BAY AREA WATER SUPPLY AND CONSERVATION AGENCY
BOARD OF DIRECTORS MEETING

December 7, 2023

Correspondence and media coverage of interest between October 30, 2023 and December 7, 2023

Correspondence

From: Peter Drekmeier, Tuolumne River Trust Policy Director
To: Nicole Sandkulla, BAWSCA CEO/General Manager
Date: December 4, 2023
Subject: Tuolumne River VA

Press Release

From: San Francisco Public Utilities Commission (SFPUC) and
American Society of Civil Engineers (ASCE)
Date: December 6, 2023
Press Release: Crystal Springs Dam Recognized as National Historic Civil Engineering Landmark

From: California Department of Water Resources
Date: December 1, 2023
Press Release: DWR Announces Initial State Water Project Allocation of 10 Percent for 2024

Water Supply Conditions:

Date: December 7, 2023
Source: SF Gate
Article: NOAA lays out what could happen in California during strong El Nino

Date: December 6, 2023
Source: KTVU 2
Article: Are more mostly dry months ahead for California?

Date: December 4, 2023
Source: Patch
Article: Slow Start to Rainy Season could Impact Local Water Supplies

Date: December 1, 2023
Source: SF Chronicle
Article: California officials warn of potentially low water supplies next year

Water Supply Management:

Date: November 30, 2023
Source: Nevada Independent
Article: Breaking boundaries: How Northern California could help Las Vegas during drought

Water Policy:

Date: November 29, 2023
Source: Yahoo
Article: City officials outlaw common landscaping tactic once touted as the solution to drought: 'it's a ticking time bomb'

Date: October 30, 2023
Source: Daily Journal
Article: Millbrae bans new artificial turf

Water Infrastructure:

Date: December 1, 2023
Source: ABC 7
Article: Lead pipes rule changes: What does this mean for California?

Climate:

Date: December 4, 2023
Source: Sacramento Bee
Article: Warmer winter temperature in California could make 'storms more hazardous,' report says

Lourdes Enriquez

From: Peter Drekmeier <peter@tuolumne.org>
Sent: Monday, December 4, 2023 11:58 AM
To: glarsson@sunnyvale.ca.gov; bawscaboardofdirectors
Cc: Nicole Sandkulla
Subject: Tuolumne River VA
Attachments: TRT Letter to BAWSCA re-TRVA.pdf; BAWSCA Response to TRT Letter.pdf

Dear Chair Larsson and BAWSCA Board Members:

On December 9, 2020, information about the Tuolumne River Voluntary Agreement (TRVA) was presented to the BAWSCA Policy Committee. On January 20, 2021, TRT submitted the attached response letter, to which we received the attached response from BAWSCA. It states: "The points made in your letter relate primarily to the science behind the proposed Tuolumne River Voluntary Agreement (TRVA) that has been developed by the water rights holders on the Tuolumne, the SFPUC and the Modesto and Turlock Irrigation Districts (Districts). For this reason, BAWSCA has forwarded your letter to the SFPUC for further response."

We never received a response.

Given that the presentation we were responding to was provided by BAWSCA, and many of our points are not science-related, we would appreciate a response to as many of our points as possible.

Please add this item to your next Policy Committee meeting on December 13.

Thanks for considering this request.

-Peter

Peter Drekmeier
Policy Director
Tuolumne River Trust
peter@tuolumne.org

BAWSCA
Bay Area Water Supply & Conservation Agency

February 1, 2021

Mr. Peter Drekmeier, Policy Director
Mr. Dave Warner, Volunteer
Tuolumne River Trust
57 Post Street, Suite 711
San Francisco, CA 94104
transmitted via email and US mail

Subject: January 20, 2021 Letter to BAWSCA

Dear Mr. Drekmeier and Mr. Warner

I am writing to you at the direction of BAWSCA Board Chair Larsson to acknowledge receipt of your January 20, 2021 letter and the effort you have taken to address specific points presented in a recent presentation made to the BAWSCA Board Policy Committee on the Bay-Delta Plan.

The points made in your letter relate primarily to the science behind the proposed Tuolumne River Voluntary Agreement (TRVA) that has been developed by the water rights holders on the Tuolumne, the SFPUC and the Modesto and Turlock Irrigation Districts (Districts). For this reason, BAWSCA has forwarded your letter to the SFPUC for further response. Given their role in developing the TRVA, it is most appropriate for these agencies to respond to your comments directly.

On February 5, 2021, the SFPUC will host a public workshop in which BAWSCA understands that the SFPUC will present the science supporting the TRVA. Since 2011, as the TRVA was being developed as part of the Don Pedro Relicensing and as part of the Bay Delta proceedings, the BAWSCA Board and staff of our member agencies have had the benefit of regular briefings from the SFPUC on the TRVA and the science supporting it. The upcoming workshop will be an excellent opportunity for the public to have the benefit of that information at this time and in a single session.

