions on the degree to which "Old" and "Middle" Rivers (parts of the lower San Joaquin River) are allowed to run backward.
Total	1,675,000	1,387,000	

Groundwater banking

At the January 22, 2019, Commission meeting, Assistant General Manager Steve Ritchie reported that the Turlock and Modesto Irrigation Districts were willing to discuss banking groundwater in the lower

Tuolumne River and potentially adjoining watersheds.[12] This is good news. Properly managed, a groundwater banking program in Stanislaus County could offer substantial supply benefits, even while meeting the Bay-Delta Plan's flow objectives. Such program should be vigorously pursued.

While the groundwater basin in Stanislaus County has not been over drafted as much as in other areas, there is substantial opportunity for recharge in wet years. In dry years, this stored water would then be available. With the right geology, groundwater recharge has been very successful in areas of the State where land owners and water agencies are able to cooperate. In Stanislaus County, managing the ground water basin "conjunctively" with Don Pedro Reservoir would likely be far more cost effective and less environmentally damaging than building new surface storage.

Groundwater banking has been a popular investment option for urban water agencies throughout California for several decades. The need to comply with environmental requirements is at a least part of the reason for many of these investments. Table 2 provides a summary of selected groundwater banking projects in which urban water agencies have invested. Most take place in remote aquifers, but some, like San Francisco's Southeast Basin project, take place within its service territory

Table 2: Selected Urban Groundwater Banking Programs in California

Utility	Location	Storage Capacity
Alameda County WD	Semitropic	150,000
City of Tracy	Semitropic	10,500
Irvine Ranch Water District	Rosedale Rio Bravo	50,000
Metropolitan (MWD)	Arvin Edison	350,000
Metropolitan (MWD)	Kern Delta Water District	250,000
Metropolitan (MWD)	Mojave Storage Program	390,000
Metropolitan (MWD)	San Bernardino Municipal WD	50,000
Metropolitan (MWD)	Semitropic	350,000
San Diego County Water Authority	Semitropic	45,000
Santa Clara Valley WD	Semitropic	350,000
Zone 7	Semitropic	65,000
San Francisco PUC	Southeast Basin	60,000

The Semitropic Water Storage District in Kern County presently stores water for urban agencies in southern California and in the Bay Area. Semitropic currently lists "available capacity" of 474,750 acre-feet – well in excess of the size of Hetch Hetchy Reservoir. San Francisco's conveyance is primarily linked only to the Tuolumne River watershed. To fully access groundwater banking (or transfer) opportunities, additional conveyance would be required.

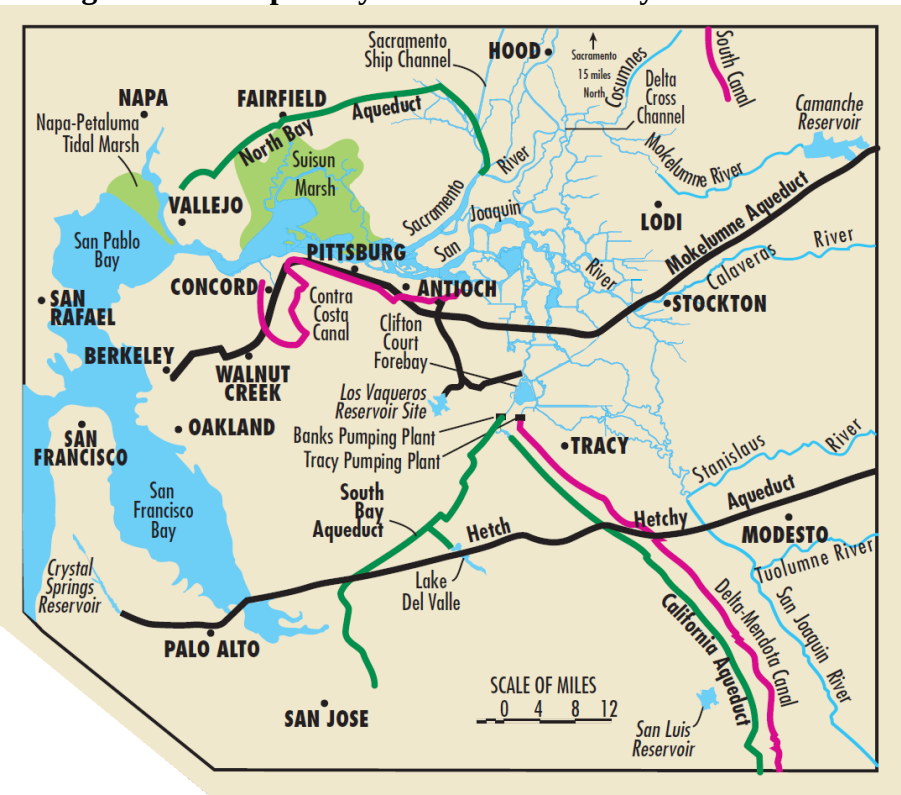
Conveyance – connect to the California Aqueduct?

Perhaps the most significant challenge facing the San Francisco Public Utilities Commission is that it long has relied on diversions from the Tuolumne watershed for 85% of its supply. The reliability of this supply for San Francisco is now threatened by the triad of junior water rights, the Bay-Delta Plan and the City's obligation under the fourth agreement meet 51.7% of any required increase in flow.

The Commission should consider a new idea with significant potential for helping to meet customer needs. It should consider connecting to the California Aqueduct to provide increased flexibility for storing Tuolumne River supplies or acquiring new water.

The California Aqueduct, the largest conveyance in California, runs primarily along the west side of California's Central Valley connecting the Delta to Los Angeles and can carry up to 15,000 cubic feet of water per second. San Francisco's San Joaquin Pipelines cross the California Aqueduct just east of the Tesla Portal. Connecting to the California Aqueduct would allow San Francisco to access supplies derived from or stored in many areas of the State, far beyond the Tuolumne watershed.

Figure 2: Principal Bay Area Water Conveyance Facilities



An intertie to the California Aqueduct, through transfer agreements or groundwater banking, could greatly enhance the reliability of the City's water supply. Such an intertie would require agreement with the State Water Project and its customers. The connection would not allow San Francisco to access the State Water Project Feather River and Delta supplies, but could provide access to the excess conveyance capacity that is consistently available, especially in dry years, and allow San Francisco to negotiate with parties from throughout the state.

Water supplies accessed through the California Aqueduct would need to be filtered. Since San Francisco is not currently required to filter its Tuolumne River supplies, the simplest solution might be to filter any supplies from the California Aqueduct at the site of the intertie. Some customers would opine that the quality of these supplies would be inferior to San Francisco's supplies. It might be determined that some

blending would be acceptable or that use of the intertie would be limited to times of drought or system outage.

While constructing and using an intertie to the California Aqueduct raises questions, it has the potential to ameliorate any potential water supply shortages in San Francisco's service territory and should be considered.[13]

Inter-basin collaborations

It is also good news that the Turlock and Modesto Irrigation Districts, as well as other San Joaquin Valley agencies, are willing to consider the benefits of the coordinated operation of Don Pedro and New Melones Reservoirs. This opportunity should also be investigated from both a physical and an institutional perspective. New Melones Reservoir holds empty space more often than Don Pedro Reservoir as its 2,400,000 acre-feet capacity is more than double the Stanislaus River's average annual flow. In some years, Don Pedro supplies could be delivered to Oakdale Irrigation District through Modesto's delivery system, allowing storage to "back up" into New Melones and increasing the overall amount of water stored.

Such an agreement would require parties working together – perhaps even more so than in most groundwater banking arrangements. Note the federal government owns and operates New Melones Reservoir.

Recycled, Purified and Desalinated Water

The January 22 Staff presentation described six water supply projects as "Recycled" or "Purified". The presentation included only lengthy timelines and budget expenses associated with initial planning costs. There was no explanation to distinguish "recycled" vs. "purified" supplies. Perhaps the most obvious interpretation is that "recycled" pertains to reusing water for non-potable purposes (toilet flushing and "purple pipe" irrigation, e.g.), whereas "purified" pertains to potable reuse.

Assuming these definitions, opportunities for use of recycled water are generally limited as a second distribution system is required. Purified water can be used more broadly but the permitting process has only recently begun to address treating wastewater to potable standards, for either direct or indirect reuse.[14]

The limited information provided to date raises many questions. The Commission delivers water to communities in 4 counties, but operates wastewater plants only in San Francisco. Which plants are being considered for purified water programs? What is the source of water for each potential project, how (and where) would it be treated, and how would it be supplied to customers?

Recycled, purified and desalinated water projects can be expensive, but are virtually drought-proof and have enormous potential. Staff should provide additional information about these opportunities.

Conclusion

These comments are limited in scope and do not address the continuing obligation of all water agencies to use water as efficiently as possible in drought-prone California. Restore Hetch Hetchy is prepared to work constructively with the Commission as it continues its efforts to meet customer demands while minimizing damage to California's aquatic environments.

Sincerely,

Spreck Rosekrans

Spreck Rosekrans
Executive Director

Cc: Harlan Kelly, General Manager
Michael Carlin, Deputy General Manager
Steve Richie, Assistant General Manager
Barbara Pierce, BAWSCA Chair
Nicole Sandkulla, BAWSCA CEO/GM

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[1] Actual operations during the 1987-92 were selected for two reasons. First, there is some disagreement about whether it is appropriate to plan using the COMMISSION's "Design" drought – which extends the 1987-92 period for two years. Second, some analyses include prospective future demand levels which introduce an additional level of uncertainty. Figure 1 is intended to illustrate the additional supply increase or demand reduction that would be necessary to comply with the Bay-Delta Plan as adopted by the State Water Resources Control Board, assuming the COMMISSION would be required to meet 51.7% of the increase in flows to the lower Tuolumne River.

[2] 1966 Fourth agreement between San Francisco and the Turlock and Modesto Irrigation Districts stipulates that the COMMISSION must meet 51.7% of any increase due to FERC-required flow increases (even though the Districts use four times as much water as San Francisco uses). Staff analysis has assumed this value (51.7%) would dictate San Francisco's required contribution, but is careful note that it may argue a different interpretation of the Fourth Agreement at a later time.

[3] 6 years * (214,063 acre-feet - 82,559 acre-feet) = 789,025 acre-feet.

[4] All restoration programs described herein include non-flow elements that extend far beyond the additional dedication of water supply.

[5] Net water supply dedicated to the environment is reported on both an average and a dry year basis. For the purposes of this discussion, dry years are generally defined as occurring in 1 out of 5 years.

[6] U.S. Bureau of Reclamation http://www.usbr.gov/mp/PA/water/docs

[7] SWRCB Decision 1631 - estimates of long-term reduced diversions.

[8] Retrospective Analysis of Changed Central Valley Project and State Water Project Conditions Due to Changes in Delta Regulations, Water and Power Policy Group, January 2013

[9] The SWRCB officially adopted the Bay-Delta Accord as its "Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary" (May, 1995). The SWRCB has allocated responsibility for meeting the plan's objectives to the State Water Project and the Central Valley Project, initially as Order WR 95-6 (June, 1995).

[10] Trinity River Mainstem Fishery Restoration, Environmental Impact Statement (2000).

[11] Retrospective Analysis of Changed Central Valley Project and State Water Project Conditions Due to Changes in Delta Regulations, Water and Power Policy Group, January 2013

[12] Groundwater banking in Stanislaus County has long been identified as a cost-effective solution for storing available water supply. For example, in Reconnaissance Evaluation of Alternative Sites for Groundwater Banking, (July 1993, unpublished work by Bookman-Edmonston Engineering Inc, and Luhdorff and Scalmanini Consulting Engineers for City and County of San Francisco Hetch Hetchy Water and Power) analysis ranked groundwater banking in Livermore Valley, Western San Joaquin County, Northern San Benito County, Madera Ranch, Semitropic Water Storage District, James Irrigation District/Mid-Valley Water District vicinity and Kern Fan Element as "good". The report also notes that banking in the Eastside Water District (east of the Turlock irrigation District) would be "ideal" but ranks it only as a "fair" opportunity due to institutional complexity.

Successful programs rely on cooperation between landowners, local water agencies (Turlock and Modesto Irrigation Districts in this case) and, in many cases, remote water agencies. The necessary cooperation often warrants the importance of staff and board members of various agencies building relationships with their counterparts over time.

[13] In the 1990's, as part of the Monterey Agreements, agricultural interest in Kern County negotiated transfer of the State's Kern Water Bank to local control and constructed an intertie to the California Aqueduct to access available supplies. The project continues to be controversial because so much water is controlled by so few, but from a water supply point of view it has been highly successful.

[14] San Diego is currently pursuing a purified water program and plans to have 30 million gallons per day available by 2023. Is this the sort of program that the Commission is considering?

California's Drought Largely Wiped Out After Winter of Soaking Rain, Heavy Sierra Snowpack

The Weather Channel | March 8, 2019 | Jonathan Belles

Years of drought have been nearly wiped out by an active storm track in California this winter and drought conditions have dramatically improved across the West, and this trend is expected to persist into the spring.

A dominant weather pattern featuring a southward dip in the jet stream over the West has allowed a series of precipitation-rich storm systems to track through the region, especially over the last two months.

Drought Improvement

Well-above-average rainfall and snowfall over the last 60 days has nearly knocked out the years long drought in California. As a result, areas in exceptional drought, the highest category, have decreased from 2.82 percent to 0.09.

The percentage of areas in extreme drought have been reduced by almost 75 percent compared to mid-January.

Drought conditions have improved dramatically in California since January.

(Data from U.S. Drought Monitor)

San Francisco, Sacramento and Reno have recorded double the average precipitation since early February.

Since the beginning of the year, San Francisco has measured more than 15 inches of precipitation, 5.4 inches above average. Los Angeles has totaled 13.73 inches since the start of the year, 6 inches above average.

This pattern has also brought colder-than-average temperatures to much of the West, helping to turn wet systems into snowy ones. Seattle had its third-coldest February on record, and Missoula, Montana, had its second-coldest February. The chilly conditions have extended farther south, as evidenced by the fact that Santa Barbara saw its third-coldest February.

The colder temperatures have caused more snow, even in lower elevations like Las Vegas and Tucson.

Snowier systems are a big change from the 2016-17 water year and several years before. Even though it also experienced above-average precipitation, the snowpack in the lower elevations is much higher this water year than last.

Snowmelt from that snowpack in the spring and summer is crucial to the water supply in the region, so snowpack in the mountains is very important for alleviating drought.

As of March 8, the average snow water equivalent in the Sierra is at 161 percent to average for the date – great news heading into spring.

In fact, much of the West is near- or above-average in terms of the snow water content in the snowpack, with a few areas well above 100 percent to average. The far northern Rockies and northern Sierra are notable exceptions.

The most recent data from the U.S. Drought Monitor shows the big changes these storms have brought to the rest of the West.

Just over half of the West was experiencing drought conditions on Jan. 15, but by March 5, barely 25 percent of the region was still in drought.

Much of the Four Corners region has experienced extreme and exceptional drought conditions since last spring. There, the improvement is quite noticeable and additional improvement is expected with several more rounds of snow on the way.

Although drought conditions still remain from the Four Corners region into parts of the Great Basin and Northwest, the current wet pattern will likely lead to further improvements.

Additionally, the drought outlook from NOAA shows more improvement is expected through meteorological spring (March 1 through May 31). This is due, in part, to El Niño persisting into the spring and spring melting from the abundant snowpack.

Oregon and Washington are the only areas where drought is currently expected to persist if this prediction holds true.

However, NOAA notes that if the above-average precipitation does not develop as anticipated, drought development will be possible across the southern Rockies and into parts of Texas.

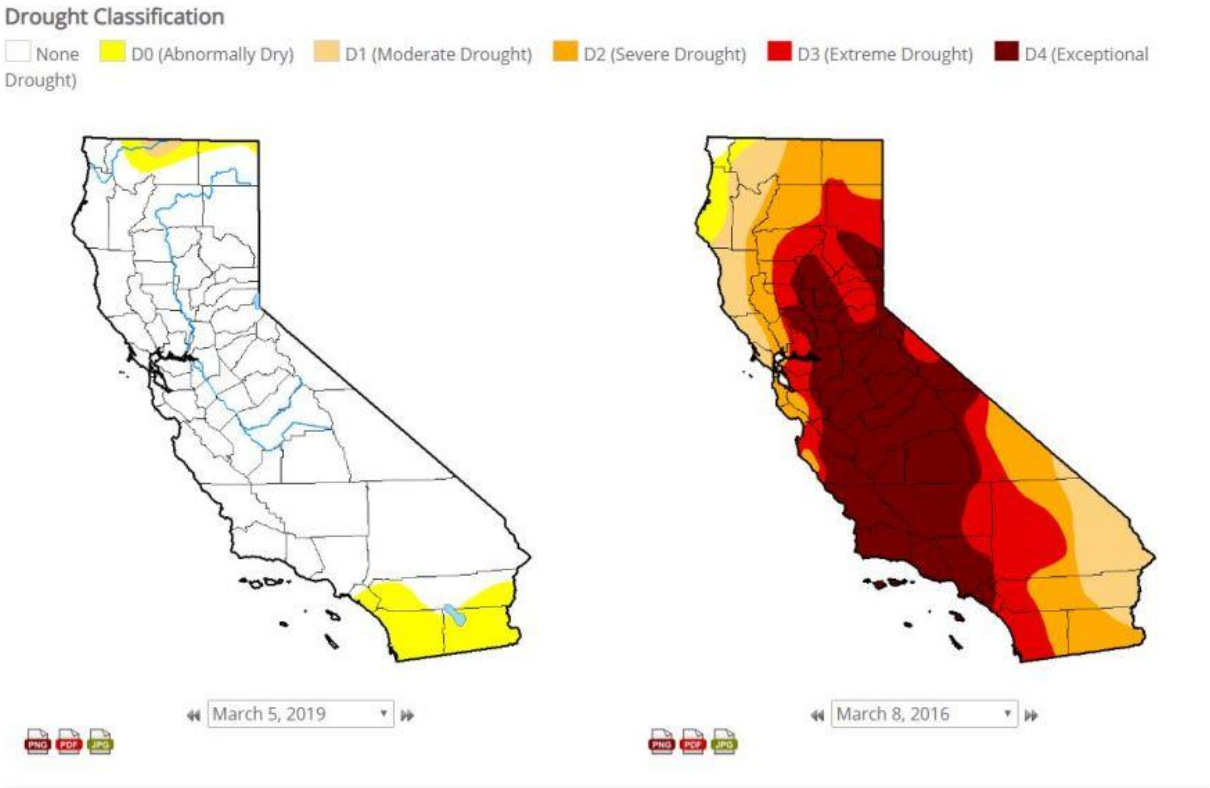
Additional low-pressure systems are expected to impact the West over the next couple of weeks, but their exact tracks remain uncertain. Additional precipitation will continue to alleviate drought conditions in parts of the region, and as the National Weather Service in Grand Junction noted, every bit of snow helps.

# # #

Here's how much recent rains have washed away California's drought

Less than 1 percent of the state is in any kind of drought status, down from 48 percent a year ago

Mercury News | March 7, 2019 | Paul Rogers



On Thursday, March 7, 2019, less than 1 percent of California was classified by federal scientists as being in a drought, down from 97 percent the same week three years ago.

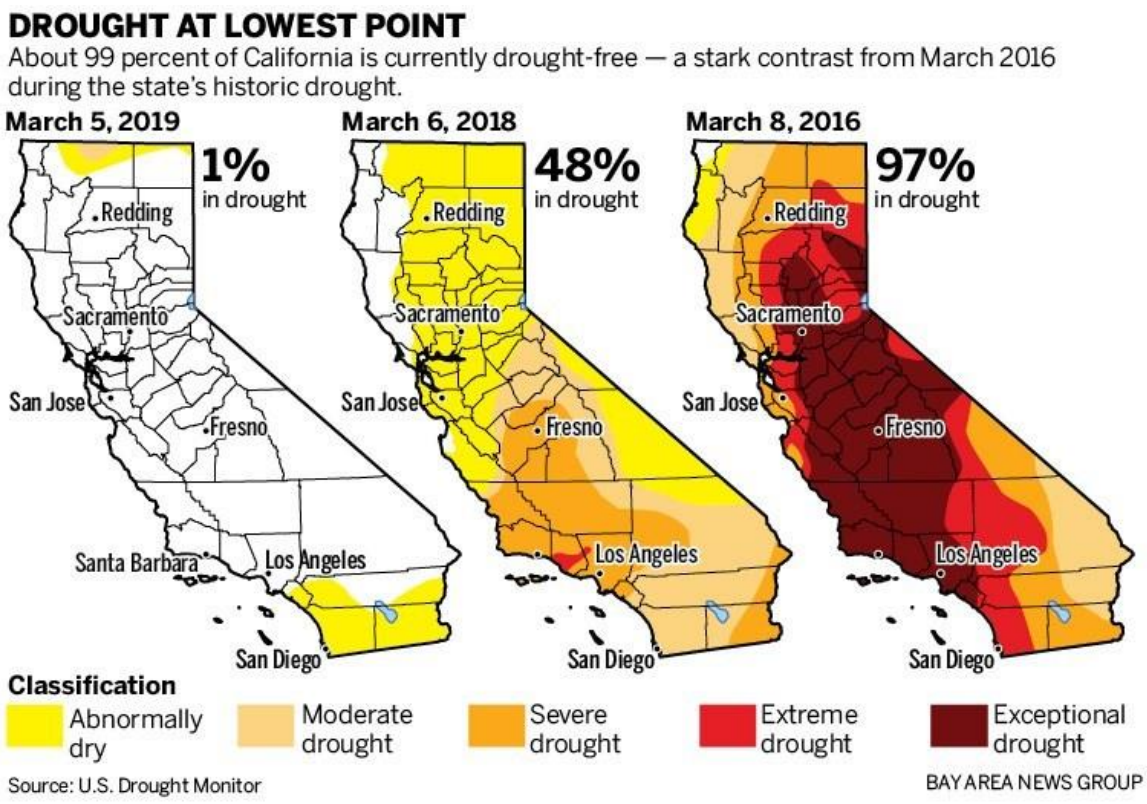
Yes, it's caused traffic jams, power outages and even some floods. But there's a big ray of good news behind all the rain that California has been receiving this year.