I have initiated several meetings with both of you to engage in a more open dialogue about this and other issues. I would hope that we can continue this effort as I believe we share more areas of common ground than currently recognized. For example, like the Trust, BAWSCA and its member agencies recognize the importance of water conservation. Current projections indicate that the BAWSCA agencies will serve 76% more people in 2045 than in 1986 with a 1% decrease in overall water demand. In addition, your letter references the non-flow measures in the TRVA and potential for implementing them to reduce the flows needed in the Tuolumne River at certain times. It seems that the evaluation of the potential benefit to the fishery from the implementation of non-flow measurements is something that would be worth further discussion and possibly an area of agreement. It is BAWSCA's hope that the State Board will conduct that evaluation as soon as possible.

As I write this letter, our State, watershed, and region are getting some much-needed rain and snow. BAWSCA continues to support the objectives of the Bay Delta Plan and remains committed to working with you and other stakeholders to protect water quality in the Bay-Delta for humans, fish and other wildlife.

Regards,

Nicole Sandkulla
CEO/General Manager

cc: Board of Directors
Water Management Representatives
A. Schutte, Hanson Bridgett

Tuolumne River Trust

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January 20, 2021

Chair Barbara Pierce and Board Members
Bay Area Water Supply and Conservation Agency (BAWSCA)
155 Bovet Road, #650
San Mateo, CA 94402

Via Email

Re: Response to December 9, 2020 BAWSCA presentation on "*Six Concerns Raised by Others Regarding the TRVA and the Facts*" and "*Eight Recent Comments About BAWSCA and Its Member Agencies' Bay Delta Efforts and the Facts*."

Dear Chair Pierce and BAWSCA Board Members:

BAWSCA has two main relationships with the SFPUC, one as a partner and the other as a watchdog. This is appropriate, and should apply to all issues. BAWSCA does a good job at keeping an eye on its financial and water supply interests, but a poor job as an environmental watchdog. On issues such as the Bay Delta Water Quality Control Plan and Federal Energy Regulatory Commission (FERC) licensing of Don Pedro and La Grange Dams, BAWSCA relies heavily on the SFPUC for talking points, and doesn't do enough of its own analysis. In this realm, BAWSCA has failed its constituents, who care deeply about the environment.

The Tuolumne River Trust (TRT) was very disappointed by a presentation given to the BAWSCA Policy Committee on December 9, 2020. In the spirit of improving communication, this letter shares TRT's responses to comments presented as facts at that meeting. Furthermore, we request an opportunity to meet with BAWSCA representatives to discuss our differences on the Bay Delta Plan and competing Tuolumne River Voluntary Agreement (TRVA). We may not all agree on certain policy decisions, but we certainly should base our positions on mutually-accepted facts.

Following are BAWSCA's responses to concerns raised about the TRVA and TRT's responses to BAWSCA's comments.

Six Concerns Raised by Others Regarding the TRVA and the Facts

Concern #1: The TRVA does not include enhanced stream flow.

BAWSCA Response #1: The TRVA provides increased flows on the Tuolumne River in all water year types over current average requirements.

TRT Response: The concern as stated obfuscates the issue. The issue is that the TRVA's additional flows are limited and wholly inadequate. In 2010, the State Water Resources Control Board (Board or Water Board) issued a flow criteria report that concluded 60%

of unimpaired flow on the lower San Joaquin River and its three major tributaries, including the Tuolumne River, between February and June would be necessary to protect biological resources and restore the Bay-Delta ecosystem. In 2012, the Board released its first draft Substitute Environmental Document (SED), recommending a range of unimpaired flow from 25% to 45%, starting at 35%, between February and June, to be determined by whether biological goals and objectives were being met. The purpose of the range in flows was to incentivize non-flow measures, such as habitat restoration and predator control, which the Board does not have the authority to mandate. The Board has always acknowledged that a combination of flow and non-flow measures would be necessary to restore the ecosystem.

Following months of comments from State and Federal agencies, water agencies, and environmental and fishing groups, the Board worried the SED was insufficient to withstand legal challenges, and directed staff to revise it. In 2016, a new draft SED was released, recommending a range of unimpaired flows from 30% to 50%, starting at 40%.

BAWSCA Response #2: The TRVA will provide enhanced Tuolumne River flows resulting in 24,000 to 110,000 acre-feet of greater flows above current average requirements.

TRT Response: This comment is misleading because it refers to "required discharge" rather than "total discharge," which most people would assume the numbers refer to. The key words in BAWSCA's response are "above current average ***requirements***."

Required discharge primarily involves better timing of "spill" – water that must be released when reservoirs are expected to fill in order to prevent downstream flooding. Little of the required discharge included in the TRVA is new water.

The following graph from the TRVA[1] shows required discharge to be 216 thousand acre-feet (TAF) under the base case, 673 TAF under the Water Board's 40% unimpaired flow, and 351 TAF under the TRVA. In other words, the TRVA would produce 38.5% more "required discharge" than the base case.

"Total discharge" is an entirely different story. Under the base case it is 821 TAF, under the Bay Delta Plan 40% unimpaired flow it is 987 TAF, and under the TRVA it is 859 TAF. The TRVA would produce only 4.5% more "total discharge" than the base case. BAWSCA should correct or clarify its response to avoid misleading readers.

[1] Voluntary Agreements, Appendix A6: Tuolumne River, page A-192.

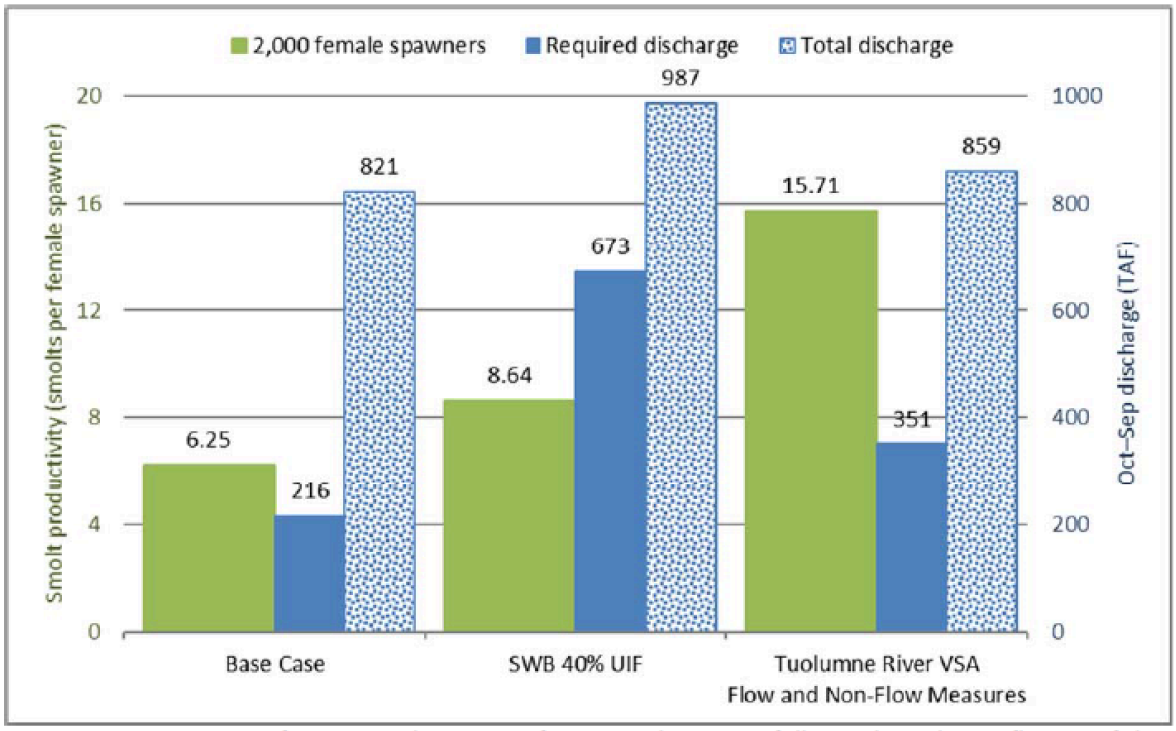


Figure 10. *Comparison of anticipated increase of FRCS smolts successfully reaching the confluence of the San Joaquin River. Required and total discharge measured at the La Grange gage.*

After decades of ecological decline on the Tuolumne, the Irrigation Districts should already have been managing spill to "allow sufficient water at all times to pass through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam," as required by Fish and Game Code Section 5937. Using better timing of spill as a bargaining chip in the TRVA is inappropriate.

Furthermore, the comparison of female spawners in the above graph is misleading. If the Bay Delta Plan were producing the poor results shown, the unimpaired flow requirement would increase to 50%. The water agencies would not just sit by idly and allow this to happen. They would implement the non-flow measures included in the TRVA to reduce the unimpaired flow requirement to as low as 30%. It is this scenario that should be compared to the TRVA. Otherwise, the TRVA should be compared to the Bay Delta Plan at 50% of unimpaired flow.

Concern #2: Habitat enhancement is being advanced instead of flows.

BAWSCA Response #1: The TRVA habitat enhancements are designed to work in concert with additional flows.

TRT Response: Again, this statement is misleading. The basis of the TRVA is that a combination of habitat enhancement and limited additional flows can achieve better results than the Bay Delta Plan's significantly higher level of flows in the absence of non-flow measures. Bay Delta Plan flows, coupled with non-flow measures, would produce much better results than the TRVA.

Keep in mind the Water Board, with all its experts, spent more than 10 years preparing the Bay Delta Plan, with numerous public hearings and opportunities to submit written comments, and based its conclusions on peer-reviewed science, unlike the TRVA.

BAWSCA Response #2: The TRVA is based in and framed around adaptive management that includes the ongoing implementation and evaluation of flow and non-flow measures.