Soaked by relentless storms, California as of this week has less land area in drought status than at any time in the last seven years.

Less than 1 percent of the state — a sliver on the Oregon border — is still classified as being in a moderate drought, according to a new federal report out Thursday.

The last time that little of California was in a drought was on Dec. 20, 2011.

By comparison, a year ago this week, the weekly report, known as the U.S. Drought Monitor, classified 48 percent of California as being in drought status. And this week three years ago, in March 2016, a staggering 97 percent of California's land was in a drought, much of it in extreme drought status, as the state suffered from the worst drought in its recorded history.



"The storm door opened up in January and has remained open since then," said Jan Null, a meteorologist with Golden Gate Weather Services in Saratoga. "The rivers are full, the reservoirs are above historical averages. It's a good picture."

California's five-year drought, which extended from 2012 to through 2016, caused widespread water shortages, wildfires and heavy groundwater pumping from desperate farmers trying to keep their orchards and crops alive. More than 100 million trees died in the Sierra Nevada, and millions of residents were hit with mandatory water cutbacks by cities concerned about running out of water.

The drought ended in the spring of 2017 with huge storms that caused $100 million in flood damages along Coyote Creek in downtown San Jose and wrecked the spillway at Oroville Dam, the nation's tallest dam, in Butte County.

But last winter saw a return to below-normal rain and snow levels. And when this December ended with only half as much rain as historical averages, some people began to worry that the state was slipping right back into a drought.

A wet January and a soaking February have ended those concerns, Null said.

A truck sits in flood water along westbound Highway 37 near Highway 101 in Novato, Calif. on Wednesday, Feb. 27, 2019. Both directions of the highway were closed after overnight rain. (Alan Dep/Marin Independent Journal)

The Sierra Nevada snowpack, the source of roughly one-third of California's water supply, was 161 percent of the historical average for this date on Thursday, up from just 69 percent on New

Year's Day. Every major reservoir in California is at or above its historic average, and some, like San Luis, east of Gilroy, are full.

In 2014, California voters approved Proposition 1, a $7.5 billion bond intended to pay for a broad array of water projects, including recycled water, desalination, storm-water capture, conservation and the construction of new reservoirs. Among the projects state officials have approved for funding are plans to expand Los Vaqueros Reservoir in Contra Costa County and to build a new reservoir near Pacheco Pass in Santa Clara County.

How do the storms this year stack up to the past? San Francisco, the best barometer of historic rainfall trends in Northern California, because it has records that go back the furthest, received 7.76 inches of rain in February. That's double the normal amount, the most in a decade, and the 16th most in 169 years of record-keeping back to 1850.

The reason: The persistent ridges of high-pressure air that blocked Pacific storms from hitting California during the drought are gone. Instead, low-pressure systems are pulling moisture-rich atmospheric river storms in from the tropics, hitting the West Coast one after the other.

Null noted that rainfall this year also is helping to significantly recharge the state's groundwater, because the storms are steady and repeated rather than all in one or two huge events that run off into the ocean.

All of this means there will be no water restrictions in California cities this summer, water agencies say.

But the good times won't last forever. They never do, experts note.

"This seems like one of those very good, above-average years," said Jay Lund, director of the UC Davis Center for Watershed Sciences. "But there's always going to be another drought. And another flood. Right now, we are in a happy territory between extremes."

# # #

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Sierra snowpack doubles in a month
The Sentinel | March 5, 2019 | Julissa Zavala

(right to left) John King, water resource engineer of the California Department of Water Resources, prepares to insert the aluminum snow depth survey pole into the snow for the third snow survey of the 2019 season at Phillips Station in the Sierra Nevada Mountains. Andrew Reising, Water Resource Engineer and Dr. Michael Anderson, State Climatologist, helped with the survey held approximately 90 miles east of Sacramento off Highway 50 in El Dorado County. Photo taken Feb. 28, 2019.
Ken James / California Department of Water Resources

The Department of Water Resources conducted the third snow survey of 2019 on Thursday, with results boasting an excellent snowpack.

The manual survey, taken at Phillips Station in the Sierra Nevada near Sierra-at-Tahoe, recorded 113 inches of snow depth and a snow water equivalent of 43.5 inches — which is more than double what was recorded last month at this location.

Statewide, the snowpack is 153 percent of average for this date, thanks to several atmospheric rivers that blanketed the Sierra Nevada with snow during the month of February.

According to DWR data, 150 percent of average or higher snowpack has been recorded only a handful of times since 1980.

The results show a notable improvement since the last Phillips Station survey on Jan. 31, when measurements revealed a snow water equivalent of 18 inches.

Snow water equivalent is the depth of water that theoretically would result if the entire snowpack melted instantaneously. It's a tool used by water managers across the state to estimate anticipated spring runoff.

Current conditions stand in stark contrast to this time last year when the snow depth was only 13.5 inches and the snow water equivalent was just 1.5 inches.

DWR conducts up to five snow surveys each winter at Phillips Station – near the first of January, February, March, April and, if necessary, May.

Snowpack is an important factor in determining how DWR manages California's water resources. On average, the Sierra snowpack supplies about 30 percent of California's water needs as it melts in the spring and early summer to meet water demands in the summer and fall — including here in Kings County.

The state's six largest reservoirs currently hold between 84 percent (Oroville) and 137 percent (Melones) of their historical averages for this date. Lake Shasta, California's largest surface reservoir, is holding 112 percent of its historical average.

"This winter's snowpack gets better each month and it looks like California storms aren't done giving yet," said Karla Nemeth, DWR director. "This is shaping up to be an excellent water year."

On Feb. 14, the National Weather Service officially confirmed that the Northern Hemisphere is experiencing weak El Niño conditions. As a result of these above-average sea surface temperatures, we are likely to experience more precipitation in the next couple months.

The National Weather Service has issued a winter storm warning and is forecasting significant rainfall/mountain snow for today through Thursday. The Valley may get up to two inches of rain, while the Sierra Nevada may get between one to two feet of snow above 7,000 feet, officials said.

According to Scott Borgioli, chief meteorologist for WeatherAg, Hanford has received 6.32 inches of rainfall this year, which is 71 percent of the annual average of 8.94 inches. Currently, only 2 percent of the state is still in an official drought with a "moderate" designation.

# # #

A Long View of California's Climate

Study examines centuries of data to understand climate–wildfire links

National Centers for Environmental Information | March 2019

Deadly severe wildfires in California have scientists scrutinizing the underlying factors that could influence future extreme events. Using climate simulations and paleoclimate data dating back to the 16th century, a recent study looks closely at long-term upper-level wind and related moisture patterns to find clues.

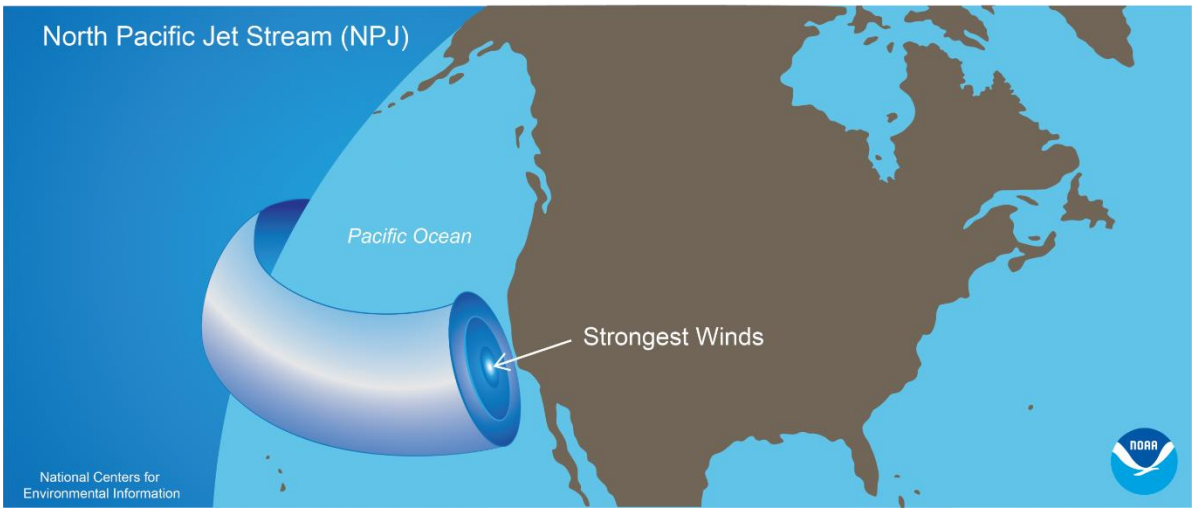
The new research published by the Proceedings of the National Academy of Sciences USA examines jet stream and moisture patterns in California over a centuries-long time period—1571 to 2013—which is nearly four times longer than the instrumental period of record that begins in the latter part of the 19th century. The length of the study enhances the understanding of dynamics that may contribute to extreme impacts from wildfires, as well as precipitation extremes. The work provides a stronger foundation and a longer-term perspective for evaluating regional natural hazards within California and the economic risks to one of the world's largest economies.

Between 2012 and 2018, several deadly and costly extreme wildfire events impacted California, including some of the state's largest and most destructive wildfires on record. In 2018, California experienced several of its costliest, deadliest, and largest wildfires to date, according to records that date back to 1933. Such extreme events, which are tracked by NCEI in its Billion-Dollar Weather and Climate Disasters reports, prompt concern for the future.

Each scientist on the research team brought different perspectives and necessary knowledge to the study. These included expertise in paleoclimatology and paleoecology as well as wildfire research. The international, multi-disciplinary approach needed to execute the research underscored the many factors that can contribute to extreme weather and climate events.

The Jet Stream and Moisture

Moisture in California is largely regulated by the strength and position of the North Pacific Jet (NPJ) stream, high-altitude winds that sweep into the state from the west during the cooler wet season. The study evaluated the NPJ between December and February. The strength and position of the winds influence regional conditions that carry over into the warmer dry season, when wildfires are more prone to occur. The wet-season NPJ thus becomes an important precursor of summer fire conditions.



Courtesy of NOAA NCEI.

The North Pacific Jet (NPJ) travels eastward at variable wind speeds and directions toward California at an altitude of about 11 kilometers above the ocean's surface. The strength and position of the winds take on importance in relation to the amount and intensity of moisture the jet stream delivers. This graphic represents a winter-average path of entry to California that could produce a very-wet, low-fire season in the state.

To build a better understanding of the influence of the NPJ over time, scientists focused on winter NPJ variability in a period of over 400 years. Using paleoclimatological and historical data, such as tree rings and historical fire records, past conditions were reconstructed to show connections between the NPJ and moisture and forest fire extremes.

The team wanted to gain a greater sense of conditions before and after fire suppression methods became more standard in 1904. The researchers constructed a list of low- and high-fire years in the Sierra Nevada for 1600–1903 from the paleo records. Extreme instances from both pre- and post-suppression period were then evaluated.

Very recently, 2017 bucked a pattern seen in the longer record. The severe Tubbs and Thomas fires of 2017, a high-precipitation year, overrode the NPJ's historical relationship with low-fire extremes after cool seasons of very high moisture. Extreme precipitation had compromised the Oroville Spillway earlier that year in addition to bringing about dangerous floods and landslides. Prior to modern fire suppression, the paleoclimatic reconstruction showed no cases of a high-precipitation year coupled with a high-fire year. If warming continues, as is the scientific consensus, then significant wet season rain and snow may not ensure a quiet fire season afterward.

"Recent California fires during wet NPJ extremes may be early evidence of this change," the paper states.

Besides fire risk and its associated health and economic impacts, such a change could alter species distribution, forest composition, and ecosystems.

Along with NCEI, contributors to the study came from the Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research in Germany and the Integrated Climate System Analysis and Prediction (CLiSAP) Cluster of Excellence at the University of Hamburg, The University of Arizona's Laboratory of Tree-Ring Research, and Penn State University's Department of Geography and Earth and Environmental Systems Institute.

# # #

Why California's droughts and floods will only get worse
This is bad news for water storage and flood risk.
Popular Science | March 5, 2019 | Ula Chrobak

In 1964, the Oroville Dam in Northern California was hit, in the middle of construction, by a major flood. In 2017, the same structure was damaged by severe rainfall, triggering a massive evacuation.
California Department of Water Resources

The Golden State's had a harsh winter. Between October 1 and March 3, most California weather stations across the state were reporting greater-than-normal amounts of precipitation. And the state's snowpack has grown to be the fifth largest in 40 years, with up to 25 feet of powder in some places.

It's needed moisture after a six-year-long drought from 2011 to 2017 and last year's dry winter. Snowpack and reservoirs are stocked right now. But persistent rain has flooded many areas, including towns along Northern California's Russian River. In Guerneville, residents paddled around after the river swelled to 45 feet high. Rain, floods, and mudslides have also wrecked homes and roads in areas across the state.

The dramatic shift from dry to wet this winter hints at what's to come. Scientists predict that California's total precipitation will remain close to constant in the future, but it will fall in a shorter window of time, with more of it as rain. The state will also experience greater variability—more

very wet and more very dry years. These findings highlight the need to capture rainfall and improve aging infrastructure.

Here's what to expect from California's wet seasons, now and in the future:

An already-variable climate

When it comes to rain and snow, California tends to be all-or-nothing. "We have the most variable climate in the continental U.S.," says Heather Cooley, director of research at the Pacific Institute, a water policy think tank. "We have very, very wet years, and we have very, very dry years."

The timing of California's precipitation is unique, too. The state has a Mediterranean climate, which means wet, mild winters and warm, dry summers. But California uses most of its water in the summer, a lot of it to grow irrigated crops. (Much of the United States' fruit, vegetables and nuts are grown in the California's Central Valley.) To help bolster water supplies in summer, farms and cities alike rely on water melted from Sierra Nevada snowpack. Californians also store surplus water in reservoirs and underground aquifers.

A lot of the state's rain and snow falls from atmospheric rivers, "long, ephemeral corridors of intense moisture transport" in the sky, says Alexander Gershunov, research meteorologist at the University of California, San Diego. Fed by moisture from the ocean, these rivers flow with winds, holding their moisture until it's somehow squeezed out. In California, that happens when the atmospheric rivers crash into the Sierra Nevada mountains, raining and snowing across the western Sierras and leaving the eastern part of the state relatively dry.

"We've seen a large number of colder [atmospheric rivers]" this winter, says Daniel Swain, climate scientist at the University of California, Los Angeles. Atmospheric rivers are usually associated with warm storms, but this year California had both warm and cold storms. Swain traces these cold storms to the stratospheric polar vortex breakdown, which led to a mass of polar air sitting over Canada, occasionally moving south. Additionally, this winter's polar vortex disruption led to a wavy jet stream, a bend of which is located the West Coast. Because of the jet stream's position, "we've had this persistent region that favors increased storminess," says Swain.

Droughts and floods in the future

While California's climate has always been variable, this century's big swings from wet to dry foreshadow an overall shift to an even more dramatic future climate.

Because the planet's poles are warming faster than the tropics, the difference in temperature between these two climate zones is becoming smaller. This leads to an expanding subtropical, arid region. This subtropical zone is pushing into Mediterranean climates, including those in Chile, South Africa, Australia, and the Mediterranean Basin, causing total precipitation in these places to decrease.

California is defying this trend—it's annual average precipitation is expected to remain about the same, according to a study by Gershunov in 2017. But the intensity of rain is expected to increase, meaning more will fall in less time. This is thanks to atmospheric rivers. As temperatures warm, the atmosphere holds more water. So while California's overall dry season

will lengthen, due to expanding subtropics and warming temperatures, its winter atmospheric rivers will dump more water than before.

In a 2018 study, Swain's team evaluated the number of extreme storms and droughts expected as the climate warms, projecting that wet extremes will go up by 100 to 200 percent by the end of this century. Extreme dry years, similar to the 2013 to 2014 drought year, will become more common by 2050, especially in Southern California. "Precipitation whiplash," or the immediate shift from a drought to flooded winter will go up by about 50 percent. This will eliminate the so-called "shoulder season" that typically acts a buffer between weather extremes. When it does rain, it'll be within a shorter window in the winter. "We're making an already narrow season more concentrated, at the expense of the shoulder season," says Swain.

These changes could have disastrous consequences. In his study, Swain considered the risk of floods like the 1862 Great Flood—which killed thousands of people and formed a 300-mile-long inland sea. There's about a 50-50 chance of another event of the same scale occurring again by 2060, he found. "It would essentially inundate land that is now home to millions of people," says Swain.

Opportunities to adapt

Heavy rains could cause catastrophes if they overwhelm the state's aging dams. A recent Army Corps of Engineers report found that a rare, powerful storm could cause the Whittier Narrows Dam, near Los Angeles, to breach, threatening lives in downstream communities.

Future droughts will also test California's water reserves. And they'll be made worse by the fact that temperatures will be warmer, drying out landscapes. A single wet winter like the one California's having is not enough to restore the state's groundwater aquifers, says Pacific Institute's Cooley. Groundwater is key to weathering droughts, when snowpack and surface water are less and less available. And much of the water raining down on the Golden State right now is funneled straight to the ocean, thanks to paved surfaces and channelized waterways.

The good news is, there's a lot that the state can do—or is already doing—to adapt to a wet and dry warmer future. "I think there are huge opportunities for us to rethink how we manage water and land use," says Cooley.

Officials in California are looking to a number of ways to enhance recharge, including infiltration basins and directly injecting water into the ground. Requiring industrial and commercial developments to design with permeable surfaces and add features like bioswales can help store stormwater, too, says Cooley.

According to a 2014 Pacific Institute report, Southern California and the San Francisco Bay Area could store an extra 420,000 to 630,000 acre-feet of water per year by capturing stormwater, close to the amount of water Los Angeles uses annually.

Swain says the Yolo Bypass, located outside Sacramento, is also a great example of flood control. Officials route excess flows from the Sacramento River to this floodplain, where the water saturates rice farms and creates wetland habitat. It's a win for farmers, wildlife, and flood prevention. It's cheaper and less risky than building more dams, too, says Swain. "It certainly seems like there may be opportunity to harness one extreme to mitigate the risks of the other."

# # #

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California's Weather Cycles

There's a lesson in the Golden State's wet and stormy winter.

Wall Street Journal | March 3, 2019 4:56 p.m. ET

Residents along Armstrong Woods Road head back to their home after the road became impassable to most vehicles, Tuesday, Feb. 26, 2019 in Guerneville, Calif. Photo: Kent Porter/Associated Press

The Golden State can't seem to catch a weather break. Drought and horrific wildfires have again given way to catastrophic storms and flooding. Progressives often exploit natural disasters to campaign against fossil fuels, but Californians would be better off if their politicians spent more money preparing for bad weather than fighting climate change that they can't do anything about.

The last couple of months in California have been among the coldest and wettest on record. For the first time in at least 132 years, the temperature didn't hit 70 degrees in downtown Los Angeles in February. Snow powdered the hills of West Hollywood and Malibu two weeks ago not far from where a wildfire raged last November.

Southern Californians who have to bundle up more may get little sympathy from the rest of the country, but residents in the north have been pounded by storms. An avalanche in the Sierra Nevada mountains last week forced the closure of state highways. The Russian River that winds from Mendocino to Sonoma overflowed last week and inundated more than 2,000 structures. One city surrounded by floodwaters turned into an island.

The snowpack in the Sierras, which account for half of the state's surface water storage, last week measured 153% of normal levels compared to 19% last year. "Right now we're not

concerned about drought at all," said Pete Fickenscher, a senior hydrologist at the National Oceanic and Atmospheric Administration.

That's the problem. California's political class is only worried about drought when the water runs out. Thus, there isn't enough reservoir capacity in the north—which environmentalists oppose in any event—to store storm runoff during wet years like this one. When droughts come along, Sacramento resorts to rationing. The lack of storage and inadequate levees also raise the risk of flooding. If history is a guide, melting snowpack in the spring could inundate waterways and lead to mudslides that might be especially ferocious since last year's wildfires stripped slopes of vegetation.

Weather and climate aren't the same, even if politicians use wildfires and drought to push their green agenda. California's weather patterns have always been mercurial. Renewable energy, electric cars and high-speed rail won't help Californians escape this immutable climate reality.

# # #

How atmospheric river storms tamed California's drought
San Diego Union Tribune | March 1, 2019 | Times staff

California's unusually wet and cold winter has caused epic snow, serious flooding and a renewed interest in umbrellas and portable heaters.

But the atmospheric river storms have also put a huge dent in the state's water woes — at least for now.

It's common in a wet winter, though not a guarantee.

Here's a rundown on how this winter's storms have affected California, from the pages of The Times.

Heavy snow falls on motorists in Northern California's Donner Pass in late February. (Caltrans)

How do things look in the Sierra?