TRT Response: This statement is misleading due to the TRVA's use of the term "adaptive management." Adaptive management, as used in the Bay Delta Plan, measures performance against a set of biological goals and objectives and then increases or decreases an applied resource (water) depending on whether or not the goals and objectives are being met. "Adaptive management" as used in the TRVA refers to optimizing the use and timing of a finite set of resources. In the current version of the TRVA, those resources are the initial capital investment and operations and maintenance costs, 4.5% additional flow, and better management of spill water. The TRVA has vague, limited biological goals and no additional investment of water or habitat enhancement if goals are not met.

A major problem with the TRVA is that it plans for a number species at different life stages coexisting in the river channel. This is not natural, and exacerbates predation of juvenile fish. In a natural environment, mature fish inhabit the main channel where water is faster moving and cooler, while baby fish inhabit floodplains where the water is slower moving and warmer, and they have access to more food and refuge from predators.

The TRVA is full of examples of the need to make trade-offs between species and life stages. For example:

> Adult *O. mykiss* [rainbow trout and steelhead] habitat is 78% of maximum WUA [weighted usable area] at 200 cfs. An alternative flow of 150 cfs was considered, which improves fry habitat to 78% of maximum WUA, but decreases adult habitat to 70% of maximum WUA. At 150 cfs, average daily water temperatures at RM 43 are less than 20 C until maximum daily air temperature exceeds 95 F, which occurs on average three days in June. An alternative flow of 300 cfs increases adult WUA to 90%, but decreases fry to just over 60% of maximum WUA.[2]

The above conclusion refers to a single species. Elsewhere in the TRVA are examples of trade-offs needed to be made between different species.

It's more than a little odd that the SFPUC's Environmental Stewardship Policy (ESP) embraces the unimpaired flow approach to river management on the upper Tuolumne, yet they support a different approach on the lower Tuolumne. The ESP states:

> It is our policy to operate the water system in a manner that protects and restores native fish and wildlife downstream of our dams and water diversions, within reservoirs, and on our watershed lands. Releases from reservoirs will (consistent with our mission described above, existing agreements, and applicable state and federal laws), mimic the variation of the seasonal hydrology (e.g., magnitude, timing, duration, and frequency) of their corresponding watersheds in order to

[2] Ibid, page A-171.

sustain the aquatic and riparian ecosystems upon which these native fish and wildlife species depend.[3]

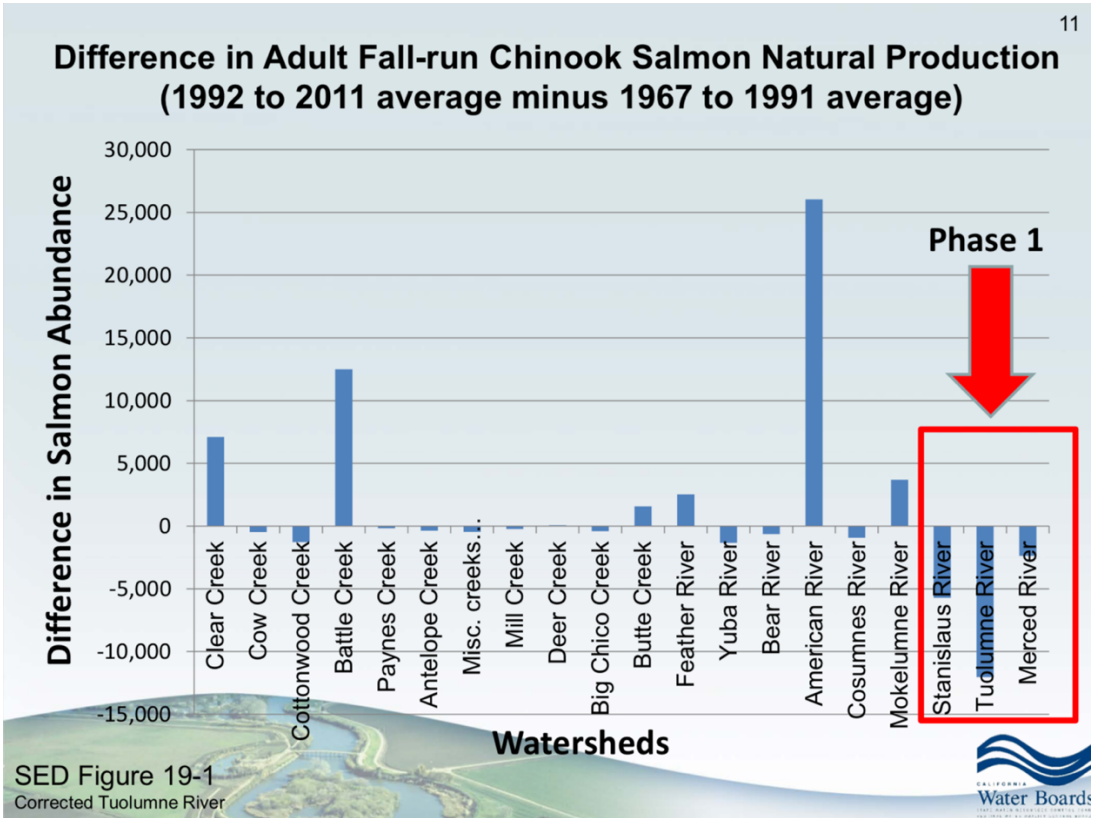
Concern #3: The TRVA is based on inadequate science and flawed governance structures.

BAWSCA Response: The TRVA is built on best available science and decades of monitoring, data collection and multiple River-specific studies.

TRT Response: This is an opinion, not a fact. The fish studies upon which the Tuolumne River Management Plan and TRVA are based have been discredited by the peer review commissioned by the National Marine Fisheries Service (see TRT response to Concern #4).

The Irrigation Districts have a terrible track record of managing the Tuolumne, despite their "scientific" studies. Consider this. In 1944, 130,000 salmon spawned in the Tuolumne. This occurred after many decades of in-river mining, the introduction of striped bass in the late 1800s, and La Grange Dam having blocked access to 85% of historic spawning grounds since 1893. Based on these facts, we can surmise that the Tuolumne historically hosted 150,000 to 200,000 salmon. In 2020, the number barely topped 1,000.

The following graph shows that the Tuolumne's salmon population is the worst off in the Central Valley.



Source: State Water Board

[3] SFPUC Water Enterprise Environmental Stewardship Policy – http://sfwater.org/index.aspx?page=181

A good example of a non-flow measure failing as a result of inadequate flows is the Special Run Pool (SRP) 9 project. This project resulted from the 1995 Settlement Agreement, which, like the TRVA, placed a significant focus on reducing predators and predator habitat. SRPs are in-river gravel pits that harbor non-native species. The SRP 9 project filled in a pit, but after expending approximately $2.8 million, it simply exchanged one non-native predator (largemouth bass) with another (smallmouth bass).

The Districts' own post-project monitoring report was clear about the importance of flows in affecting predator habitat. It stated:

> During extremely wet years, high flows can flush largemouth bass out of a stream, but typically a sufficient number of adults can find shelter in flooded areas to repopulate the stream during lower flow conditions (Moyle 2002). During the years following the flood, largemouth bass abundance was controlled by spring and summer flow conditions that were unfavorable for reproduction. Largemouth bass require low water velocities and warm water temperatures to reproduce (Moyle 2002, Swingle and Smith 1950, Harlan and Speaker 1956, Mraz 1964, Clugston 1966, Allan and Romero 1975, all as cited in Stuber et al 1982) (p 130).[4]

Concern #4: A review performed by a National Marine Fisheries Service (NMFS) consultant of the fishery models that support the TRVA proves that the scientific basis of the TRVA is inadequate to evaluate long-term fish management on the river.

BAWSCA Response: The models reviewed by the NMFS consultant were not designed to be a tool for long-term fishery management for conservation purposes, but were developed and approved by FERC as part of the FERC relicensing study plan for the purpose of evaluating the relative changes to in-river fish populations resulting from possible license conditions.

TRT Response: This statement is short-sighted. BAWSCA is correct that the models "were not designed to be a tool for long-term fishery management for conservation purposes." This is a major problem for the TRVA, which would be considered by the State Water Board, not FERC. The Water Board is legally charged with improving aquatic conditions for beleaguered fisheries, so they must base their decision on a plan that will dramatically improve long-term conditions. FERC went easy on the Irrigation Districts, but the Water Board cannot. We appreciate BAWSCA identifying this major flaw in the TRVA.

It should be noted that the peer review[5] was not just conducted by consultants, but by highly competent scientists working for the well-respected firm, Anchor QEA. Following are some quotes from the peer review:

> The Chinook salmon population model is useful but not usable by all stakeholders; and the *O. mykiss* [rainbow trout and steelhead] population model is neither useful nor usable.

[4] 2006 Lower Tuolumne River Annual Report, Special Run Pool 9 Post-project Monitoring Report – https://static1.squarespace.com/static/5eebc0039b04b54b2fb0ce52/t/6006f76cf77a806cf0f5b270/1611069310182/7+SRP+9+-+Post-Project+Monitorning+Report.pdf

[5] NOAA National Marine Fisheries Service's Technical Review of Salmonid Population Models e-Flied to the FERC Projects' Dockets – https://static1.squarespace.com/static/5eebc0039b04b54b2fb0ce52/t/5ffe1a69cc1c8606a3081719/1610488432168/X-3+NMFS+Peer+Review+of+Fish+Models.pdf

The [Chinook] model is not a full life cycle, which hampers its utility for evaluating potential benefits of management actions to the overall population.

A shortage of habitat quantity, including spawning habitat and gravel availability, is not a limitation on the population at abundance levels that are of concern. Thus, gravel augmentation would not significantly improve population performance.