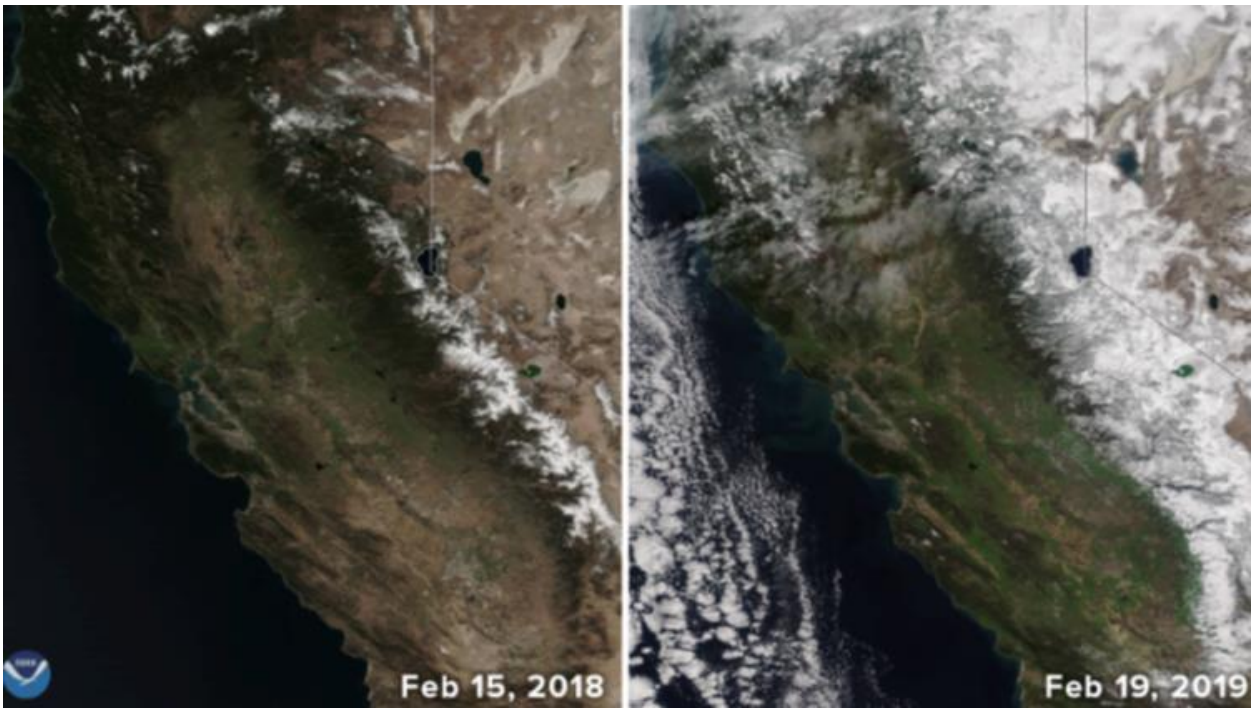
The snowpack has more than doubled in the last month — to 113 inches deep, or 43½ inches of water if it were to melt — says Chris Orrock, state Department of Water Resources spokesman.

A measurement taken Thursday was the fifth-deepest recorded at Phillips station in the Sierra Nevada since the department started surveying the snow there in 1941, Orrock said.

"We're very happy about it," he said. "It was cold. It was snowing the whole time … and sticking."

A cold and wet January contributed to an initial doubling of the snowpack at the Phillips station that month — from 25 inches to 50 inches, or 18 inches of water when it melts.

And the storms haven't let up since then. Another weather pattern is moving into Northern California this weekend.



Satellite images show the Sierra Nevada, with more extensive snow cover and a greener landscape, at right. (NASA)

Where is this wet winter coming from?

The thanks go to a weather system known as an atmospheric river.

Atmospheric rivers are long plumes of water vapor that can transport tropical moisture across the Pacific Ocean and disperse it in California.

Such storms carry so much water, they've been likened to a river in the sky — hence, their name.

A strong atmospheric river can carry 7½ to 15 times the average flow of liquid water at the mouth of the Mississippi River.

How has this affected California's water supply?

Atmospheric rivers can help vanquish droughts.

In 2016, a series of intense atmospheric rivers helped ease California's epic drought by producing record rain and snow in the northern part of the state.

Just a few atmospheric river events can provide West Coast states such as California with one-third to one-half of their annual precipitation.

This year, the rains have significantly improved California's drought outlook.

But it's uneven. The Sierra snow is a major source of California's water. As the snow melts, it's collected in a series of rivers, dams and reservoirs and sent to farms and cities.

But in Southern California, much of that water is wasted.

Climatologist Bill Patzert estimates that more than 80% of the region's rainfall ends up diverted from urban areas in Southern California into the Pacific.

"All those trillions of gallons of rain, which sound so sweet, really end up in the ocean," he said.

"There are some catchment basins, but it's been so dramatically dry for the last two decades that it's not filling them up. Roots and soil are sucking up the water and preventing it from getting to the groundwater basins."

# # #

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Fishing and river groups weigh in on the Voluntary Agreements

Maven | March 7, 2019

Their analysis concludes that the voluntary agreements as proposed could worsen conditions in the Delta

Last week, the Department of Water Resources and the Department of Fish and Wildlife submitted a proposal to the State Water Board as an alternative to the update of the Bay Delta Plan. The submittal for the agreement was signed by 44 individuals, representing mainly water agencies and irrigation districts, but also included American Rivers, Environmental Defense Fund, The Nature Conservancy, Trout Unlimited, and other conservation groups.

This morning, the California Sportfishing Protection Alliance, the Golden Gate Salmon Association, Restore the Delta, the Pacific Coast Federation of Fishermen's Associations and other fishing and river groups have released an analysis that is critical of those Voluntary Agreements as submitted to the State Water Board.

Their analysis of the agreements concludes that the proposed agreement does not sufficiently increase flows, does not include any restrictions on exports by the state and federal water projects, and does not include flow standards based on a percentage of unimpaired flows.

Their analysis also notes that habitat restorations already required or planned are double counted, no carryover storage requirements in upstream reservoirs are included, and that the agreement lacks the teeth to ensure that Bay-Delta standards and funding commitments will be enforced. Lastly, their analysis says the agreements lack investments in water supply reliability

and economic development projects that will help cities and farms adapt to a future with less water diverted from the Bay-Delta.

# # #

Read the 10-page analysis: Smoke and Mirrors: Voluntary Agreements Purport to Add Water and Habitat, But Might Actually Worsen Conditions for the Bay-Delta Estuary,Rivers, and Native Fish and Wildlife ***(Attached)***

For more information on the voluntary agreements submitted, go here: Voluntary Agreements to Improve Habitat and Flow in the Delta and its Watersheds

SMOKE AND MIRRORS

Voluntary Agreements Purport to Add Water and Habitat, But Might Actually Worsen Conditions for the Bay-Delta Estuary, Rivers, and Native Fish and Wildlife

March 6, 2019

SMOKE AND MIRRORS

Voluntary Agreements Purport to Add Water and Habitat, But Might Actually Worsen Conditions for the Bay-Delta Estuary, Rivers, and Native Fish and Wildlife

California's Bay-Delta estuary is in crisis. Climate change and unsustainable water diversions from the watershed are leading toward the extinction of winter-run Chinook salmon, Delta Smelt, orcas, and other endangered species. This crisis threatens thousands of fishing jobs and decreases water supply reliability. The best available science makes clear that significant increases in water flowing into and through the Delta in most years are necessary to restore our native fish and wildlife. The time to act is now.

Saving the Delta will require a Portfolio Approach that pairs state investments in new water supply projects outside of the Delta to improve water supply reliability, floodplain habitat restoration projects, and significant increases in flow through the estuary and into San Francisco Bay. Many environmental and fishing organizations believe that voluntary agreements (VA's) can be effective tools to implement new water quality standards and help restore the Bay-Delta. But any durable solution, regulatory or voluntary, must be supported by scientifically credible analysis that it will prevent extinction and achieve the salmon doubling objective required by state and federal law.

The VA's outlined by the Brown Administration in December 2018, and the additional partial project descriptions presented to state regulators on March 1, 2019, purport to be a package of flows, habitat and other measures that will protect the estuary without the need for new regulations. Unfortunately, these VA's will not protect and restore the Delta. Our organizations strongly oppose these VA outlines because they:

1. Double-count habitat restoration projects that are already required or planned using existing funds, and that would occur without such an agreement;
2. Fail to provide sufficient flow increases to protect and restore the Bay-Delta estuary, its native fish and wildlife, and the thousands of jobs that depend on it;
3. Fail to include any restrictions on Delta pumping and other operations of the Central Valley Project (CVP) and State Water Project (SWP); such restrictions are necessary to prevent the water projects from diverting any additional flow provided from upstream farms and cities and to prevent the Trump Administration from gutting Endangered Species Act (ESA) protections for the Bay-Delta;
4. Fail to include carryover storage requirements in upstream reservoirs to ensure water supplies for future droughts and adequate water temperatures for salmon;
5. Fail to use the transparent approach of flow standards based on a percentage of unimpaired flows, and instead uses the failed approach of State Water Board Decision 1641;
6. Fail to ensure that Bay-Delta standards will be enforced and will respond to new scientific information; and
7. Fail to include investments in water supply reliability and economic development projects that will help cities and farms adapt to a future with less water diverted from the Bay-Delta.

BACKGROUND: California's Bay-Delta watershed is formed by the Sacramento River, the San Joaquin River, and the Bay-Delta estuary where these rivers meet and flow into San Francisco Bay. This is the largest estuary on the West Coast and the most important salmon-producing system south of the Columbia River. The State Water Resources Control Board last updated water quality and flow standards for the Bay-Delta estuary in 1995. Since then, unsustainable water diversions have helped drive winter-run Chinook salmon, Delta Smelt, and other native fish populations to the brink of extinction.

The federal government adopted new Endangered Species Act protections that limited operations of the Central Valley project and State Water Project in 2008 and 2009, because the State's inadequate existing standards would lead to extinction. But it's not just fish at stake: in 2008 and 2009 the state's salmon fishery was completely closed, costing thousands of fishermen their jobs and livelihoods.

In 2009 the State Water Resources Control Board began its review and update of these standards. In the summer of 2018 the State Water Board released a Framework for new Bay-Delta water quality standards that would cover the Sacramento River, its tributaries, and the Bay-Delta estuary. This Framework included: minimum Delta outflow requirements equivalent to 55% of unimpaired flow; new reservoir storage requirements to ensure that dams carryover water to protect people and fish in case of droughts; and existing Endangered Species Act protections that limit pumping in the Delta at certain times of year.

In December 2018 the Brown Administration announced that it had agreed to the outline of a series of voluntary agreements with the Trump Administration and water districts, part of a series of agreements between Brown and Trump relating to the Delta Tunnels (California WaterFix) and the Bay-Delta. That month, after numerous delays, public hearings, and several rounds of environmental review and public comment, the Board voted to adopt new water quality standards that generally require that 40% of unimpaired flow remains in the Tuolumne, Merced, and Stanislaus Rivers during the February to June period. But the Board also announced that it would review proposed voluntary agreements as part of its environmental review for updating standards for the Sacramento River, its tributaries, and standards in the Bay-Delta estuary. On March 1 the VA parties submitted a draft Project Description and Planning Agreement to the Board that still omit critical details and leave key questions unanswered.

1. The VA's double-count habitat restoration projects that are already required or planned using existing funds and that would be implemented without this agreement.

Habitat restoration, particularly the restoration of floodplain habitats, can be an important tool that complements increased Bay-Delta flows. Scientific studies suggest that periodic inundation of floodplains is an important component of a healthy ecosystem, for salmon and other species. However, levee construction in the Central Valley has separated

historic floodplains from their rivers, and unsustainable water diversions reduce the flows needed to inundate existing floodplains at the right time, duration, and frequency.

The voluntary agreement outline identifies a list of proposed habitat restoration measures in the Bay-Delta, and on tributary rivers. However, a large number of the projects identified in the outline are already required by existing permits and agreements, already planned with existing funds, or have already been constructed. For instance, the Hamilton City Levee Setback & Floodplain/ Riparian Enhancement project was completed several years ago, and the CVP and SWP are required to implement the Fremont Weir fish passage project pursuant to the 2009 NMFS biological opinion. Similarly, the VA outline includes habitat restoration projects on the Feather River that DWR has already committed to in a proposed agreement for the renewal of its FERC license for Oroville Dam, a process that did not address the needs of the Bay-Delta estuary.

These proposed habitat restoration projects would be implemented in the absence of this agreement. They would be implemented even if the Board adopts new standards rather than VAs; therefore, they should be included in the State Water Board's baseline for analysis. A working draft listing the habitat restoration measures and whether they are already required or planned using existing public funds is available online at: https://www.nrdc.org/sites/default/files/media-uploads/vsa_habitat_restoration_project_list_2-19-19.pdf

The outline inappropriately double-counts these as new habitat projects. In addition, the Program Description proposes to dedicate $832 million in public funding to VA implementation. The vast majority of these public funds would be expended for habitat restoration without the agreement. Therefore, these funds should be considered part of the baseline, not a contribution of the VA.

This double counting, and the lack of clarity in some areas regarding whether habitat restoration proposals are existing or proposed new projects, prevent an accurate evaluation of the habitat benefits of the VA framework.

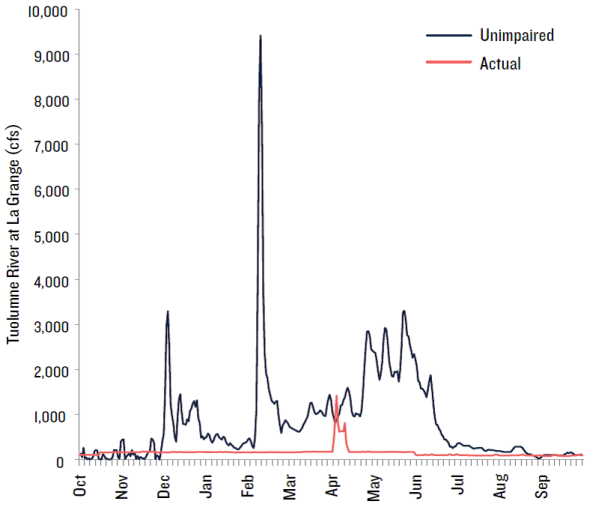
2. The VA's fail to provide sufficient increases in flows to protect and restore the health of the Bay-Delta estuary, its native fish and wildlife, and the thousands of jobs that depend on its health.

BACKGROUND:

Numerous scientific studies and agency reviews have found that increased flow into and through the Delta is needed to protect and restore the health of the Bay-Delta ecosystem, salmon and other native fish species, and the fishing jobs that depend on healthy salmon runs. Increasing the amount of flow through the Delta into San Francisco Bay (known as Delta outflow) at certain times of year is a key driver of the survival and abundance of many endangered species, including Longfin Smelt and Delta Smelt.

Similarly, the timing and amount of flow in rivers and into the Delta is an important driver of salmon survival, including inundating floodplains, increasing turbidity, and reducing water temperatures. Numerous studies have concluded that higher flows result in higher survival of migrating juvenile salmon, including recent studies in the Sacramento River and Stanislaus River.

FIGURE I. COMPARISON OF UNIMPAIRED AND ACTUAL FLOWS IN WATER YEAR 2015 ON THE TUOLUMNE RIVER

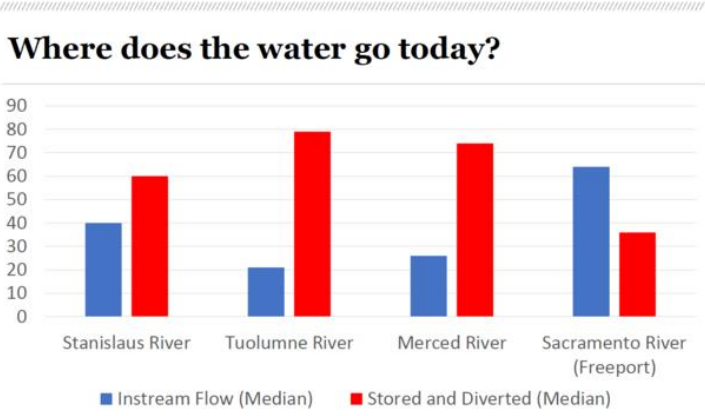


Graph courtesy of The Bay Institute (2015).

Today, dams and water diversions greatly reduce the amount of water flowing in our rivers and through the Delta. One way to measure these effects is by comparing current flows to unimpaired flow -- the amount of water that would flow in a river without dams or water diversions. On some rivers, like the Tuolumne, nearly 80% of this unimpaired flow is diverted in an average year, and more than 90% is diverted in very dry years.

In 2010, the State Water Board concluded a nine-month hearing to evaluate the best scientific information on the flows needed to protect the Delta.

The Board's final report recommended that Delta outflow in the February to June period be a minimum of 75% of unimpaired flows, that Delta inflows from the Sacramento River be 75% of unimpaired flows, and inflows from the San Joaquin River be 60% of unimpaired flows. Although this report only considered Delta environmental needs and did not attempt to balance these needs with other beneficial uses of water, it represented the Board's best estimate based on the testimony of state and federal agencies and all stakeholders in a public and transparent process.



Data Source: State Water Board, San Joaquin flow SED

More recent analyses also concluded that significant increases in flow were needed. In 2013, the California Department of Fish and Wildlife recommended that the Board adopt a minimum standard for the Stanislaus, Tuolumne, and Merced River equal to 50% of unimpaired flow from February to June, and in December of 2018 the Board adopted a 40% of unimpaired flow standard for these three rivers.

For the Sacramento River and Delta outflow, the Board's July 2018 Framework recommended 55% of unimpaired flow as the standard for February to June, with additional outflow requirements in other months. The Board estimated that the increased outflow proposed in the Framework would be approximately 1.5 million acre feet per year.

Proponents of the VA's claim that the VA's could increase Delta outflows by as much as 740,000-1,040,000 acre-feet per year in certain water-year types. These claims, however, are inaccurate, as demonstrated by modeling completed by the Bureau of Reclamation in the table below. That modeling indicates that the combination of the VA's and proposed Trump Administration rollbacks of Endangered Species Act protections would result in reductions of more than three quarters of a million acre-feet of flows through the Delta compared to today, in the key fall/spring months. (The red numbers in the table below show the key months when Bay-Delta environmental flows would be lower than they are today).

Critically, the VA outline states that "new" environmental flows would be in addition to the State Board's D-1641 requirements. But the reality is that current actual Delta inflows and outflow are significantly higher than the minimum requirements of D-1641, because of Endangered Species Act protections imposed in 2008 and 2009 and other factors. By failing to establish a clear baseline for comparison that includes all current conditions, the VA outline appears to set the stage for ESA rollbacks, a large increase in Delta diversions, and further environmental harm.

Proposed Action 122318 minus Current Operations 122118

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-2,456	526	16,329	904	-1,159	5,124	-5,630	-5,852	8	-1,825	408	-14,554
20%	-4,832	-4,646	6,406	1,913	236	1,322	-4,411	-2,950	2,991	-2,006	211	-15,066
30%	-4,819	-7,355	4,399	-1,021	-611	-2,336	-3,743	-2,872	3,087	-1,392	22	-11,182
40%	-2,605	-6,053	1,401	-282	3,069	-2,438	-3,718	-2,155	3,663	0	0	-6,903
50%	-1,285	-4,594	1,201	986	1,495	-925	-2,886	-1,543	3,556	-1,286	0	-34
60%	0	-1,426	3,036	245	-120	966	-1,180	-462	2,473	0	0	427
70%	0	200	1,655	315	190	-890	-1,447	-84	2,048	1	-179	196
80%	0	6	1,136	205	-217	606	-398	810	2,034	0	-141	10
90%	0	84	537	-116	709	-1,017	258	75	1,763	0	1	0
Long Term												
Full Simulation Period[a]	-1,503	-2,411	2,975	55	191	-41	-2,175	-1,676	2,090	-705	39	-5,245
Water Year Types[b,c]												
Wet (32%)	-3,527	-5,776	7,656	699	525	626	-4,178	-4,187	1,229	-751	28	-13,273
Above Normal (16%)	-2,136	-2,993	3,358	-845	1,881	870	-3,030	-1,532	3,734	-1,796	96	-7,042
Below Normal (13%)	-160	-548	160	90	1,328	846	-1,352	-282	3,498	-1,478	396	185
Dry (24%)	-103	-97	-24	188	-825	-1,463	-503	-108	2,495	23	-148	210
Critical (15%)	0	-55	0	-624	-1,716	-916	-452	-279	206	67	-14	26

a Based on the 82-year simulation period.
b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).
c These results are displayed with calendar year - year type sorting.
d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.
e These are draft results meant for qualitative analysis and are subject to revision.

Source: Administrative Draft Biological Assessment for Long-Term Operations of the CVP and SWP, modeling appendix, Jan. 2019. The public draft (Feb 4, 2019) does not analyze the VA's.

The proposed tributary flows under the VA outline are also inadequate. For example, VA flows for the Tuolumne River are far less than flows recommended by state and federal agency biologists. The Tuolumne VA appears to result in flows that are approximately 20% of the unimpaired flow. This is half of what the State Water Board's new standards would require and far less than the 2013 recommendations of the California Department of Fish and Wildlife. In addition, loopholes in the Tuolumne agreement would further reduce flow requirements in a third of all years.

Systemwide, the VA outline appears to contend that ecosystem restoration will be made possible through a dramatic increase in diversions from the estuary. Simply put, there is no credible scientific foundation for this assumption.

The Project Description submitted to the Board on March 1 contains confusing and ambiguous language regarding the baseline from which "additional" water under the VAs would be measured. That document states that "the appropriate baseline is current existing conditions, which includes outflow resulting from all existing regulatory actions" (p. 4). This language does not include a specific date. It is unclear if the baseline is intended to be the date the Project Description was submitted to the Board, the date the Board staff analyzes it, or the date of prospective Board approval. Given the Trump Administration's ongoing effort to roll back ESA protections for the Bay-Delta, this lack of clarity is critically significant. The appropriate baseline for the State Water Board's analysis of the Project Description is current conditions as of March 1, 2019.

3. <u>The VA's fail to include any restrictions on Delta pumping and other operations of the CVP and SWP.</u>

Water proposed to be provided in the VA's by water users upstream of the Delta is intended to allow greater Delta outflow to the Bay. EBMUD, for instance, has adopted a policy stating in part: "(t)he additional flows provided under Exhibit I are intended to provide additional Delta outflow; such flows are not to be available for diversion by another party or result in a reduced Delta outflow obligation of another party." However, the VA outline provides no mechanism whatever to assure that increases in upstream flow pass all the way through the Delta to the Bay. Without such a mechanism, statements of intent to increase outflow have no practical meaning. And Trump Administration rollbacks of existing Endangered Species Act protections for the Bay-Delta would allow the CVP and SWP even greater opportunities to divert Delta inflows to San Joaquin Valley agriculture and Southern California.

4. <u>The VA's fail to include carryover storage requirements in upstream reservoirs to ensure water supplies for future droughts and adequate water temperatures for salmon.</u>

Carryover storage is the amount of water that is left in a reservoir at the end of the water year, which helps ensure that there is sufficient water in case the following year is dry.

Thus, carryover storage requirements help to protect future water supplies at the start of droughts. They are also critically important to protect native salmon and other fish runs. Historically, salmon would swim upstream to spawn in naturally cold river waters, but dams now block access to historic foothill and mountain spawning habitat. As a result, dams must maintain sufficient cold water in carryover storage to sustain spawning downstream of the dams.

As climate change increases air and water temperatures and the frequency of droughts, reservoir carryover storage requirements and water temperature standards will become increasingly important to protect people and the environment. For example, during the 2013-2015 drought, the Bureau of Reclamation's mismanagement of Shasta Dam resulted in lethal water temperatures below the dam, killing 78% of the endangered winter-run Chinook salmon in 2014 and 85% in 2015.

The State Water Board has proposed to adopt new reservoir carryover storage requirements and strengthen existing requirements, so that California is better prepared for drought and salmon are better protected. However, the VA's fail to include meaningful carryover storage requirements for existing reservoirs, threatening water supply for people and water temperatures for the environment.

5. The VA's fail to use the transparent approach of a percentage of unimpaired flows, instead continuing to use the failed approach of State Water Board Decision 1641.

The VA's use the outdated approach to environmental flows included in the Board's Decision 1641, which has utterly failed to protect the Bay-Delta ecosystem. D-1641 requirements are based primarily on minimum flows and salinity, and encourage CVP and SWP managers to operate to the minimum, making the minimum flow the target flow. However, on all rivers, there are times when flows exceed regulatory minimums. These unregulated flows are a key part of the existing flow regime in the Bay-Delta system and provide essential environmental benefits. Many key ecosystem functions – such as juvenile outmigration, riparian recruitment, spawning gravel mobilization and more – are usually provided by storms, "flood releases" and "spills," rather than by regulatory requirements. The State Water Board's unimpaired flows approach is intended to systemically organize and maintain the high flows and variability that meet ecosystem needs.

The percent-of-unimpaired flow principle establishes a simple water budget that is scientifically sound and easy to understand. It is much less subject to gaming and manipulation by water operators and planners than are complicated formulae that rely on a wide range of constraints. With the percent-of unimpaired principle, you don't have to be an expert to know what the budget is or to evaluate compliance.

The flow objectives for the lower San Joaquin River that the Board adopted on December 12, 2018 require release of an adaptive range of 30%-50% of the February-June

unimpaired flows, with an initial starting point of 40%. The Board invited recommendations to modify this requirement during droughts and dry-year sequences. Rules for these periods could substantially reduce the effects of new States Board flow requirements on water supply.

6. The VA's fail to ensure that Bay-Delta standards will be enforced and will respond to new scientific information.

The State Water Board is responsible for the administration and enforcement of laws and regulations relating to water rights and water quality. The VA's framework would create several problems by creating parallel authorities that would weaken those of the State Water Board.

First, the VA's would preclude the State Water Board from enforcing funding commitments that VA advocates propose to substitute for flow requirements. Without a clear State Board enforcement mechanism to ensure that funding commitments are met, any such commitments in a VA could fail to deliver promised environmental benefits.

Second, the VA's would create a poorly-defined adaptive management framework outside that of the State Water Board. If water users and the water projects have a significant role in this new adaptive management framework, this approach could undermine any certainty that shortcomings in VA implementation and new scientific information would be addressed.

Third, the VA's would seek to prohibit the State Water Board from updating Bay-Delta standards as new scientific information becomes available. By locking in inadequate standards for 15 years, the VA outline proposes to override the Board's legally required triennial reviews – and if necessary revisions – of Bay-Delta standards.

Fourth, the VA Project Description submitted on March 1 is unclear about what flow standards would be in effect after the 15-year term of the agreement. Absent such clarity, the existing and inadequate D-1641 State Water Board standards could go back into effect upon the agreement's expiration, thus discarding the scientific work completed by the Board over the past decade. The problem this would create is highlighted by the experience after the expiration of the Vernalis Adaptive Management Program in 2010. The VAMP program was intended to provide additional flow protections for the San Joaquin River. However, the agreement made no provision for new State Water Board flow standards following its expiration. As a result, nearly a decade after the VAMP agreement expired, the State Water Board has still not implemented new science-based flow standards on the San Joaquin. Reverting back to existing failed standards is unacceptable.

Fifth, it is unclear that the terms of the VA's would become standards that the State Water Board could enforce at all, against both signatories as well as non-signatories to the VA's.

7. <u>The VA's fail to use a Portfolio Approach that includes meaningful State investments in water supply reliability and economic development to help cities and farms adapt to a future with less water diverted from the Bay-Delta.</u>

In his 2019 State of the State address, Governor Newsom called for a "portfolio" approach to water issues. The VA negotiations failed to adopt such an approach.

Instead, the December 2018 VA outline represents an effort by water users to forestall new, science-based State Water Board flow standards that would reduce their current water supplies. This approach treats the available water in the Bay-Delta as a zero-sum game. This does not need to be the case. Indeed, many communities have clearly indicated their strong desire to reduce reliance on the Bay-Delta, a direction that is entirely compatible with stronger flow standards for the estuary. San Diego and the Santa Clara Valley Water District are planning ambitious water recycling programs. Just recently, the mayor of Los Angeles declared that the City will recycle 100% of its wastewater by 2035. Santa Monica has indicated its intent to eliminate entirely its use of Bay-Delta water. These communities and others are also making large investments in efficiency and stormwater capture. All of these efforts advance the state's requirement to reduce reliance on the Delta, pursuant to the Delta Reform Act.

In the agricultural sector, strides are being made to increase water use efficiency. Water agencies are exploring options to increase groundwater recharge using peak river flows that are truly surplus to ecosystem needs. Land owners in the Westlands Water District have formed the Westlands Solar Park, to explore the potential for large scale solar power generation, thus transitioning to a new business model that is dramatically less water intensive than agricultural uses.

Yet the VA's ignore the potential of these tools to provide stable water supplies while facilitating ecosystem restoration and protection.

The VA's assume state support for habitat restoration efforts, but make no provision for alternative water supply development. State leadership, support, and the necessary large-scale funding for alternative water supply investments, such as those described here, could help develop outcomes that are both acceptable to water users and that provide legally and scientifically credible protections for the Bay-Delta and its tributaries, and their fish and wildlife.

Water agency finalizes proposal for state's Bay-Delta Plan
Appeal-Democrat | March 3, 2019

To protect the Bay-Delta watershed, the state of California has indicated it wants more water from the watersheds that feed it.

The plan requires more unimpaired flows, but the state water board is open to alternative plans – or "voluntary settlement agreements" – if it's proven all stakeholders benefit, including the environmental side.

The Yuba Water Agency recently came up with a framework it believes meets that requirement and is an alternative to the state's "one-size-fits-all" requirement. The agency planned to present it to the State Water Resources Control Board on Friday.

"Our alternative provides a more comprehensive environmental benefit than just higher water releases proposed by the state water board's staff," said Curt Aikens, general manager of the Yuba Water Agency, in a press release. "Our proposal is more holistic, ensuring increased flows, but also habitat restoration, funding for a river science program, and collaboration among local, state and federal agencies, as well as conservation groups."

The state water board's call for more water is part of a process to update its water quality control plan for the Bay-Delta. The purpose of the plan is to establish water quality control measures that provide reasonable protection of beneficial uses in the greater Bay-Delta watershed, which includes all of the Sacramento Valley and portions of the San Joaquin Valley, according to a press release.

The agency's proposal would see it contributing 9,000 acre-feet a year for Delta outflow. The agency would also sell supplemental contributions at $290 per acre-foot, with the compensation reflecting that the amount would exceed the agency's proportionate share of the contribution for Delta inflow.

The agreement would be over 15 years, and the agency estimates its contributions would be provided in about half of those years.

As part of the agreement, the agency would also agree to develop and improve 100 acres of in-channel and floodplain habitat, and commit $10 million for habitat enhancement measures, as well as $7.8 million to fund a river science program to complement ongoing science studies.

If the state water board signs off on the agreement, the agency said it plans to use the estimated $80 million in compensation from the supplemental water contributions to pay for the agency's share of habitat improvements and other requirements of the plan. Some of the funding would also be used to help pay for the new, $160 million secondary spillway at New Bullards Bar Dam.

"Yuba Water Agency's voluntary settlement agreement is a collaborative, interest-based, science-driven initiative that can achieve and implement the state board's coequal goals of water supply reliability and ecosystem restoration," said Brent Hastey, board chairman for the agency, in a press release.

"Our success in executing projects like this has been proven over the last 10 years since we developed the Yuba Accord, which brought 18 different interests together and achieved results that benefited the environment, our local farmers and the people of Yuba County."

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Voluntary agreements shared with State Water Board. Will they replace disputed flow plan?

Modesto Bee | March 1, 2019 | Ken Carlson

The Tuolumne River runs through Waterford, Calif., on August 24, 2018. Andy Alfaro aalfaro@modbee.com

The top state agencies that manage water and wildlife resources in California submitted a package of voluntary agreements with water districts to the State Water Resources Control Board on Friday, as an alternative to controversial flow requirements approved in December for the Tuolumne, Stanislaus and Merced rivers.

The agreements, hammered out in the waning hours of Gov. Jerry Brown's administration and favored by Gov. Gavin Newsom, combine increased river flows with a larger set of tools for restoring salmon in rivers that feed into the San Joaquin-Sacramento Delta.

The departments of Water Resources and Fish and Wildlife, which are negotiating the voluntary accords, followed through with their promise in December to provide details of proposed agreements to the state water board in March.

The Modesto and Turlock irrigation districts, and other local water districts, have strongly opposed the water board plan approved Dec. 12, which requires 40 percent unimpaired flow in the rivers, charging it would severely damage the farm-based economy in the Northern San Joaquin Valley.

The MID and TID issued statements Friday in support of the tentative agreements. "Gov. Newsom's commitment to the voluntary agreement concept has been evident since the day of he took office," TID General Manager Casey Hashimoto said. "He's dedicated significant amounts of his administration's time and resources to work collaboratively with water users and environmental communities to advance the voluntary agreement framework."

Representatives of more than 40 groups, including water users, conservation groups and state and federal agencies, signed onto the package of agreements and committed to a further analysis of the measures to achieve environmental goals in the delta.

The parties are not entirely in agreement with the proposals released Friday but are committed to trying “to reach voluntary agreements that advance California on the path toward sustainable water management,” says the cover letter, signed by officials from city and county water agencies, water contractors and irrigation districts including Westlands in Fresno County.

Oakdale, South San Joaquin and Merced irrigation districts did not reach agreement on tentative deals with the state before the Dec. 12 water board decision. The Environmental Defense Fund and The Nature Conservancy were among conservation groups that signed the cover letter.

In a formal statement Friday, the State Water Resources Control Board agreed with the concept of the agreements. “The board recognizes voluntary agreements have great potential to improve ecological outcomes by combining flow and habitat restoration activities, and could result in more timely and durable ecosystem improvements than flow alone might achieve.”

The board, which oversees water quality and water rights in California, said its staff, with support from the parties, will review the agreements and continue to work on the second phase of its Bay-Delta update focused on the Sacramento River and tributaries.

Board staff also will work with the water districts in finishing up the agreements, and “looks forward to a meaningful public discussion on the challenging, but critical and necessary, update of the Bay-Delta plan,” the statement said.

Last month, Gov. Newsom appointed Joaquin Esquivel as water board chairman, replacing Felicia Marcus, to bring more balance to state water policy.

The first phase of the Bay-Delta water quality plan approved in December relied heavily on February-through-June flow measures in an attempt to double the salmon population in the lower San Joaquin tributaries. Local irrigation districts said it would require giving up massive amounts of water in wet years. In addition, restrictions in the plan could drain reservoirs like Don Pedro in consecutive dry years, cutting off water to farmers.

The districts, which have filed lawsuits challenging the decision, also charged that flows from the Tuolumne, Stanislaus and Merced rivers were imposed separate from any requirements for water users in the Sacramento River system.

With the voluntary agreements, MID and TID would release an additional 100,000 acre-feet of water per year in the Tuolumne for environmental purposes. Additional water from the upper San Joaquin, Sacramento, Feather, Yuba, American and Mokelumne rivers would flush the delta with 700,000 acre-feet of water.

The additional water from the Sacramento system would come from land fallowing, reservoir storage and groundwater substitution.

The nonflow measures in the agreements include habitat restoration, almost 300,000 cubic yards of gravel to encourage spawning, 5,500 acres of tidal wetland in the delta, as well as floodplain and fish passage projects.

“The key is the broader set of tools,” said Lisa Lien-Mager, spokeswoman for the California Natural Resources Agency. “The water board really has authority to regulate the flows and not necessarily require these other things ... The thinking is the water board staff can start to do some analysis on the (proposed) agreements, together with the parties that have been working on this.”

Work on the agreements is expected to continue through the year. The state water board could consider adopting the overall plan near the end of the year.

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Voluntary Agreements Progressing to Improve Habitat and Flow in the Delta and Key Watersheds

Maven | March 1, 2019

In an effort to improve habitat and flows in the Delta and key tributaries, the California Department of Water Resources and the Department of Fish and Wildlife today submitted documents to the State Water Resources Control Board outlining potential voluntary agreements to support environmental objectives through a broad set of tools, while protecting water supply reliability.

The documents, available on the Natural Resources Agency website, reflect progress since December to flesh-out the previously submitted framework to improve conditions for fish through targeted river flows and a suite of habitat-enhancing projects including floodplain inundation and physical improvement of spawning and rearing areas. Further work and analysis is needed to determine whether the agreements can meet environmental objectives required by law and identified in the State Water Board's update to the Bay-Delta Water Quality Control Plan.

"Today's submittal is an important step forward towards protecting the environment and providing greater long-term certainty to water users, "Governor Gavin Newsom said. "I appreciate that so many diverse parties, north and south, from the environmental community and water users alike, continue to work collaboratively towards voluntary agreements. Much hard work remains, but I am encouraged by the continued progress."

The State Water Board is in the process of updating its Bay-Delta Plan, which establishes water quality measures that provide reasonable protection of beneficial uses in the greater Bay-Delta watershed. At its December 12 meeting, the board adopted an updated plan for the Lower San Joaquin River and three tributaries. It also directed its technical staff to work with the Natural Resources Agency to consider voluntary agreements across Delta watersheds as an alternative for consideration by State Water Board members.

A cover letter signed by 44 individuals representing water users, conservation groups, and state and federal agencies accompanied today's submittal. The letter expressed commitment to further analysis and work to reach voluntary agreements that can serve as an alternative path to implementing the Bay-Delta Plan's objectives. While agreement does not exist among all of the parties for the project described in today's proposal, the letter outlined a common commitment

“to try to reach a Voluntary Agreement that advances California on the path toward sustainable water management.”

“Voluntary agreements hold the promise of meeting environmental objectives in ways that also protect water supply reliability for cities, farms and businesses,” California Secretary for Natural Resources Wade Crowfoot said. “I’m encouraged with this progress, but more work is needed. We will work with the State Water Board staff to assess this proposal and develop agreements that can meet multiple objectives.”

The package submitted today is the product of renewed discussions over the past six weeks since Governor Gavin Newsom took office. It includes a project description identifying resources and actions that could be deployed to support environmental and biological objectives and a planning agreement that outlines an implementation approach and terms for the additional work ahead.

“While there is much more work to be done, the package submitted today represents a great deal of collaboration toward managing habitat, flow and other factors needed to protect and enhance native fish and wildlife species,” Department of Fish and Wildlife Director Charlton H. Bonham said.

The voluntary agreements would integrate habitat improvements with functional, managed flows across seven watersheds to achieve the Bay-Delta Plan’s objectives. The proposal outlines a 15-year program that involves habitat improvements, including creation of spawning and rearing habitat for salmon and smelt, completion of high-priority fish screen projects, restoration and reactivation of flood plains, projects to address predation, and fish passage improvements. Other measures include pulse flows, reservoir reoperation, land fallowing, groundwater banking and reduced diversions.

These assets would be accompanied by blocks of additional new water for managed flows, local water agency funding for water acquisition, and more than $260 million to fund additional science and restoration activities. The proposal also includes a comprehensive science program as well as a structured decision-making process to guide implementation to achieve outcomes.

“Science tells us a broad set of tools is required to manage habitat and flow while protecting water supply reliability,” Department of Water Resources Director Karla Nemeth said. “Large-scale environmental restoration across watersheds is challenging, but we’re making progress because of collaboration. That’s good for water users north and south, and natural river systems from the Sierra to the sea.”

Participants in the voluntary agreements discussions will continue to develop terms for agreements and inform the analysis of the proposal for legal and scientific adequacy.

Voluntary agreements discussions involve the Natural Resources Agency, Department of Water Resources, Department of Fish and Wildlife, technical staff from the State Water Board, the U.S. Bureau of Reclamation, water managers from the Sacramento, Yuba, Feather, Mokelumne, American, and Tuolumne river watersheds, south-of-Delta exporters, members of the Friant Water Authority, Delta water agencies and environmental conservation groups. This diverse group has committed to continue working together in an effort to resolve one of California’s most vexing environmental issues.

# # #

Relicensing, litigation and potential agreements moving forward for TID
Turlock Journal | March 1, 2019 | Angelina Martin

Lawsuits, relicensing and settlements surrounding the local water supply are moving along at a swift pace, and on Tuesday, the Turlock Irrigation District invited the community to its Board of Directors meeting for an update on the topics.

TID Director of Water Resources and Regulatory Affairs Steve Boyd provided farmers and other water stakeholders in attendance with a report that brought them up to speed on the final license application for Don Pedro, which first began eight years ago, and the ongoing legal battle surrounding the State Water Resources Control Board's decision to implement 40 percent unimpaired flows along the San Joaquin River and its tributaries for the betterment of fish. He also explained how the two processes are intertwined and now beginning to come together.

"Arguably, this is the most important thing to all of us for the next 30, 50 years, and the fact that we were able to hold this tonight and so many of you are here shows your interest, and I appreciate that," Boyd said.

In December, the state water board approved its Substitute Environmental Document for Phase 1 of its Bay-Delta Water Quality Control Plan, the result of a nine-year process which was met with vehement opposition from a broad coalition of Valley farmers, governments and organizations, TID included, due to its predicted impact on the community.

Almost simultaneously, TID has been working since 2010 with state agencies to develop new license conditions for Don Pedro, as the agency's previous license expired in 2016. TID, along with Modesto Irrigation District, conducted studies along the Tuolumne River in order to create and establish the conditions for their final license application, which was filed with the Federal Energy Regulatory Commission in October 2017.

Included in the final application is the Tuolumne River Management Plan, which utilizes flow measures in combination with non-flow measures like predation control and gravel rehabilitation to provide a better environment for salmon.

Recently, Boyd disclosed, a federal environmental analysis from FERC accepted the Tuolumne River Management Plan and recommended Don Pedro for relicensing, and the same plan was included in a voluntary agreement negotiated with state agencies last fall that looks to avoid the state water board's unimpaired flows decision.

FERC's environmental review is not final say, however; the state water board has to approve the voluntary agreement before the management plan is included in the relicensing of Don Pedro.

On Friday, TID submitted the voluntary agreement to the state water board for approval. Despite this window since the board's Dec. 12 decision, TID, along with other water agencies, have still decided to take legal action against the state water board in the meantime, Boyd explained.

"They gave us a window, but we also know we've got to protect our water rights and our ability to serve you," he said.

The lawsuit, filed in Tuolumne County Superior Court, contends the State Water Board adopted a wholly different plan than it analyzed, violated state and federal due process laws and unlawfully segmented the environmental review of the plan, among other claims. The lawsuit,

along with others, marks the beginning of a prolonged court proceeding surrounding the adequacy and legality of Phase 1.