The Chinook salmon production model cannot identify the number of predators that would need to be removed or how much of a reduction in consumption would be required to achieve a significant increase in smolt-to smolt survival. The response from predator control is assumed, not predicted.

It bears noting that the model, as developed, found water temperatures to be the major environmental factor driving juvenile *O. mykiss* productivity downstream of the dam. Flows released below La Grange Dam are apparently the major factor affecting water temperatures.

The model, as configured, indicates that the status of the Chinook salmon population is extremely precarious and bold actions will be needed to prevent extirpation. This need, according to the model, would best be met by very substantial increases in flow releases during spring (the period of active smolt outmigration from the river).

Concern #5: State and federal funding will be required to implement the TRVA.

BAWSCA Response: The TRVA proposes $83M in capital funding and $44.5 in annual O&M funding that will be paid by partner agencies and does not depend on state or federal grants, loans, taxes or fees.

TRT Response: We have not heard anyone claim that state and federal funding will be required to implement the TRVA, but we will respond just the same.

BAWSCA should cite the source of its figures. The TRVA states, "The Districts and SF will establish a dedicated fund with a commitment to a total funding of $38,000,000 for capital costs and an additional annual increment not to exceed $1,000,000/yr for O&M, monitoring, and reporting associated with completed capital projects."[6]

Concern #6: The TRVA development process lacked sufficient public input.

BAWSCA Response #1: The TRVA is the result of close collaboration and good faith discussions among the three public agency Partners and numerous stakeholders.

BAWSCA Response #2: The stakeholders included federal, state and local agencies, scientists, and environmental stewards, including stakeholders engaged in pre-scoping, scoping, development of technical tools, and the completion and publication of a Final EIS by FERC.

[6] See supra note 1, page A-186.

TRT Response: BAWSCA should distinguish between the development process for the TRVA and the review process. The NGOs did not contribute to the development of the TRVA, but were involved in its review, and were not impressed. Not a single environmental group supports the TRVA.

There were six environmental groups that participated in reviewing the Voluntary Agreements. They did not include the organizations that are most engaged in the Tuolumne River – Tuolumne River Trust, Tuolumne River Conservancy, California Sportfishing Protection Alliance, and Central Sierra Environmental Resource Center.

Highly detailed and technical comments submitted by the Conservation Groups in the FERC licensing process, including responses to the Ready for Environmental Analysis (scoping document), Draft EIS and Final EIS (all available upon request), were mostly ignored by FERC. There is not a single environmental or fishing group that supports FERC's preferred alternative, which is a modified version of the TRVA.

The environmental groups that did participate in reviewing the VAs expressed numerous concerns throughout the process. In a letter to Governor Newsom, the NGOs stated:

> It is critical that you understand the current agreements will not adequately improve conditions in the Bay-Delta estuary and its Central Valley watershed. Furthermore, the ongoing VA process is flawed and not on course to produce an agreement that is legally, scientifically, and biologically adequate to survive environmental review and legal challenge…None of our organizations support the current proposed package of VAs because they do not contain sufficient flow and habitat assets to adequately improve conditions in the Bay-Delta estuary as required under state and federal law. The best available science makes this clear. Moreover, there are major flaws with the VA process itself that, unless addressed, will prevent parties from reaching a successful agreement…Unless these concerns can be addressed without delay, our organizations will be compelled to conclude that these agreements will fail and will leave the VA process.[7]

In a follow-up letter to the Governor, the NGOs wrote:

> However, it has become clear that voluntary agreements that are sufficiently protective of the environment will be extremely difficult to achieve in the near term…Instead, the Water Board must quickly work to implement the water quality protections for the San Joaquin River and its tributaries that it adopted in 2018 and adopt and implement new water quality protections for the Sacramento River, its tributaries, and the Delta.[8]

Eight Recent Comments About BAWSCA and Its Member Agencies' Bay-Delta Efforts and <u>the Facts</u>