TID hopes a voluntary agreement will be approved by the board, avoiding litigation, but an audience member at Tuesday's meeting wondered if the agency truly believed the board would listen to the scientific methods TID has used to back up its river management plan.

Boyd was optimistic, applauding newly-appointed water board Chair Joaquin Esquivel, who he said has visited the Tuolumne in an effort to see what other measures can be taken to help fish other than increased unimpaired flows. Esquivel was also the board member who called for the window of time for a voluntary agreement to be submitted for approval, Boyd added.

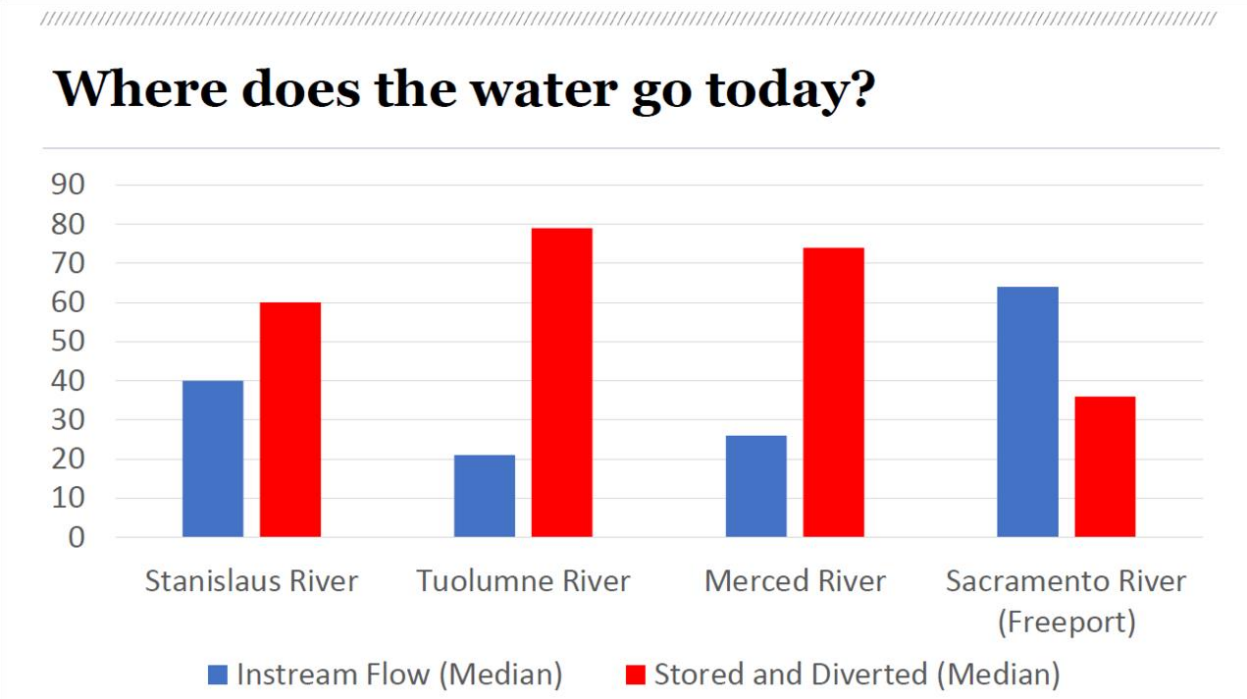
"Can I predict what's going to happen? No," Boyd said. "It has been a frustrating process...but I'm cautiously optimistic. I think there has been a bit of a change in their attitude toward what we're trying to do."

# # #

Dec. 2018 Bay-Delta Agreements Were Only Smoke and Mirrors?
NRDC | February 19, 2019 | Doug Obegi

It's becoming clear that the voluntary settlement agreements presented to the State Water Board last December as part of the so-called "grand bargain" were nothing more than smoke and mirrors. Those agreements purported to increase flows in our rivers and through the Delta and to propose significant new investments in habitat restoration. However, recently released modeling data indicates that the voluntary settlement agreements announced last year would result in less water flowing through the Delta than today, and publicly available information shows that the agreements were largely double-counting habitat restoration projects that are either already required or planned using public funds.

There's no question that we need to increase protections for California's rivers and Bay-Delta estuary if we're going to prevent the extinction of our native fish and wildlife, sustain thousands of salmon fishing jobs in California, and restore the health of the largest estuary on the west coast of the Americas. For example, on average nearly 80% of the water that would flow in the Tuolumne River is diverted, with as much as 90% diverted in drier years, devastating the river's historic salmon runs.



As a result, in December the State Water Board adopted new standards that would largely maintain existing flows in the Stanislaus River and would nearly double flows in the Tuolumne and Merced Rivers, even though those standards are significantly less water than scientists with state and federal agencies have concluded is needed. In addition, last July the State Water Board released a Framework of its proposal to increase Delta outflow by 1.3 million acre feet per year on average, which also would require better management of upstream reservoirs to prepare for droughts and the adoption of pumping restrictions in the Delta similar to those in effect today.

In the waning days of the Brown Administration, some officials touted the voluntary settlement agreements as an alternative to the State Water Board adopting its long-studied and long-anticipated flow standards. Yet as the Trump Administration moves to eviscerate environmental protections in the Bay-Delta, modeling by the U.S. Bureau of Reclamation demonstrates that the combination of the voluntary flow settlements and these rollbacks of protections for endangered species would actually increase water diversions from the Delta and reduce the amount of water flowing through the Delta—the opposite of what the scientific evidence shows and of what the State Water Board has concluded is needed.

Proposed Action 122318 minus Current Operations 122118

	Monthly Outflow (CFS)											
Statistic	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Probability of Exceedance												
10%	-2,456	526	16,329	904	-1,159	5,124	-5,630	-5,852	8	-1,825	408	-14,554
20%	-4,832	-4,646	6,406	1,913	236	1,322	-4,411	-2,950	2,991	-2,006	211	-15,066
30%	-4,819	-7,355	4,399	-1,021	-611	-2,336	-3,743	-2,872	3,087	-1,392	22	-11,182
40%	-2,605	-6,053	1,401	-282	3,069	-2,438	-3,718	-2,155	3,663	0	0	-6,903
50%	-1,285	-4,594	1,201	986	1,495	-925	-2,886	-1,543	3,556	-1,286	0	-34
60%	0	-1,426	3,036	245	-120	966	-1,180	-462	2,473	0	0	427
70%	0	200	1,655	315	190	-890	-1,447	-84	2,048	1	-179	196
80%	0	6	1,136	205	-217	606	-398	810	2,034	0	-141	10
90%	0	84	537	-116	709	-1,017	258	75	1,763	0	1	0
Long Term												
Full Simulation Period[a]	-1,503	-2,411	2,975	55	191	-41	-2,175	-1,676	2,090	-705	39	-5,245
Water Year Types[b,c]												
Wet (32%)	-3,527	-5,776	7,656	699	525	626	-4,178	-4,187	1,229	-751	28	-13,273
Above Normal (16%)	-2,136	-2,993	3,358	-845	1,881	870	-3,030	-1,532	3,734	-1,796	96	-7,042
Below Normal (13%)	-160	-548	160	90	1,328	846	-1,352	-282	3,498	-1,478	396	185
Dry (24%)	-103	-97	-24	188	-825	-1,463	-503	-108	2,495	23	-148	210
Critical (15%)	0	-55	0	-624	-1,716	-916	-452	-279	206	67	-14	26

a Based on the 82-year simulation period.

b As defined by the Sacramento Valley 40-30-30 Index Water Year Hydrologic Classification (SWRCB D-1641, 1999).

c These results are displayed with calendar year - year type sorting.

d All scenarios are simulated at ELT (Early Long-Term) Q5 with 2025 climate change and 15 cm sea level rise.

e These are draft results meant for qualitative analysis and are subject to revision.

For instance, rather than significantly increasing Delta outflows in the February to June period as proposed in the State Water Board's Framework, this table from the Bureau of Reclamation's January 4, 2019 draft biological assessment shows that in most years Delta outflows would be significantly reduced in those months (the red numbers show flows would be lower than today). While some farms and cities upstream of the Delta would contribute to very modest increases in flow under this proposed settlement, the figure below from the Bureau's draft biological assessment shows that the CVP and SWP would increase exports from the Delta and divert that water and more under their proposal (the blue bar is exports under existing regulatory requirements, the red bar shows higher exports under the voluntary settlement and Trump Administration's proposed environmental rollbacks, and the black bar shows zero exports under the Bureau's hypothetical baseline that assumes that the CVP and SWP do not divert any water).

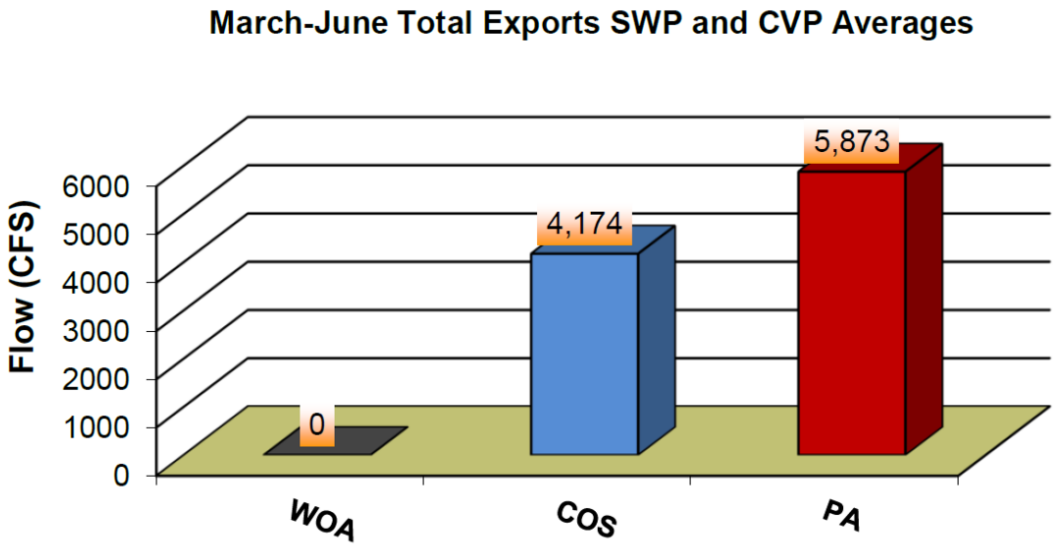


Figure X2. Total Exports March-June

It has also become apparent that most of the habitat restoration projects proposed to be included in the voluntary flow agreement are already constructed, already required by existing permits, or already planned using public dollars. The Sacramento Bee exposed some of this double-counting earlier this year, noting that many of the habitat restoration projects identified in the agreement were already constructed or required. Together with other conservation groups, we compiled this working draft document that identifies whether the habitat restoration projects in the proposed agreement are already required or planned using existing funds. The document indicates that the vast majority of these projects are not new projects, and instead, appear to be simply a repackaging of existing commitments and planned projects. Most of these projects would occur in the absence of the proposed voluntary settlement agreement, and they should be included in the baseline in the State Water Board's analysis.

With less water than today and a set of old habitat restoration projects wrapped up in a new package, the voluntary settlement agreements presented in December appear to be nothing more than smoke and mirrors.

This is not to say that voluntary agreements in the abstract are unworkable—but the details matter. In particular, voluntary agreements could be an important tool to help regions reduce their reliance on the Bay-Delta. A Portfolio Approach to voluntary agreements would significantly increase flows (and divert significantly less water from the Delta) in all but wet years, and pair those new flows with investments in: (1) local and regional water supply projects like groundwater recharge, water recycling, expanding San Luis Reservoir, and improved water use efficiency; and, (2) floodplain restoration, which provide multiple benefits including reduced flood risks. Effective voluntary agreements should not use the failed approach of D-1641, which has more loopholes than Swiss cheese, but instead should be based on a modified percent of unimpaired flow approach that clearly defines the amount of water available for the environment, establishes minimum flows, and gives fishery managers some flexibility to shape flows to achieve specific functions. And any such agreements also need to include improved

reservoir management rules (to ensure adequate water for people and the environment during future droughts), and reasonable restrictions on operations of the state and federal water projects in the Delta (to ensure that increased flow upstream of the Delta isn't just exported by Westlands and Southern California, and which stops the Trump Administration from driving native Delta species extinct).

Real agreements to restore the health of the Bay-Delta need to include real water and real habitat restoration, not the smoke and mirrors that were unveiled in December.

# # #

Federal commission accepts MID, TID plan for river flows. Will state water board agree?
Modesto Bee | February 17, 2019 | Ken Carlson

Much of the water in Don Pedro Reservoir would fall under state control under a plan being pushed by the State Water Resources Control Board; that could devastate our region's economy.

A federal environmental analysis recommends relicensing the Don Pedro hydroelectric project and accepts a Modesto and Turlock irrigation district plan for well-timed flows to boost salmon in the Tuolumne River.

The flows, combined with other measures to assist spawning and outmigrating young salmon, would commit less water to the environment than a State Water Resources Control Board plan that's unpopular in the Northern San Joaquin Valley.

But the Federal Energy Regulatory Commission, which is considering a new license for Don Pedro, balanced the environmental measures with projected economic impacts to the region, district officials said. FERC's environmental review released last week is considered a major milestone in efforts to relicense a facility, 40 miles east of Modesto, that supplies electricity for homes and businesses in most of Stanislaus County.

Most of the measures to benefit salmon were first proposed in a management plan for the Tuolumne, and the complete package was incorporated in a 15-year voluntary agreement that was negotiated last fall with the California Department of Fish and Wildlife and Department of Water Resources.

FERC's environmental review is not final. The State Water Resources Control Board needs to approve the voluntary agreement before the terms are folded into the FERC relicensing of Don Pedro.

"Approval of our voluntary settlement agreement will be the last regulatory hurdle to complete the FERC license," TID Board Member Michael Franz said Friday. "We remain hopeful the state water board will accept the agreement."

The MID, TID and San Francisco Public Utilities Commission are opposing a Dec. 12 state water board decision, which requires 40 percent unimpaired flow in the Tuolumne, Stanislaus and Merced rivers. They charge the water board requirements would result in drastic irrigation cuts, severe damage to the region's farm-based economy and water rationing in Bay Area cities.

Local officials were relieved last week when Gov. Gavin Newsom appointed a more moderate water board chairman, Joaquin Esquivel, and pledged support for voluntary agreements with water districts to increase depleted salmon populations and improve the San Joaquin-Sacramento delta.

The irrigation districts could present a more detailed voluntary agreement to the state water board in the coming months, though a decision could be a year away.

Terms of agreement

MID and TID say their agreement to increase salmon is not an attempt to avoid the environmental issues but is supported by scientific studies and the districts' historic knowledge of the river. The districts would join with water agencies in the San Joaquin and Sacramento river watersheds in a $1.7 billion program for restoring salmon and reviving the delta with an additional 700,000 acre feet of water.

The flows, including dry year relief, would start immediately after approval and would be pegged to annual precipitation in the Tuolumne watershed. To help salmon smolts moving downstream, pulse flows of 2,750 cubic feet per second would last for 20 days in March in normal to wet years. The plan calls for 18-day pulse flows in below-normal water years, two-week flows in dry years and nine-day pulses in critically dry years.

To visualize the river running at 2,750 cubic feet per second, water ran at 3,000 cubic feet per second between the Tuolumne's banks over the weekend to allow for storm runoff.

During a multiyear drought, the districts would maintain the environmental flows in a below-normal water year. The two districts, San Francisco and state officials would confer on what water is available for fisheries in an extended drought.

The state expects the MID, TID and San Francisco to work on identifying an additional source of drought relief for fisheries. One possible solution is banking excess water underground after wet winters and extraction to support additional flows in a dry spell.

In other proposed measures recognized in the federal environmental analysis, Don Pedro reservoir's minimum level could be lowered by 50 feet, freeing up 150,000 acre-feet for water needs in the longer droughts predicted with climate change. In addition, minimum streamflows would be maintained for aquatic species in the lower Tuolumne.

In October, water releases of 1,000 cfs would clean gravel in the streambed for spawning. The MID and TID would still meet obligations to agriculture and Modesto water customers under the new flow regime, except in critical water years, "when only 88 percent of irrigation demand would be met compared to 92 percent under current conditions," the federal analysis says.

Efforts to control nonnative bass that feast on the young salmon would include a permanent barrier in the river, fishing derbies and netting.

The districts also propose a $38 million fund for habitat improvements.

Predation control

The permanent barrier and fish-counting weir are not recommended in the federal staff analysis, which doubted that efforts to suppress predatory species would be effective. "Similar predator removal efforts by the California Department of Water Resources did not noticeably reduce salmon mortality," the document says.

The staff analysis predicts that flow and habitat measures will improve conditions for salmon and decrease habitat for predatory fish.

Terms of the voluntary agreement with the state do not include a salmon hatchery on the Tuolumne. The MID will present details of the voluntary agreement at landowner meetings set

for 5:30 p.m. Feb. 27 at the Waterford Community Center and 5:30 p.m. Feb. 28 in the district board room in downtown Modesto.

FERC plans to hold public meetings in Modesto on the environmental document in late March.

Oakdale and South San Joaquin irrigation districts, serving water users on the Stanislaus River, were not able to complete agreements with the state agencies before the water board decision Dec. 12 approving the 40 percent unimpaired flows for the three rivers. Those two districts, along with MID, TID and Merced Irrigation District, are opposing the Dec. 12 decision in lawsuits.

“We were fairly close to getting to an agreement,” SSJID General Manager Peter Rietkerk said. “After (the Dec. 12 water board decision), we were under the impression we were going to keep negotiating with the state. For whatever reason, we have not been invited back to the table.”

Some prime areas for salmon habitat improvements on the Stanislaus have been identified and a study on predation was funded last year.

“The second phase would be starting some predation suppression on specific reaches of the Stanislaus and checking to see how it (affects) mortality of salmon moving out of the system,” Rietkerk said.

# # #

Ken Carlson covers county government and health care for The Modesto Bee. His coverage of public health, medicine, consumer health issues and the business of health care has appeared in The Bee for 15 years.

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Opinion: Why Santa Clara Valley Water District filed lawsuit against California
Increased flows will lead to water shortfalls while doing little for imperiled fish
Mercury News | February 5, 2019 | Norma Camacho |

Protecting the environment surrounding our waterways is a critical pillar that the Santa Clara Valley Water District stands on. Providing a safe, clean and affordable water supply to the people and businesses of Santa Clara County is another essential pillar.

These two pillars meet in the lawsuit the water district filed on Jan. 11 against the State Water Resources Control Board. The board's decision to send more water through the San Joaquin River and its tributaries, in an effort to assist endangered and threatened fish species in the Sacramento-San Joaquin River Delta, was well meaning but didn't fully consider our local impacts.

The water district does not take legal action lightly. Our decision to file suit against the state water board was the result of painstaking review, scientific analysis and a conviction that there are better ways to improve conditions for fish.

There are several points which Peter Drekmeier made (Opinion, Jan. 23) that we felt needed to be addressed. If we do not ask the courts to determine whether the state has taken proper action to require increased flows, we leave Santa Clara County open to water shortfalls, and we do little for the imperiled fish in the process.

If there's a shortfall of imported water to our county, local water providers are likely to make up the difference by putting more straws in the ground and pumping more groundwater. However, if we overdraw our groundwater basins, we could experience land subsidence and could lose our emergency storage of last resort. To avoid a permanent sinking of the land, which would have significant impacts to local infrastructure and the economy, the water district would call on the public to reduce their water use and/or invest in additional water supplies to bridge the gap. A 2012 report estimated the cost of a 20 percent shortage to be about $69 million per year. Newer estimates put this number at about $200 million.

The state's plan will have minimal benefits for the fish at an outsized cost to ratepayers who are also dependent on that water. The science bears that out. Focusing solely on sending more water down leveed and rock-lined rivers only makes for deeper and faster flowing rivers. The fish need a more holistic approach that incorporates non-flow measures like providing greater access to floodplains, removing barriers to migration, reducing contaminants, and controlling predation.

Negotiations on voluntary agreements with water users are already underway. The resulting agreements would provide more modest increases in river flows along with commitments from water agencies and other parties to implement non-flow measures and provide significant funding for science and structural habitat improvements.

Before we embark on something that we know will decrease our water supply and is not the best solution for the fish, we want the state to pause, review, and allow the negotiations of voluntary agreements to continue. We are confident that the resulting solution will promise better results for fish and California's water supply.

Our agency has long held the dual goals of protecting the environment while providing a safe, clean, reliable and affordable water. These two goals are not mutually exclusive for us, and we look forward to working with the State Board to achieve them.

# # #

Norma Camacho is CEO of the Santa Clara Valley Water District.

Twin Delta tunnels oversight bill advances in Legislature
Daily Democrat | March 13, 2019 | Woodland Daily Democrat |

SACRAMENTO — A bill from Sen. Bill Dodd that would increase legislative oversight of the controversial Sacramento-San Joaquin Delta WaterFix project and allow for more public scrutiny has cleared its first committee hurdle.

The action comes less than a month after Gov. Gavin Newsom said he wants to scale back the project proposed by former Gov. Jerry Brown to a single tunnel.

Senate Bill 204 passed the Natural Resources and Water committee Tuesday on a 6-0 vote.

"We all know WaterFix is a project to build tunnels under the Delta to ship water to other parts of the state," said Dodd, D-Napa, who is co-chair of the Legislative Delta Caucus. "But beyond that, we in the Legislature and in nearby communicates know surprisingly little. And the implications of this project are enormous. My bill is about transparency and ensuring we're all aware of what's going on, how much it costs and how it will affect the economy and the environment."