<u>1. BAWSCA and SFPUC's demand estimates are flawed and too high.</u>

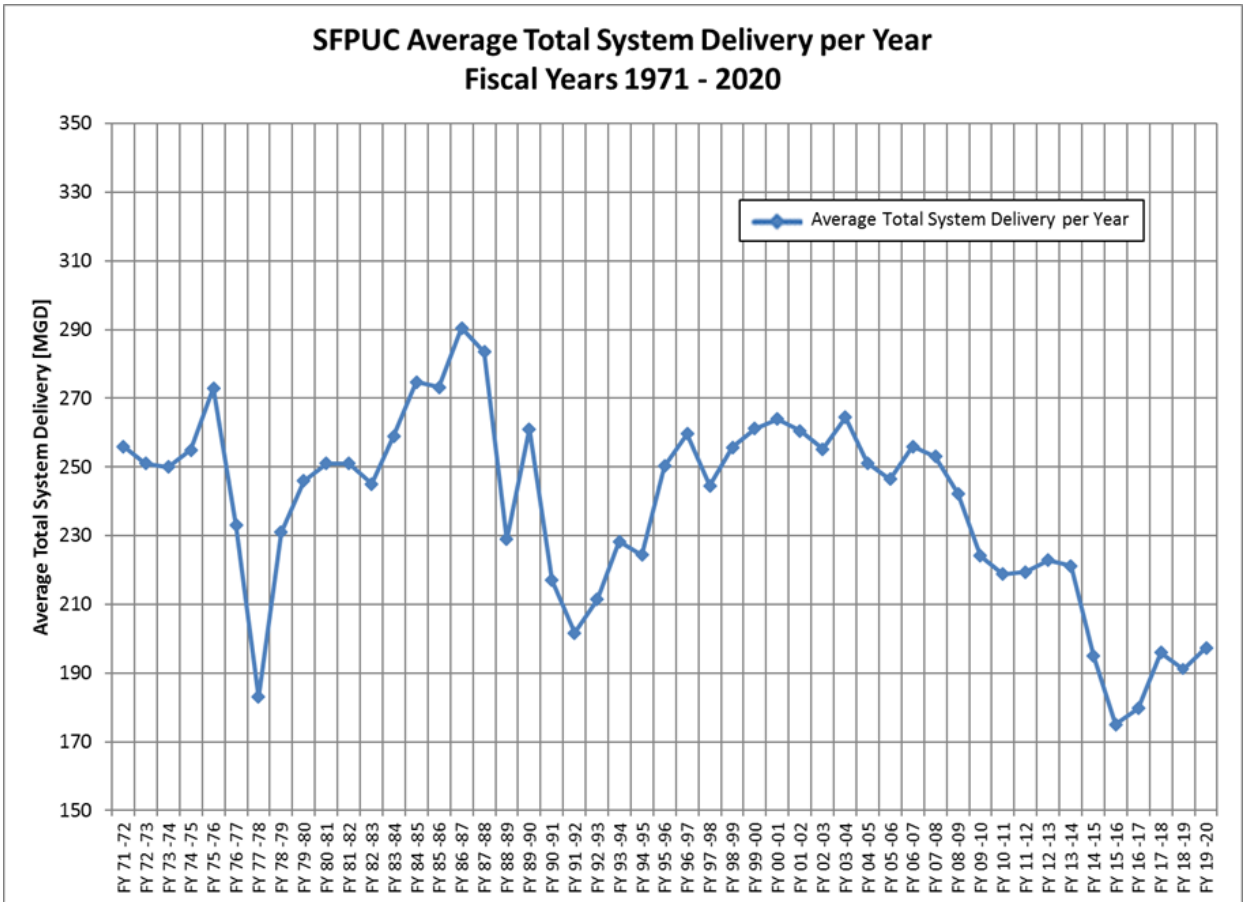
[7] NGO VA participants' letter to Governor Newsom, September 20, 2019 – https://static1.squarespace.com/static/5eebc0039b04b54b2fb0ce52/t/6006f6f43431835a94c46fd9/1611069173250/2+VA-NGO-Letter-to-Gov-Newsom-9-20-19.pdf

[8] NGO VA participants' letter to Governor Newsom, June 23, 2020 – https://static1.squarespace.com/static/5eebc0039b04b54b2fb0ce52/t/6006f6fc6506eb0065a5e541/1611069182093/3+VA+NGO+Letter+to+Gov+re+SWRCB_6.23.2020.pdf

BAWSCA Response: BAWSCA's demand studies are highly detailed, follow best practices, and result in future water demand projections suitable for water supply planning purposes.

TRT Response: BAWSCA's response is incomplete. When it comes to demand projections, BAWSCA and the SFPUC have very poor track records. In the PEIR for the Water System Improvement Program (2007), BAWSCA forecasted the need for 194 mgd by 2018. Actual demand in 2018 was 130.7 mgd[9] -- off by more than 32%.

Systemwide projections (San Francisco and BAWSCA) in 2007 were 285 mgd by 2018. The actual was 196 mgd, a difference of 31%. As demonstrated by the following graph, demand decreased substantially in that time period.