SB 204 would establish requirements for both the Department of Water Resources and the Delta Conveyance, Design and Construction Authority to submit information about pending State Water Project contracts to the Legislature for public review, prior to those agencies moving forward with Delta Tunnel work.

Testifying before the committee were Sacramento County Supervisor Don Nottoli and Barbara Barrigan-Parrillo of Restore the Delta. SB 204 heads next to Appropriations.

"The Delta Counties Coalition believes SB 204 will bring greater transparency through legislative oversight to the second-largest proposed public works project in California history," Supervisor Nottoli said. "This legislation is necessary to ensure that the public will be informed of project construction and design-related impacts and how billions of public funds will be spent. It makes good sense that the Legislature should have oversight of a project of this magnitude because it will have lasting detrimental impacts on the environment and Delta communities."

The bill is co-authored by members of the Legislative Delta Caucus, including co-chair Assemblymember Jim Frazier, Assemblymembers Susan Eggman, Jim Cooper, Tim Grayson, Kevin McCarty, and Senators Cathleen Galgiani, Richard Pan, and Steve Glazer.

It was the second of two water-related bills from Sen. Dodd to clear the Natural Resources and Water committee Tuesday. Senate Bill 19, which directs the Department of Water Resources to develop upgraded stream guages across the state, also advanced. The bill will help the state better manager its precious water resources.

The legislation comes after Newsom laid out his agenda during his State of the State address that he would be breaking from Brown's plan to build two massive tunnels under the Sacramento-San Joaquin River Delta to move water to Southern California.

Newsom announced he wanted to scale back to a single tunnel but has yet to certify the intention.

# # #

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Trump Pressure on California Water Plan Excludes Public, Rushes Science, Emails Show
KQED Science | March 7, 2019 | Lauren Sommer

The Trump Administration has ordered federal biologists to speed up critical decisions about whether to send more water from Northern California to farmers in the Central Valley, a move that critics say threatens the integrity of the science and cuts the public out of the process.

The decisions will control irrigation for millions of acres of farmland in the country's biggest agricultural economy, drinking water for two-thirds of Californians from Silicon Valley to San Diego, and the fate of endangered salmon and other fish.

Federal biologists will set these rules after completing an intricate scientific analysis, and they are the final word on how much and when water can be pumped out of the Sacramento-San Joaquin River Delta.

An investigation by KQED found that the analysis will be done under unprecedented time pressure, with less transparency, less outside scientific scrutiny, and without, say federal scientists, the resources to do it properly.

"It's a very aggressive schedule," said a former federal biologist familiar with the matter who did not want to be identified. "And I think it runs the risk of forcing them to make dangerous shortcuts in the scientific analysis that the decisions demand."

According to internal emails obtained under the Freedom of Information Act, federal scientists raised two major concerns: that their agency lacks the staff to undertake the analysis and that the Trump Administration is skewing the rules to boost the water supply for Central Valley farms.

Some see the fingerprints of acting interior secretary David Bernhardt, who once helped lead the charge to increase pumping and weaken environmental standards in the Delta. He was then a lawyer for the Fresno-based Westlands Water District, the largest agricultural water agency in the country.

Bernhardt is already under scrutiny after a recent New York Times story reported that, shortly after joining the Interior Department in 2017, he directly advocated on Westlands' behalf to get more water for farmers at the expense of endangered fish, even though federal rules precluded him from lobbying.

Last week, the Campaign Legal Center, a non-profit ethics organization in Washington, D.C., filed a complaint demanding that the Interior Department's inspector general open an investigation into whether Bernhardt is using his public office to benefit his former client.

Bernhardt now oversees two of the three agencies under orders from the White House to expedite the new rules shaping California's water future: the U.S. Fish and Wildlife Service and the U.S. Bureau of Reclamation.

At stake is the future of fish teetering on the edge of existence, a salmon fishing industry in crisis, and the ample supply of water flowing through millions of California faucets and fields.

Trump's Campaign Promise

Just five years ago, Bernhardt stood before a panel of judges on the Ninth Circuit U.S. Court of Appeals. He was there arguing on behalf of Westlands Water District, and its 600,000 acres of farmland, that federal environmental rules protecting salmon should be thrown out.

Now, as head of the agency that controls decisions affecting his former client, Bernhardt is leading the charge to replace those rules.

Agricultural water districts have long disdained the current rules (called “biological opinions” and written in 2008 and 2009). The rules require state and federal pumps in the Delta to slow down when endangered salmon, smelt and other fish are nearby, in order to protect them. That diminishes the water supply for farmers, leaving them scrambling to fill the gap. When people shout “fish vs. farms,” that’s usually what they’re talking about.

During President Trump’s 2016 campaign, he promised Central Valley farmers he would send them more water. As a step toward keeping that promise, Trump signed an October 2018 memo ordering the rapid scientific review.

Water from the Delta reaches millions of Californians and millions of acres of farmland. (Paul Hames / California Department of Water Resources)

“That’s definitely on our mind,” says Erin Curtis, spokeswoman for the U.S. Bureau of Reclamation. “The president has outlined in his memo that we need to take a new look at how we’re operating these projects in a way that we can maximize water deliveries.”

As a first step, the Bureau, which operates dams and water pumps, released an 871-page proposal in early February for how it would like the rules to operate.

The plan, called a “biological assessment,” would provide billions of gallons more water for agricultural and urban water districts, an increase of 10 to 15 percent depending on the year. That would leave less in the Delta for endangered fish.

Environmental groups are alarmed at the proposal.

“I think this is a proposal for extinction,” says Doug Obegi, an attorney at the Natural Resources Defense Council in San Francisco. “What we decide to do in the Delta really will determine if we drive our native species extinct and threaten thousands of fishing jobs.”

Not Enough Staff To Do the Job

According to federal law, two federal wildlife agencies, the National Oceanic and Atmospheric Administration and the U.S. Fish and Wildlife Service, must now review the Bureau of Reclamation's plan.

If it doesn't do enough to protect threatened fish, the agencies have the obligation and legal authority to write rules that do. These biological opinions will replace the current ones, although they could be challenged in court.

Under President Trump's decree, federal biologists must write those opinions in 135 days, the minimal amount of time guaranteed under the Endangered Species Act.

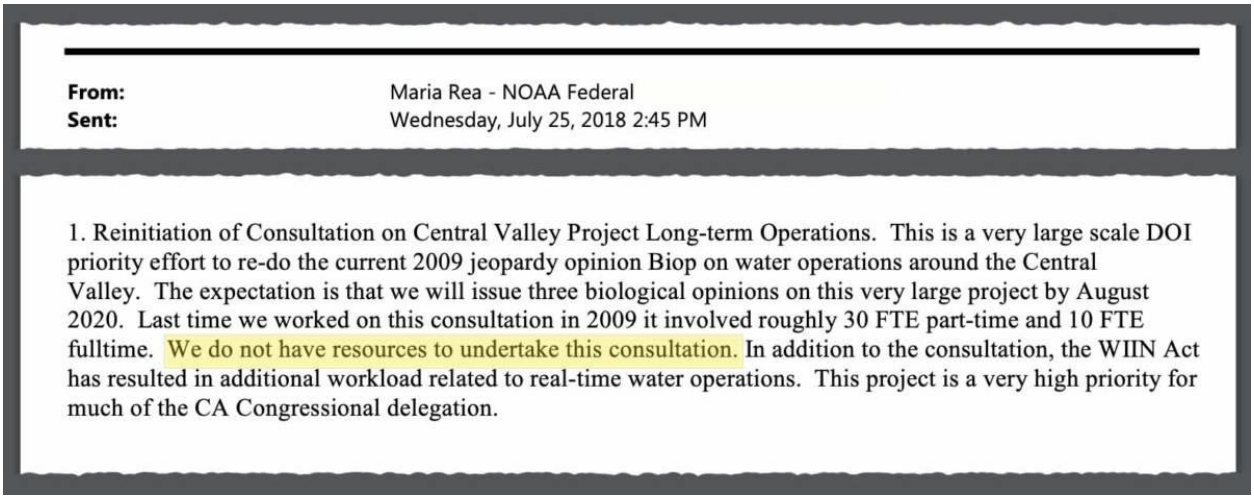
Given the complexity of the issues, the agencies have previously needed more time than that to complete their analysis, from 60 to 80 percent more time.

They must look at how water flows across hundreds of miles through different rivers, dams and levees, and then forecast how it would affect the life cycle of half a dozen threatened species. These include endangered Chinook salmon and threatened steelhead and green sturgeon, as well as endangered killer whales in the Pacific Ocean, which depend on salmon for food.

"How often does the interior secretary write a memo forcing that an opinion happens in 135 days?" says Cay Goude, former assistant field supervisor for the U.S. Fish and Wildlife Service office in Sacramento. "It's never happened to my knowledge."

Goude worked on a previous biological opinion for the agency, on the Delta smelt, before retiring. "You don't want to rush anything and do a poor job," she said, "because it's very important to have the scientific facts accurate and appropriate."

Even before Trump tightened the timeline, one of the agencies, NOAA Fisheries, warned that it did not have the resources to do the analysis.



From: Maria Rea - NOAA Federal
Sent: Wednesday, July 25, 2018 2:45 PM

1. Reinitiation of Consultation on Central Valley Project Long-term Operations. This is a very large scale DOI priority effort to re-do the current 2009 jeopardy opinion Biop on water operations around the Central Valley. The expectation is that we will issue three biological opinions on this very large project by August 2020. Last time we worked on this consultation in 2009 it involved roughly 30 FTE part-time and 10 FTE fulltime. We do not have resources to undertake this consultation. In addition to the consultation, the WIIN Act has resulted in additional workload related to real-time water operations. This project is a very high priority for much of the CA Congressional delegation.

Excerpt from an internal NOAA email.

In July 2018, Maria Rea, the assistant regional administrator in the California Central Valley Office of NOAA, described the agency's dilemma in an email to her internal staff. She said it took 30 part-time staff and 10 full-time staff to complete the previous biological opinion in 2009, which took 246 days.

"We do not have resources to undertake this consultation," Rea wrote.

NOAA is working to reassign staff, currently on other projects, to at least achieve similar staffing levels, according to agency staff who spoke on the condition they not be identified. The federal government shutdown in January slowed that process.

Eliminating Protections for Fish

According to the emails obtained by KQED, federal wildlife scientists also are concerned that the Bureau of Reclamation is pushing to give more water to agriculture at the expense of threatened species.

In an email to fellow NOAA Fisheries staff last summer, Water Operations and Delta Consultations Branch Chief Garwin Yip outlined his misgivings about cases where there is scientific debate about what the fish need.

“Absence of definitive science should not be the reason to propose actions more aggressive towards water supply,” Yip wrote.

Both Yip and Rea declined to comment about their emails.

While the Bureau of Reclamation has updated its proposal since then, it’s unclear whether those concerns have been addressed. Some say the agency has cherry-picked the science in favor of boosting water for farmers.

“It’s not science, basically,” says Jon Rosenfield, senior scientist with San Francisco Baykeeper, an environmental group in San Francisco. “It’s an extraordinarily selective read and deliberate misinterpretation of the information that we have.”

Rosenfield points to several of the protections the Bureau of Reclamation is proposing to eliminate, such as rules that guarantee water flows through crucial parts of the estuary when fish are most at risk because they are closer to the pumps.

The Trump Administration is rewriting rules governing how water flows through massive pumping plants in the Delta. (Lauren Sommer/KQED)

The agency says “dynamic rules,” which rely on new technology that monitors where the fish are in the Delta, can do a better job than fixed rules.

“We feel that what we’ve proposed both helps protect listed species as well as provides more water supply flexibility,” says Russ Callejo, assistant regional director for the Mid-Pacific Region of the Bureau of Reclamation in Sacramento. “We think it does both.”

Environmental groups are skeptical of that claim, saying the Bureau is proposing to dial back water pumping only after the fish are significantly harmed. The wildlife agencies will have to evaluate that during their biological reviews.

This is where some see the influence of Bernhardt, who told The New York Times that he directed a senior official to weaken protections for fish and divert water to farms as part of a broader administration policy to help rural America.

No Public Review

The internal emails also show the new environmental rules will receive less outside scientific review than ever before, which eliminates public involvement.

Peer review, in which independent scientists assess other researchers’ work, is a core practice of science, and previous biological opinions have received that scrutiny.

When the current rules were written in 2008, the draft biological opinion from NOAA Fisheries underwent an independent review by a panel of scientists. The review included a meeting where the public could attend and comment.

This time, wildlife agencies say the Trump Administration’s deadline won’t allow for that.

NOAA Fisheries, which is writing the environmental rules for salmon and other fish, plans to have some independent scientific review, according to agency staff. The draft biological opinion will be sent out to individual scientists, but without public involvement or comment.

The U.S. Fish and Wildlife Service, which is writing the environmental rules for delta smelt, says the agency is planning some form of peer review as well.

“We intend to incorporate peer review into the development of our biological opinion,” said Shane Hunt, spokesman for the federal agency’s Bay-Delta Fish & Wildlife Office. “We are still ironing out the details."

Water Districts Gain Access

Meanwhile, as the public is frozen out, water districts will be given unprecedented access.

For the first time, public water agencies, keen to boost their supply, are invited to be heavily involved in the development of the environmental rules in the biological opinions, which are legally mandated to protect fish.

In 2016, Congress passed, and President Obama signed, the WIIN Act, giving water contractors the power to “have routine and continuing opportunities to discuss and submit information” to federal agencies developing the biological opinions. The act, pushed by Senator Dianne Feinstein and Central Valley Republicans, was an effort at compromise after years of water battles in California.

Before the Bureau of Reclamation even finished its proposed plan, water agencies had the chance to submit their take on endangered species protections.

“We have adhered to the WIIN Act,” says the Bureau’s Callejo. “We have involved the public water agencies.”

Westlands Water District did not respond to questions about its involvement.

Water agencies will also receive drafts of the biological opinions from wildlife agencies. Under the law, their comments must be “afforded due consideration” by wildlife biologists. If the comments aren’t adopted, those biologists must explain why.

There are no plans to release the drafts to the public.

“It’s always a red flag when you have the regulated entity, the entity that stands to lose something, having control over the regulation process,” says Rosenfield. “We don’t let the tobacco companies determine what level of smoking is safe.”

# # #

Meet California's new environment czar, who walked the state to 'reset'
Cal Matters | March 6, 2019 | Julie Cart

Jared Blumenfeld at a recycling event. Photo via U.S. Environmental Protection Agency

What better way to decompress from a stressful federal government job than by trekking 2,600 miles on foot from Mexico to Canada?

That's what Jared Blumenfeld, the new head of the California Environmental Protection Agency, did three years ago, setting out on the arduous and beloved Pacific Crest Trail that traces California's searing deserts, rugged mountains and sparkling coastline. Turns out the dust on his boots afforded him just the perspective he needed to take on the job Gov. Gavin Newsom gave him in January.

"I had a healthy reset," Blumenfeld said recently about his four months on the trail. "What you realize is the complexity of the environmental issues. We have so many people talking about environmental issues, but we say it in a way that most people don't understand." People want to be part of the solution to environmental problems, he said. "What I got from a distance was (the importance of) bringing these messages home in a way that's digestible and actionable."

Blumenfeld's work perspective also shifted, from his job as the regional administrator for the federal EPA during the Obama administration to its mirror agency in Sacramento.

Blumenfeld, who has law degrees from the University of London and UC Berkeley, left his federal job in May 2016, a few months before his appointment was set to expire.

The agency he now manages oversees a half-dozen departments that regulate matters including air and water quality, which are among the state's most contentious issues. Those issues have put California on a collision course with the Trump administration, which is undoing dozens of federal environmental protections, including some that originated in the Golden State.

Perhaps the most consequential battle is over Obama-era rules tightening future car emissions and gas-mileage standards to reduce greenhouse gases and other pollutants; the regulations were crafted by California but adopted nationwide. The federal government announced it would roll back those rules and revoke California's right, first granted by Washington decades ago, to set its own air-pollution standards. Such a move would significantly affect the state's ambitious climate policies.

Blumenfeld, 49, said the state needs the federal government as a partner on these issues, but when it came to hammering out a compromise on the auto standards, it was a one-way conversation. The feds announced last week that they had broken off negotiations with the state.

“They did not negotiate,” he said. “It was a little spurious to say they ended negotiations. They never began. The rule that was passed by the Obama administration has been rewritten based on very spurious and kind of junky science by the Trump administration.” (Federal officials produced research that they said showed the regulations as set would make cars less safe and be difficult for automakers to meet.)

In a wide-ranging conversation, Blumenfeld also said:

- The state will vigorously defend its right to waive some federal emissions regulations and set its own, stricter standards. He expects the fight to be resolved in court. “We do have law and precedent on our side,” Blumenfeld said. “But we do live in bizarre political times, and that does have an influence on how the highest court may look at this issue.”
- He brought together the state agencies he oversees and provided marching orders to step up enforcement of California’s environmental laws and impose fines when called for. “The regulated community is frustrated that in some cases the enforcement is happening in some parts of the state, but it isn’t in happening in others,” he said. “Consistency, clarity and prioritizing enforcement are important.” He had criticized California for lax enforcement of water laws in an opinion piece published in the San Francisco Chronicle last year.
- Blumenfeld worked for Newsom in San Francisco as environmental director for the city. Then-mayor Newsom took him and other key aides to Hunters Point, a highly polluted former Navy shipyard, and into the community to talk to residents affected by residual problems. Newsom told the aides, “I don’t want you sitting in your offices. I want you to get out and help people.” The nexus of environmental damage and public health will be a focus of the new governor, Blumenfeld said.

The enviro-czar didn’t just spend his time hiking while on hiatus from government service. He founded a green-tech consulting company and started a podcast, Podship Earth. The native of Cambridge, England, who retains a trace of his British accent, said it’s now time to get back to work.

“Previous governors came up with great laws and targets, and the Legislature does the same,” he said. “Our job is to implement those. Let’s not just jump to the next shiny-cool environmental thing that we could do. Our first order of business is to look at what we’re doing and make sure we’re doing it according to the plans that are already there.

“We have politicians in every level of government who care deeply about the environment,” Blumenfeld said. “California offers hope and inspiration on how to solve problems, from an innovation perspective but also politically. It’s exciting to be in California right now.”

# # #

Water politics, bee health and CA sues over border emergency
CalMatters | February 19, 2019 | Dan Morain

Good morning, California.

“California will not be part of this political theater. We will see you in court.”—Gov. Gavin Newsom, as California sued the Trump administration yet again, this time over the president’s emergency declaration over the border wall last week.

CA sues over border emergency

Sixteen states sued over Trump's border emergency Monday.

California and 15 other states sued the Trump administration as expected on Monday, calling the president’s national emergency along the Mexican border unconstitutional and “a manufactured ‘crisis’,” and noting that the number of people arrested for attempting to illegally cross into this country hasn’t been this low in more than 45 years.

- President Donald Trump made the emergency declaration last week after failing to win adequate congressional funding for the wall he promised he would complete along the nation’s southern border. California Attorney General Xavier Becerra said immediately afterward that the state would be filing suit.

Becerra: “President Trump treats the rule of law with utter contempt. He knows there is no border crisis, he knows his emergency declaration is unwarranted and he admits that he will likely lose this case in court.”

Filed in the Northern District of California, the suit alleges, among other things, that Trump’s plan to divert money into the wall from drug interdiction and military construction projects will damage California’s economy and public safety.

- Joining Becerra were attorneys general from Colorado, Connecticut, Delaware, Hawaii, Illinois, Maine, Maryland, Michigan, Minnesota, Nevada, New Jersey, New Mexico, New York, Oregon and Virginia. Most are blue.
- More suits have been filed by the nonprofit watchdog Public Citizen and wildlife organizations, and more are expected from the ACLU and public interest groups.

Money matters: A day before filing the suit, Becerra's campaign team blasted out a fundraising email pledging to sue:

"This will be a long and crucial legal battle and I need your support. Contribute $5 now to show you're standing with me to fight President Trump's unconstitutional national emergency declaration."

To be clear, money raised from the solicitation won't fund the lawsuit. The suit is a taxpayer-funded endeavor.

# # #

CA's shifting water politics

U.S. Sen. Dianne Feinstein wanted a new chair on the water board.

A letter from U.S. Sen. Dianne Feinstein could have helped lead to Felicia Marcus's ouster as State Water Resources Control Board chair last week.

- Surprised? Don't be: The moderate Democratic senator has a long alliance with Central Valley ag.

Marcus inflamed agriculture and Bay Area water users by proposing more water from the San Joaquin River watershed go to environmental needs such as bolstering the salmon population. Gov. Gavin Newsom had to decide whether to keep the otherwise highly regarded Jerry Brown appointee.

- On Jan. 31, Feinstein wrote asking Newsom to appoint Bill Lyons, a Modesto farmer, to the post Marcus held. Feinstein's letter, which doesn't name Marcus, cites Lyons' knowledge of "environmental restoration and agriculture innovation":

"This unique background makes him perfectly qualified to guide the board through its present serious challenge of restoring California's imperiled fisheries while maintaining the confidence of our world-leading agriculture industry."

In 2016, Lyons called the water board's allocation plan "a takings" of property without compensation and was quoted as saying because of it, the board had "lost the trust of an entire region."

- Citing a need to restore "balance," Newsom named Joaquin Esquivel, former aide to U.S. Sen. Barbara Boxer, as water board chairman. He also appointed Lyons as his "agriculture liaison," a new position at an annual salary of $175,008. Lyons, 68, was Gov. Gray Davis' agriculture secretary from 1999-2004.

The shakeup suggests Newsom is resetting the years-long process to reallocate water from the San Joaquin River watershed. That includes rights held by San Francisco, where he and Feinstein were mayors.

- TBD: How Lyons will coordinate duties with Ag Secretary Karen Ross.

# # #

Why Harris needs Newsom

Gov. Gavin Newsom's endorsement of U.S. Sen. Kamala Harris' presidential run is key to her hope of a lock on California.

- Newsom, whose campaign team, San Francisco-based SCRB Strategies, also represents Harris, can help with fundraising and organizational assistance He's also a co-chair of her California campaign, with Dolores Huerta, who co-founded the United Farm Workers, and Congresswoman Barbara Lee of Berkeley.

Harris has held seven California fund-raisers, by Politico's count. That adds to her campaign account, and, importantly, drains what out-of-state politicians traditionally see as an ATM for their campaigns.

Politico: "Her home-state advantage is an enormous asset, holding the promise of a huge haul of delegates early in the nomination fight. At the same time, a poor performance there could end her bid."

The math: The overall number of delegates nationally has not been determined. But California will have a huge share, at least 416 delegates, to be awarded proportionally based on candidates' performance. Of those, 272 will be allocated by the state's 53 congressional districts and awarded based on candidates' vote totals in those districts.

# # #

Bee health breakthroughs

A bee pollinates a blossom in an almond orchard in McFarland.

Bee die-offs have become an urgent agricultural issue, one that is getting increasing attention from researchers nationwide.

- Millions of bees are deployed each year at this time across the Central Valley to pollinate almonds, California's third most valuable agricultural commodity, and one that cannot exist without pollinators. Almonds were a $5.6 billion crop in 2017.

Those stakes have ramped up research: A study by Ohio State University researcher Reed Johnson in the journal Insects, for instance, finds that combinations of insecticides and fungicides deemed individually "safe" for honeybees turn into lethal cocktails when mixed, and may be the culprit in mass bee deaths. The study, supported by the Almond Board of California, has implications for growers.

Johnson: "It just doesn't make any sense to use an insecticide when you have 80 percent of the nation's honeybees sitting there exposed to it."

In another study, of all bee-related laws passed by states between 2000 and 2017, Dr. Damon Hall of the University of Missouri concludes that Minnesota has the most far-reaching vision for bee health.

- Minnesota encourages the use of alternative, non-harmful pesticides and has adopted stricter pesticide labeling practices for retail garden plants.

Not that California is a laggard: This was the first state in to pass an apiary health law, back in 1883 when bees were used primarily for wax and honey.

- No state has gone as far as France, which last year banned five pesticides thought to be implicated in pollinator die-off.

# # #

Pricing California's Water During the Drought: Can Rate Structures Provide an Incentive for Conservation?

Water Finance and Management | February 20, 2019 | Jeff Hughes, Shadi Eskaf & Liz Harvell

The relationship between water pricing and water use is more nuanced than basic economic theory on supply and demand suggests. That's what the Environmental Finance Center at the University of North Carolina at Chapel Hill (EFC) found in a recent study on water pricing during the California drought.

California's severe drought and statewide conservation mandate provided an opportunity to analyze the effects of pricing strategies as a tool to prevent wasteful water use. In 2015, the State Water Resources Control Board was charged with implementing a reduction of 25 percent on the state's local water supply agencies. One of the strategies the Board suggested to local agencies was to look at ways rate structures could provide a financial incentive, also known as a price signal, to customers to conserve water.

Did water agencies with higher price signals achieve greater water savings than others? In some cases, yes. But not always.

The EFC team analyzed data on hundreds of California water agencies' water pricing, residential water use and production data from the mandatory conservation period (June 2015 to May 2016), resulting in one major conclusion: no single pricing strategy works for every agency in reducing use.

The drought and subsequent conservation period provided a rich source of data for researchers. Water agencies were required to make monthly reports to the water board on production, number of customers, enforcement metrics, number of days when outdoor watering was permissible, and annual reports on pricing, rate structure, and water usage data. A statewide study completed by one of the state's largest water agencies around the same time provided further information on water rate structures.

With so much data available, a group of California water agencies asked the EFC to collect and analyze information that could provide insight on how pricing, conservation measures, and a range of other factors might have influenced customer water consumption behavior. As a result, the EFC 1) calculated the variation in water pricing signals from state water agencies before and during the mandatory conservation period; 2) assessed the relative impact of pricing and non-pricing strategies in reducing water use during the mandatory conservation period; and 3) assessed the relationship between water pricing and residential use at the end of the mandatory conservation period.

Statewide, No Single Pricing Strategy Outperformed Others in Achieving Conservation

Pricing varies across California water agencies, providing unique combinations of pricing signals to customers. In some cases, the rate structure design and the rates at one agency might offer different price signals altogether. For example, one-fourth of the surveyed agencies would have saved their residential customer more than $23 on their monthly water bill in 2015 if they reduced their water use from 12 ccf (hundred cubic feet) in one month to 6 ccf. Yet a different quarter of the surveyed agencies sent much lower price signals for conservation, saving their customers less than $9. Nearly half of the agencies that charged the lower prices actually had increasing block rate structures or budget-based rate structures, both types described as examples of conservation rate structures by the Board. Even though a rate structure might be

designed in one way to encourage conservation, it may still provide a weaker incentive to conserve than another rate structure priced differently.

The strength of pricing signals is influenced by more than just whether a rate structure is classified as a uniform structure, increasing block rates, or budget-based rates. Water agencies should be wary of narrowly defining conservation rates based on only one aspect of the rate structure design.

In fact, the analysis showed there was no statistically significant difference in the water savings achieved between different water rate structures; high production savings during the conservation period were achieved with all forms of rate structures, as illustrated in Figure 1. No specific rate structure type was the dominant predictor of water savings.

For example, when looking at just agencies using increasing block rates, it's clear that some agencies achieved much higher water production savings (30 percent or higher) than others (less than 15 percent), demonstrating that one rate structure design does not achieve the same level of conservation across all agencies. Furthermore, several agencies with uniform rate structures achieved the same level of high savings that agencies with increasing block rates achieved.

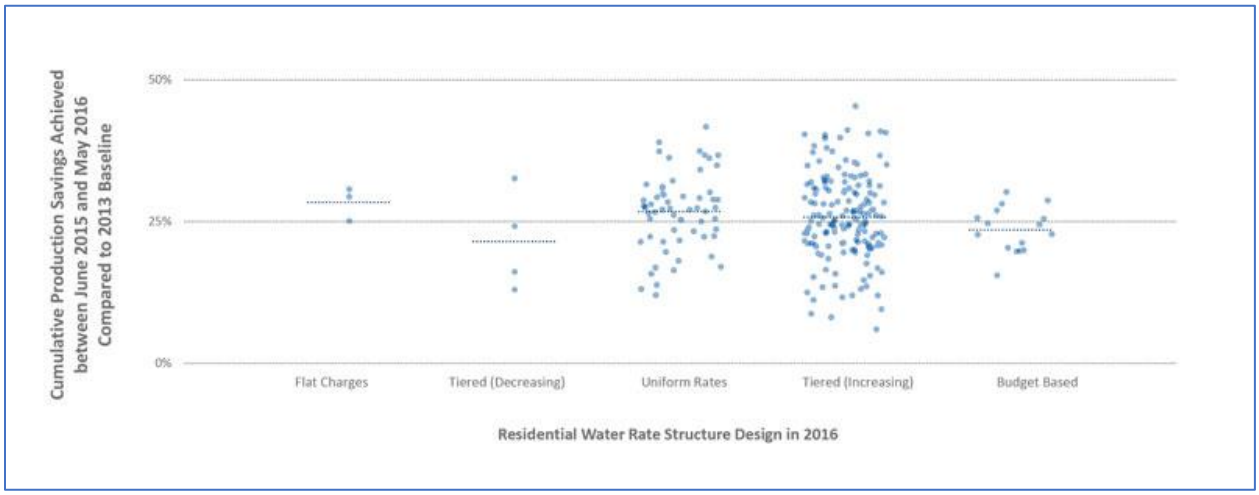


Figure 1. High water production savings were achieved under all types of water rate structures. There was no statistically significant correlation between any rate structure type and the cumulative savings achieved between June 2015 and May 2016.

Increasing block rates or budget-based rates with steep differentials between blocks are often designed specifically to incentivize low water use. For example, one agency was charging $1.95/ccf in its lowest tier and $16.97/ccf in its highest tier (8.7 times higher). Indeed, the EFC analysis showed that agencies in California with higher rate differentials had, on average, lower average residential water use than agencies with lower rate differentials. However, during the mandatory conservation period, water agencies with higher differentials between tiered rates did not achieve greater levels of water savings than other agencies.

For many agencies, the decision to charge the full cost of water service may be as important to the pricing signal as whether to adopt an increasing block, budget-based, or uniform rate structure. Pricing signals vary, and water agencies that incur higher costs to acquire, treat, and supply water typically set higher prices regardless of the type of rate structure used. On average, agencies charging higher prices had lower average residential water use than

agencies charging lower prices, as shown in Figure 2 below. Thus, agencies that charge the full cost of water service inherently send stronger pricing signals than if they underprice their services.

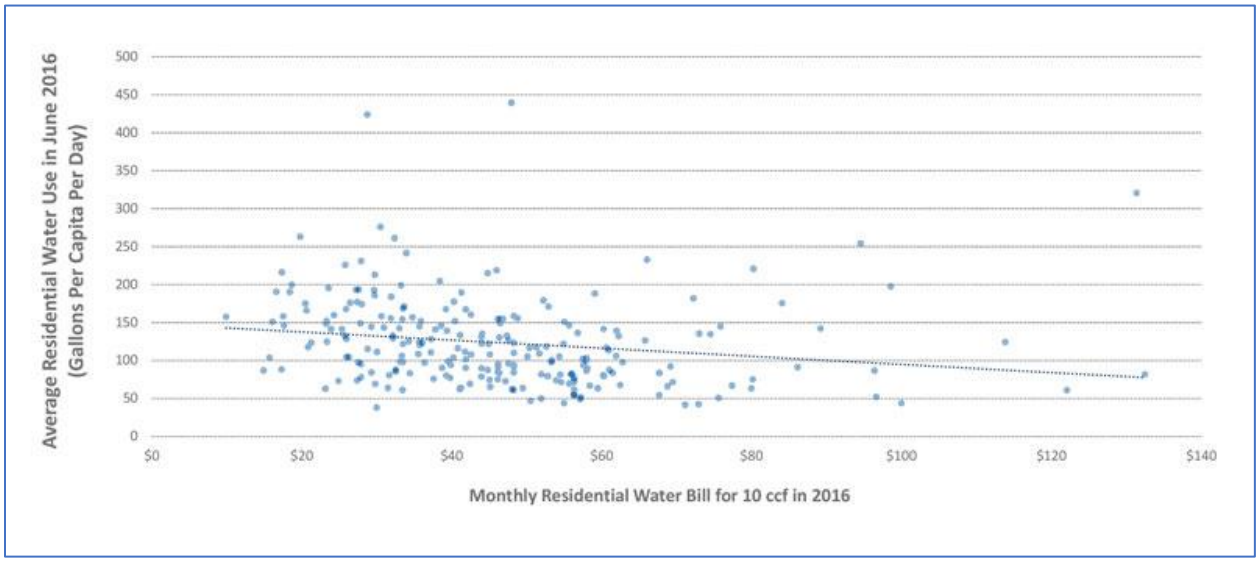


Figure 2. Water agencies that charged higher bills for 10 ccf of water use had lower average residential water use in 2016. Statistically significant at the 1% level.

This does not mean that raising rates will always result in achieving greater reductions in water use. Many water agencies raised rates at various levels in 2016, but EFC analysis did not find a correlation between the amount of a rate increase and how much water savings was achieved during the mandatory conservation period. Some agencies that raised their rates and some agencies that did not achieved the same levels of water savings. In fact, there was also no significant correlation between high prices and achieved water savings.

One reason this might be the case is that agencies that had higher pricing signals already had lower water use before the conservation period began. Thus, because of demand hardening, they were not able to achieve greater levels of conservation than agencies that had lower pricing signals and higher average use at the start. The EFC found that water agencies starting the conservation period with a higher level of average residential water use were able to achieve greater cumulative savings than water agencies with more efficient customers from the start.

Other Tools for Conservation

The analysis revealed that pricing does not appear to be the dominant tool that was used to generate short term curtailments. Yet high levels of conservation were achieved by many agencies during the 12-month period. The EFC analyzed the relationships between non-price conservation strategies and higher levels of short-term conservation.

One of the most successful strategies appeared to be strict local enforcement of conservation directives by issuing warnings to customers that violated them. Agencies that issued more warnings per 1,000 customers achieved, on average, a greater level of water savings than other agencies.

Media coverage of the drought also played an important role during the conservation period, as Quesnel and Ajami found in their study. The EFC also identified that weather patterns and

household characteristics were external factors that were also correlated with water savings achieved among agencies in California.

Localization is Key

The study suggests a one-size-fits-all approach to pricing and conservation strategies across the state would not be successful for the diversity of local conditions and costs that water agencies incur. What is effective for one water agency may not be as effective for another water agency with different customer characteristics.

Some water agencies have high water rates and do not need complex rate structures to convey conservation price signals, while others might rely more on the rate structure design than high rates. Water agencies with inexpensive treatment and delivery costs, or those that have avoided rate increases to keep water rates low, will provide little incentive for customers to save water unless the rate structure has a design that signals an incentive to maintain low water use. These agencies likely will have to work harder with non-pricing conservation strategies to encourage water savings.

The EFC analysis found that there are alternative methods of sending pricing messages other than changing the underlying rate structure. For example, Figure 3 below displays rate structures of eight California water agencies. Even though all eight agencies used uniform rate structures, the prices charged to customers provided very different financial incentives to reduce water use, demonstrating the diversity of price signals that can be achieved from a single rate structure design.

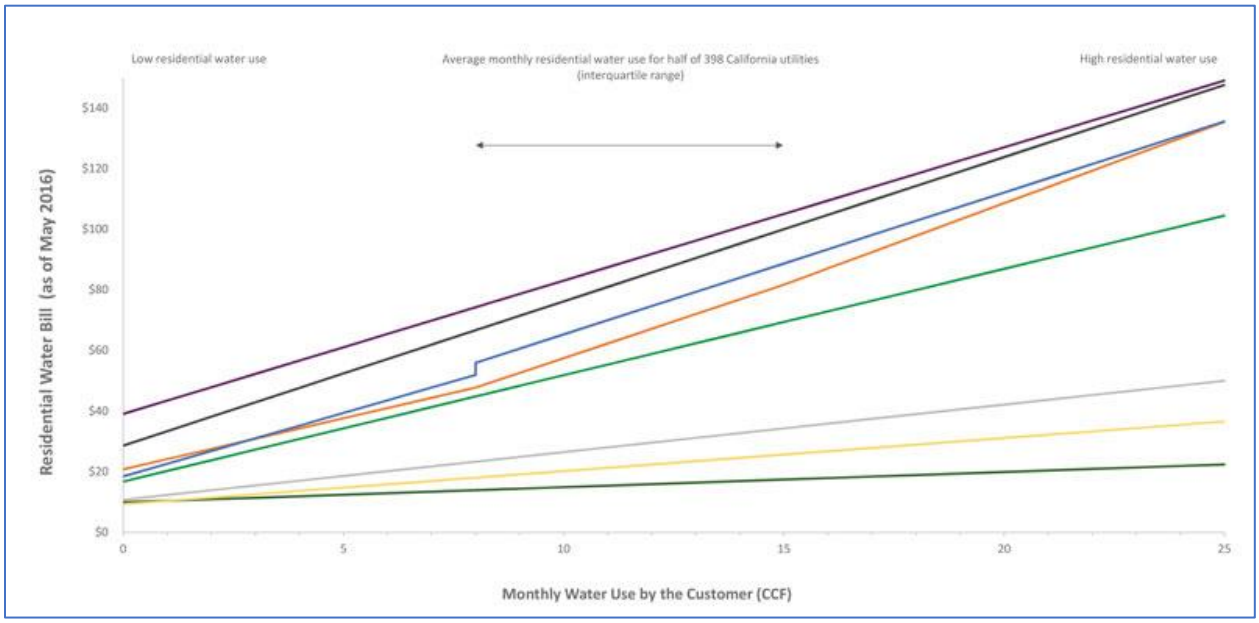


Figure 3. Although these eight water agencies all used uniform water rate structures, the monthly prices charged to customers and their incentives to conserve water use varied significantly. One water agency applied a fixed surcharge at 8 ccf while another applied a volumetric surcharge for all use above 8.5 ccf during the drought period.

Furthermore, two water agencies in Figure 3 implemented temporary drought surcharges during the mandatory conservation period. Even without employing block pricing, these agencies were able to send very different price signals to their customers than the other agencies.

The agency with the orange line implemented a volumetric surcharge on water use above 8.5 ccf/month, thereby essentially creating a temporary increasing block rate structure. The other agency (blue line) implemented a drought surcharge of $0.50/ccf for all water use. However, customers under 200 gallons per day (gpd) were given a full refund on that surcharge on the same bill. This means that the next gallon used above 200 gpd was the most expensive gallon purchased, at a total of $4.00 (see price jump at the 8 ccf mark). The drought surcharge and credit were distinct line items on the water bill, communicating to the customer a clear message of incentivizing conservation below 200 gpd. These two different approaches to implementing temporary drought surcharges created different price signals to the customers.

Looking Ahead

As conservation efforts continue, water agencies should still focus on using pricing as a strategy and understand the signals their pricing structures send but should also consider pricing in the context of other measures.

While the study did not show that pricing was correlated with higher levels of short-term conservation, it did show that pricing was correlated with average water use, and that some agencies successfully employed pricing to achieve reductions. In order for pricing to be effective, both the rates and elements of the rate structure need to be designed intentionally to provide appropriate price signals to encourage conservation. However, there is no evidence to suggest that any single approach employed by any water agency was more effective than all others across California in achieving water savings, or that pricing was the sole factor in reaching conservation goals. In fact, this research supplements other studies that identified non-pricing conservation programs as effective mechanisms to achieve short-term reductions in water use.

Looking forward, water agencies should consider their demographic, geographic, and climate-related situations when making determinations about how to encourage conservation through pricing and non-pricing strategies.

# # #

*Editor's Note: A variation of this article originally appeared in the International Water Association's magazine The Source in October 2018.

Jeff Hughes is the director of the Environmental Finance Center (EFC) at the University of North Carolina at Chapel Hill and an associate teaching professor with the UNC School of Government. He brings more than 30 years of environmental finance experience as a researcher, policy analyst, consultant and practitioner.

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Liz Harvell coordinates communications and outreach for the EFC as communications manager, helping to ensure that all of EFC services and resources are available to those seeking guidance in environmental finance.

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5 Reasons Groundwater is Vital to Californians
California Department of Water Resources | Published: March 11, 2019

Gray Lodge Wildlife Area in Gridley has groundwater wells that are pumping water to flood fields and supply water for waterfowl.

If you're like most Californians, you turn on the faucet and probably don't think about where your water comes from.

We rarely pause to consider the incredible journey our water makes to get to the tap – how it falls as rain or snow, then travels through rivers and streams, lakes, watersheds, canals, treatment plants, and pipes to get to us.

A lot of Californians also depend on groundwater. Below the earth's surface are layers of soil, gravel, and rocks that create aquifers. Aquifers work like a sponge to absorb and store water that percolates through the soil. Groundwater can be accessed by wells, which pump water from various underground depths into pipes or canals that provide water to our homes, farms, and businesses.

In California, groundwater is a precious resource that supports the health of our communities, economies, and environment. During this year's Groundwater Awareness Week, we'd like to share five reasons why groundwater is important:

1. Groundwater provides 30 to 60 percent of California's water, depending on precipitation and reservoir conditions. We pump more groundwater during dry years, which is why it serves as a crucial buffer against drought and climate change.
2. Some California communities rely entirely on groundwater for drinking water. When aquifers are depleted, natural contaminants are concentrated making drinking water unsafe. Healthy aquifers equals healthy water.
3. Groundwater is a critical resource for many farmers throughout the state, and is used to grow agricultural crops valued at more than $50 billion each year.
4. Groundwater is a finite resource. Heavy groundwater pumping depletes aquifers, and can cause land to sink. "Land subsidence" causes damage to critical infrastructure like roads, bridges, levees, canals, and more.
5. It takes a long time to replenish overpumped aquifers. Unlike lakes and reservoirs that can fill up after a year of above-average rain and snow, it can take years, and even decades, to replenish underground reservoirs.

In 2014, California passed the Sustainable Groundwater Management Act, which provides a framework for local agencies to manage their groundwater supplies for long-term sustainability. Under the law, DWR provides data, tools, grants, and technical and planning assistance to help local agencies develop plans to achieve the sustainability as prescribed in the law. Prior to 2014, California was one of the only groundwater-dependent states in the western United States to not fully regulate groundwater.

# # #

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Wet winter aids groundwater replenishment
AgAlert | March 6, 2019 | By Christine Souza

Heavy rains this winter will help replenish groundwater aquifers and benefit projects that use excess surface water to recharge groundwater basins. Water managers say such projects will be key to addressing California's groundwater woes.

At the California Department of Water Resources, planners focus on a voluntary strategy known as Flood-MAR, which stands for "managed aquifer recharge." The strategy combines floodwater operations and groundwater management in an effort to benefit working landscapes, and could also aid local groundwater agencies as they implement the state Sustainable Groundwater Management Act, which requires overdrafted groundwater basins to be in balance by the 2040s.

"With recent events, the focus is on flood risk reduction, which includes the use of levees and bypasses to keep floodwater off of land assets—such as agriculture—and get water out of the system quickly if there is nowhere to store it," DWR Supervising Engineer Jennifer Marr said. "Flood-MAR projects can help slow down flows and provide prime locations to divert floodwater to maximize recharge."

The Flood-MAR team, Marr said, envisions a future where flood agencies could contact local groundwater sustainability agencies before or during a storm, and obtain a list of landowners with prime recharge locations.

"In the future, all water rights, conveyance and other infrastructure (would be) in place and ready for the next event. Ideally, landowners would be compensated for the public benefits their Flood-MAR projects provide," Marr said.

DWR Supervising Engineer Jim Wieking said with SGMA and changes in the state's weather, it makes sense to connect management of surface water and groundwater.

"We're starting to get floodwater experts in the room with surface water managers and groundwater managers," he said. "Flood-MAR is saying: Maybe we can look at the potential for essentially irrigating fields in the wintertime and that would increase water into the aquifers in those areas."

Recharging groundwater has long been a priority of the Selma-based Consolidated Irrigation District, which serves farmers with water from the Kings River.

Consolidated Irrigation District General Manager Phil Desatoff said the district has been using floodwater to replenish groundwater since the 1870s, and started purchasing land for recharge purposes in 1921 when the district was officially formed.

"The district has been doing this slowly, but now with SGMA it becomes a major priority; we have to get this done," Desatoff said. "We're going to capture more of this floodwater and put it underground."

Located near the Kings River and with coarse soils that offer a favorable water-percolation rate, the district has 1,400 acres of ponds for groundwater recharge and plans to construct more.

During the wet winter of 2016-17, Desatoff said the district diverted an average 900 cubic feet per second or 1,800 acre-feet of floodwater per day for groundwater recharge, from January through September.

"That's 408,000 acre-feet of water that we were putting in the system," he said.

Consolidated Irrigation District formed the Central Kings Groundwater Sustainability Agency and intends to work with neighboring districts.

"We are going to be in balance, in fact we're almost in balance now," Desatoff said.

Helen Dahlke, a hydrology expert and professor with the University of California, Davis, Department of Land, Air and Water Resources, has been working with farmers, studying on-farm groundwater recharge locations and suitability for various crops.

"In many regions, we can definitely do more actively recharging our groundwater aquifers," said Dahlke, who currently has trials on alfalfa at the UC Kearney Agricultural Center. "It really depends on what region, how much surface water is available for recharge, what kind of sediment structure or hydrogeology we have underneath and whether it's suited for conveying large amounts quickly."

Despite abundant precipitation in recent weeks, she said the timing is not the best for studying impact of recharge on certain crops.

"We prefer on-farm recharge to happen in January and February, just because that is considered the dormancy season for most crops," Dahlke said. "With almond trees already blooming, often there is a greater risk of applying water on those crops."

She said recent precipitation has helped groundwater recharge overall, but there is "very little way of estimating how much it is helping."

"It's more or less impossible to account for all of the heterogeneity that we have in the landscape," Dahlke said.

DWR's Wieking said groundwater recharge is driven by precipitation and runoff, and precipitation also influences the amount of active recharge that can be applied. With the significant amount of precipitation this year, he said he believes much natural recharge is taking place and more water is available for farmers to take advantage of on-farm recharge.

The state tracks groundwater elevation trends through its California Statewide Groundwater Elevation Monitoring program.

"CASGEM information is updated annually and so there will be new updates after this water year," Wieking said. "Information collected from different wells is compiled so water managers can compare year to year. In terms of recharge for this year, we're ahead of average and so we're probably recharging more water to our groundwater basin than we do on average. In terms of knowing how we've done in a given year, you don't really find out until a couple of years down the line, usually."

Dahlke noted that after analyzing groundwater data following 2017, the wettest year on record for Northern California, "we could see in some wells the level rising 10, 20, and in extreme cases 30 feet, which is a lot—but measuring the water table does not tell us the volume of water that we have in the groundwater aquifer."

# # #

Despite California's long drought, trillions of gallons of rainwater wastefully flowing into sea

California rainwater going 'down the drain' instead of being captured for drought season
Fox News | March 6, 2019 | William La Jeunesse

LOS ANGELES -- California's rainy season could be the wettest in 40 years, but experts say the state is missing a major opportunity by failing to collect the trillions of gallons of storm runoff that currently flows wastefully into the ocean.

"We will never capture it all, but we need to do a better job of capturing what we can," said Peter Gleick of the Pacific Institute.

In February alone, an estimated 18 trillion gallons of water fell on the state. In urban areas and coastal cities, 80 percent ends up diverted into the ocean, as Los Angeles and other cities built long concrete channels for flood control. The Los Angeles River, for example, is a 51-mile-long canal as wide as a football field. Almost none of the water seeps into the underground aquifer.

"The challenge is: How do we capture more of that water to use it so we can use it during dry parts of the year? And cities in California have not historically done a good job of capturing what we call stormwater," said Gleick, who helped author a study showing how San Francisco and Los Angeles could harness nearly as much water as they consume.

In the past, the state relied on a vast network of nearly 50 dams and reservoirs to capture and bank snowpack from the Sierra Mountains. Snow that melted in the spring and summer was pumped south into the Central Valley for growing and to serve thirsty cities till the rainy season begins in December.

For years, the system worked seamlessly, providing for economic growth and agricultural expansion. However, the population has surged in recent decades.

The state handled previous droughts in 1976 and 1988. But, the last five-year drought, from 2011 to 2015, brought a 25 percent mandatory reduction. Crops died, farmers went out of business and then-Gov. Jerry Brown proposed fining residents $10,000 a day for wasting water.

Suddenly the state realized it needed a new approach. Voters approved $2.7 million in bonds for new water storage projects. The first of those, however, is still five years away from completion – and many won't be done until 2030 or beyond, leaving the state vulnerable to the next drought.

"As Californians, we have to pull together and save water in every way we can," Brown said at the time.

Two months ago, in his State of the State address, new Gov. Gavin Newsom said: "Our water supply is becoming less reliable because of climate change."

Experts predict longer droughts and more floods. Yet, the state turned down an offer from the Trump Administration to raise Shasta Dam, providing 14 percent more water for California.

This past weekend, even former Republican Gov. Pete Wilson weighed in on the debate, telling the Los Angeles Times that he tried to build more dams in the '90s, but "Democratic majorities in the Legislature (and) no growth advocates in Washington and Sacramento (stopped him) given the signal surface collection was not politically in season."

Now it is. Besides conservation, California and local water departments are planning multiple stormwater-capture plans.

“There is still a debate in California about the value of building new concrete infrastructure like new dams,” Gleick said. “If we can find decent places to build them or raising Shasta, for example, vs. cutting demand or being more efficient.”

# # #

Stanford removes dam, giving endangered fish room to roam
Palo Alto Weekly | March 6, 2019 | Sue Dremann

San Francisquito Creek now flows unimpeded where Stanford University has removed the Lagunita Diversion Dam. The university also restored the creek with areas that allow for shallows favored by endangered steelhead. Photo courtesy of Kurt Hickman / Stanford News Service.

Water is now flowing freely along a 480-foot stretch of San Francisquito Creek after Stanford University removed the aged Lagunita Diversion Dam.

The 120-year-old dam was located near Alpine Road and the Stanford Weekend Acres neighborhood. The latter is in unincorporated Menlo Park. Removing the 8-foot-high structure now allows water to flow freely downstream to support endangered-fish-species habitat in the creek. San Francisquito is home to a population of the Central California Coast Distinct Population Segment of steelhead.

Removal of the concrete structure began in June 2018 and took five months to complete, according to the university. This section of the creek has been restored to include large rock boulders, logs and crib walls to create pools and riffles (rocky shallows) similar to other parts of the creek favored by the steelhead.

The dam was part of a decades-old controversy regarding Searsville and Lagunita dams. Two environmental groups, Our Children's Earth Foundation and Ecological Rights Foundation, sued Stanford in 2014 claiming that the university had violated the Endangered Species and Clean Water acts by continuing to keep the Lagunita Dam in place.

The dam created a flume that filled Lake Lagunita with drinking water, but the flume and dam have not been operational since the 1930s, according to the university. Stanford added a fish ladder in 1954 to help the steelhead move over the structure, but the ladder was prone to debris

jams that caused the steelhead difficulty navigating through the structure, according to a 2014 National Marine Fisheries Service biological opinion on the university's Steelhead Habitat Enhancement Project.

The dam also created about a 1,000-foot-long area of sediment upstream and a deep plunge pool downstream, which impeded the steelhead from spawning, according to the university's November 2017 funding application to the state Department of Fish & Wildlife.

The university and plaintiffs reached a temporary settlement to halt the lawsuit and a separate legal action regarding Searsville Dam until Stanford could obtain regulatory approvals to change water flow at the Jasper Ridge Road Crossing and remove Lagunita Dam. Stanford has completed the so-called low-flow crossing at Jasper Ridge Road.

Removing the structure and adding the improvements created about 14.6 miles of high-quality habitat upstream of the dam.

"Looking ahead, we have a 10-year monitoring plan to keep an eye on the improvements that were constructed at the site and make sure the structural components and vegetation remain in place," Tom Zigterman, director of water resources and civil infrastructure for Stanford, said in a statement to Stanford News Service.

# # #

Department of Water Resources hits pause on WaterFix
The Press | March 5, 2019 | Tony Kukulich

The real-world implications of Gov. Newsom's rejection of the twin tunnels project became more apparent last week as the Department of Water Resources (DWR) and the U.S. Bureau of Reclamation requested and were granted a 60-day stay of hearings with the State Water Resources Control Board (SWRCB).

"We agree that the SWRCB water rights hearing should be stayed while the state determines what project it wishes to pursue," said Osha Meserve, a Sacramento-based environmental attorney representing counties, local agencies and environmental groups opposed to WaterFix. "We are urging an open and transparent process to assess alternatives to the twin tunnels concept rejected by the Governor that could be more readily implemented."

During Newsom's State of the State address on Feb. 12, he stated unequivocally that he did not support the twin tunnels, but does support a single tunnel. Newsom's position created a quandary for DWR. The project has, up to this point, been contemplated as a two-tunnel project. Years of environmental impact reports, wildlife impact studies and construction permit requests were completed based on two tunnels with three intakes — each with a 3,000 cubic feet per second capacity — to be constructed on the Sacramento River, south of the city of Sacramento. The size of the tunnel, the number of intakes, the capacity of those intakes and their placement are now unknown quantities.

The request to construct the intakes, referred to as a change in point of diversion (CPOD), was submitted by DWR and the Bureau of Reclamation to the SWRCB in August 2015. DWR is the state agency charged with building and operating WaterFix as part of the State Water Project. The Bureau of Reclamation, a federal agency, is involved because the Central Valley Project (CVP) is expected to receive water from the WaterFix infrastructure, and CVP is a federally administered program. Hearings regarding issuance of the requested permit have been ongoing for years and a ruling was initially expected as early as this past December. But December came and went with no ruling, and now a stay in the hearings has been requested, ostensibly to allow DWR the time to figure out what a single-tunnel project would look like.

The March 1 letter addressed to Tam Doduc of the SWRCB says, in part, "This request is in light of Governor Gavin Newsom's State of the State address on February 12, 2019, where he presented a conceptual proposal supporting a single-tunnel configuration for WaterFix that builds on the permit and planning work that has already been completed. The Petitioners (DWR and the Bureau of Reclamation) are submitting this request to allow DWR sufficient time to assess the effects on WaterFix and the nature and the extent of the effects would have on any new permit and planning work, and specifically how this may affect the WaterFix CPOD process."

DWR provided The Press with a copy of their request, but declined to provide additional comment.

Michael Brodsky, legal council for Save the California Delta Alliance – a Discovery Bay-based environmental group that opposes the construction of the tunnels – said he believed SWRCB would grant the stay and that it would be only the beginning of DWR's process to redefine WaterFix.

"In addition to the downsize from two tunnels to one tunnel, the governor also stated that conveyance projects should include portfolio elements," said Brodsky. "Portfolio elements include increased water storage facilities, water recycling, water conservation and other measures. If the revised project includes those measures and is a one-tunnel project, that would be a set of very significant changes. It would not make sense for the water board to move ahead to a final decision on the current project, which will never be built. It makes sense to wait until the governor fleshes out his plan for the new project and then for the water board to consider that new project.

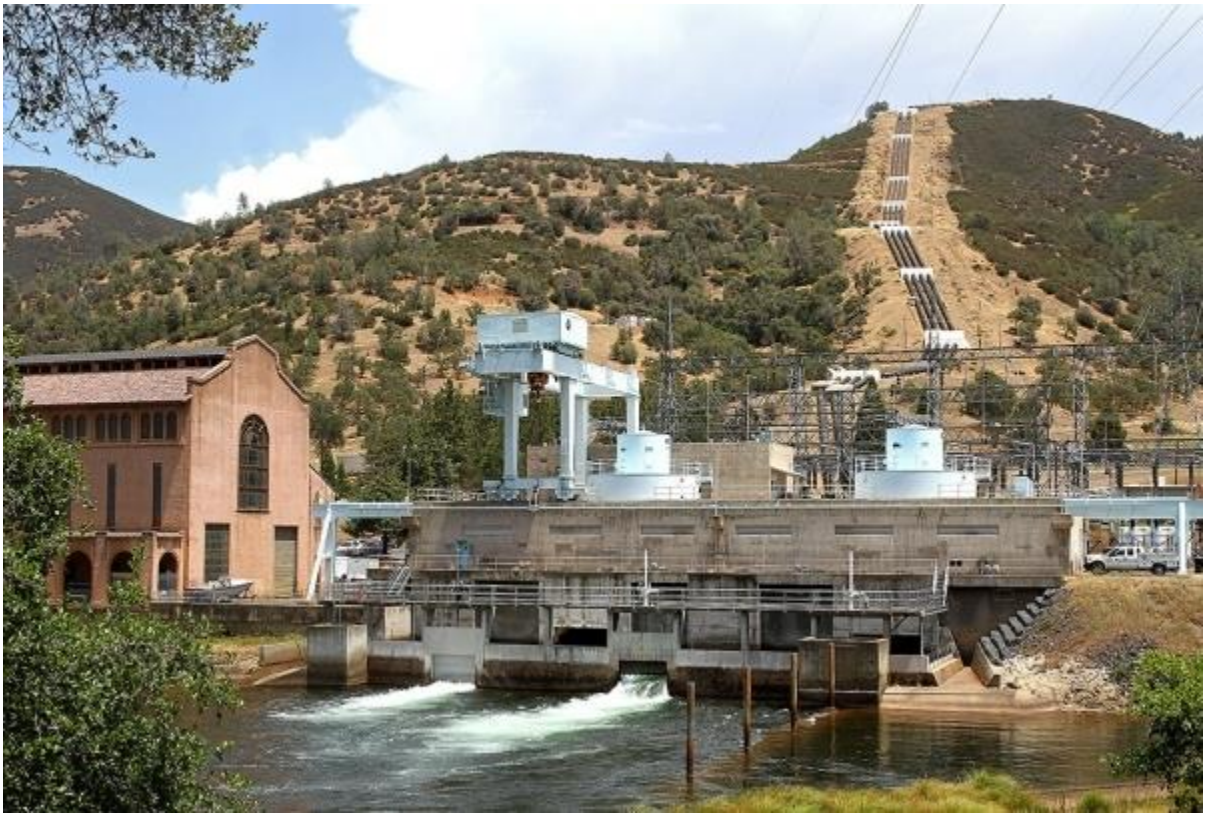
# # #

For more information on WaterFix, visit: Save the California Delta Alliance - https://nodeltagates.com/, California WaterFix - https://californiawaterfix.com/, the Department of Water Resources - https://water.ca.gov/, and Restore the Delta - https://www.restorethedelta.org/.

Peninsula cities seek more oversight on water projects

New contract with SFPUC would give local agencies a louder voice on capital spending

Palo Alto Weekly | March 2, 2019 | Gennady Sheyner



Hetch Hetchy water is carried through penstocks, top right, and heads to the Moccasin Powerhouse where it generates electricity that is used for municipal services in San Francisco. Photo by Veronica Weber.

It's a treasure that is all too easy for Palo Alto to take for granted — an abundant supply of pristine water that flows from the Sierra Nevada snowpacks and passes through the Hetch Hetchy system before splashing out of local showers and faucets.

But while the water is famously clear, the process by which it gets here can be a bit opaque. Palo Alto is one of 26 cities that belong to the Bay Area Water Supply and Conservation Agency (BAWSCA), which manages the member cities' supply agreement with the San Francisco Public Utilities Commission. Like all other partner agencies, Palo Alto gets its contractual allocation of water and pays its share for the water supply and for capital improvements to the aged water system.

Even so, the cities don't always know which projects they're helping to fund. The San Francisco Public Utilities Commission, which is now completing a $4.8-billion capital project known as Water System Improvement Program (WSIP), has been unilaterally adopting its capital plans, with little involvement from the partners who help pay for the myriad projects in these plans. These days, as the 26 cities in BAWSCA are revising their water contract with the SFPUC, one of their key goals is to change that.

Over the course of the negotiations, the two agencies have agreed to adopt seven amendments to their 1984 agreement, according to Nicole Sandkulla, chief executive officer and general manager of BAWSCA. The SFPUC signed off on the changes last December. Now, each BAWSCA city is reviewing these changes, with the Palo Alto City Council set to consider them this Monday, March 4. This is the second time that the 1984 agreement will be amended (the first amendment came in 2009).

One amendment in the new agreement would give BAWSCA cities more oversight of the SFPUC's 10-year capital improvement program. While the SFPUC would still have the final say on its projects, the agreement requires the SFPUC to hold quarterly meetings with BAWSCA to present detailed information about each individual project in its program and about any potential "candidate" project. The SFPUC will also be required to "formally engage" with BAWSCA as it develops its 10-year capital improvement program.

In her Feb. 6 presentation to the Utilities Advisory Commission, Sandkulla described the SFPUC as an "unregulated monopoly" that doesn't report to any other agency.

"But they are prideful and a public process has proven to be very effective in getting them to do what you want them to do," Sandkulla said. "That's what this amendment is trying to take advantage of — getting inside, getting enough information so that we can either impact the decision before it gets to their commission or, if not, to be educated and smart enough to be able to affect the discussion publicly."

Under the new agreement, the SFPUC will also be required to respond, in writing, to all written comments submitted by BAWSCA and wholesale customers on the 10-year plan before the agency's first budget meeting. And it will have to give wholesale customers the opportunity to review and provide comment on "any changes to the level of service goals and objectives" that the commission may be considering.

Lisa Bilir, a resource planner at the Utilities Department, told the commission on Feb. 6 that the amendment will ensure that "BAWSCA and wholesale customers are involved in developing the 10-year capital improvement program and have the opportunity to comment on proposed changes to the water supply and delivery targets."

"This will give BAWSCA and wholesale customers the ability to oversee and scrutinize the SFPUC's capital program, which is a major factor in the resulting rates," Bilir said.

Other amendments aim to update outdated policies, correct flawed ones and clear up confusion over classification of numerous SFPUC assets — a factor that can influence rates for water customers in Palo Alto and other BAWSCA cities. Hetch Hetchy facilities are currently classified as "water," "power" or "joint" (which have both water and power benefits) assets. BAWSCA's wholesale customers are exempt from paying for power-related facilities, however, they do pay for 45 percent share of the "joint" assets.

According to a report from the Utilities Department, the amendment aims to address a decision by the SFPUC to unilaterally reclassify several assets from "power" to "joint," a move that added $50 million in obligation to water customers. BAWSCA challenged that decision and ultimately reached an agreement with the SFPUC to reclassify seven specific projects and to "fix" the reclassification of all Hetch Hetchy assets, according to utilities. The amendment also removes the $50 million of obligation from the wholesale customers, ensuring the customers will only be

required to pay their fair share for the $2 billion in capital work that the SFPUC plans to undertake over the next 10 years, according to utilities.

"It is in the Wholesale Customers' interest to provide SFPUC the revenue needed to fund these annual repair and maintenance projects while ensuring the Wholesale Capital Fund is kept at a reasonable level," the Utilities Department staff report states. "The proposed amendment achieves those goals."

The new agreement also includes amendments that would formally memorialize the "supply assurance" to the wholesale customers, which is set at 184 million gallons per day (each customer also has its "individual supply guarantee"); updates the completion date of the WSIP effort (from the outdated date of Dec. 31, 2015 to Dec. 30, 2021); and creates an annual reconciliation process for capital funds that wholesale customers contribute to the SFPUC to ensure that the agency has the necessary resources for needed improvements.

Another amendment in the new agreement modifies how water is allocated during drought periods. The change, according to utilities staff, will allow more water to be available to wholesale customers during drought periods than under the existing agreement. The staff report notes that had the current formula been applied during the 2014-2017 drought, San Francisco's retail customers would actually have been allocated more water than they would have received during years with typical rainfall.

This amendment, according to utilities staff, benefits the city by "ensuring a more equitable allocation of water during a water shortage resulting from drought."

The Utilities Advisory Commission voted 6-0, with Arne Ballentine absent, on Feb. 6 to support the amended agreement. The council is expected to approve the changes on its "consent calendar," which is reserved for non-controversial items, this Monday.

# # #