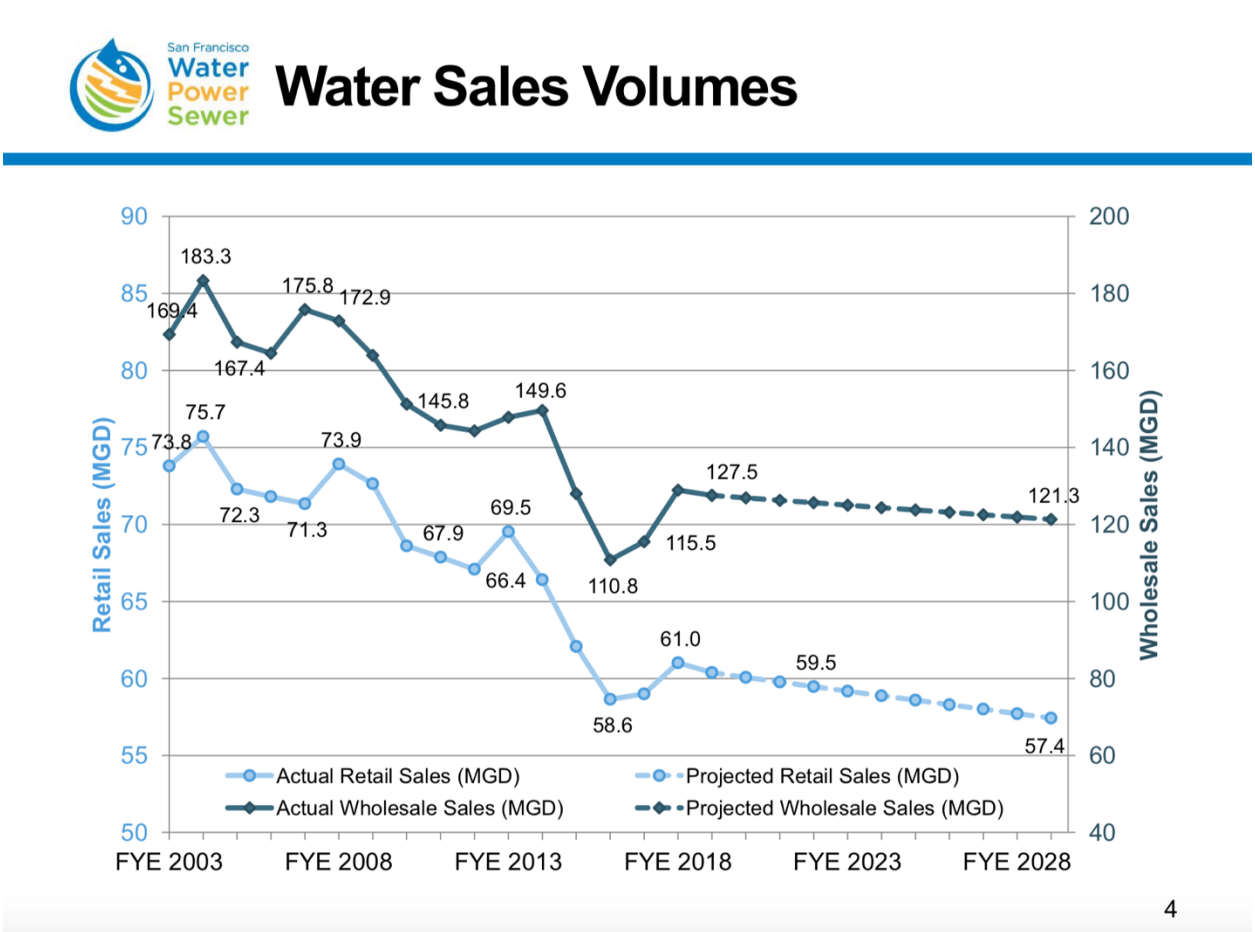


Source: SFPUC

[9] BAWSCA Annual Survey, (FY 2018-19).

Looking forward, the SFPUC's most recent 10-Year Financial Plan states:

> The 10-Year Financial Plan assumes a 0.5% average annual decrease in water and wastewater volumes…The slight downward trend forecast is based on historic water sales data that reflects a downward trend in actual water volumes over the past 20 years.[10]



Source: SFPUC

BAWSCA and the SFPUC are not unique in their water demand over-projections. A recent study by The Pacific Institute found:

> All water suppliers experienced dramatic reductions in per capita demand between 2000 and 2015, ranging from 14 percent to 47 percent. During this period, per capita demand declined by an average of 25 percent across all water suppliers.[11]

[10] SFPUC 10-Year Financial Plan (FY 2020-21 to FY 2029-30) – https://sfwater.org/Modules/ShowDocument.aspx?documentid=15020

[11] *An Assessment of Urban Water Demand Forecasts in California*, August 2020, The Pacific Institute – https://pacinst.org/publication/urban-water-demand-forecasts-california/

BAWSCA's long-term projections have never been realized. As a result, BAWSCA risks over-investing in water supply projects while contributing to further environmental degradation.

2. SFPUC's design drought is too long and overly conservative.

BAWSCA Response: SFPUC's design drought is appropriately based on actual historical conditions coupled with the addition of an acceptable level of caution for what the future may hold, including climate change and the likelihood of more severe droughts and extreme weather.

TRT Response: The "addition of an acceptable level of caution" is quite an understatement. The design drought couples the worst drought on record (1987-92) with the driest 2-year period on record (1976/77). An analysis of tree ring data has shown that there were only a handful of 6-year sequences as dry as 1987-92 over the past 1,100 years.

The SFPUC managed the 1987-92 drought of record despite three challenges that do not exist today. They were:

- Entering the 6-year drought, demand on the Regional Water System was at an all-time high of 293 mgd. Today it is 198 mgd – 32% lower.
- The SFPUC's Cherry Lake reservoir had to be drained in 1989. It holds 273 TAF, and is 75% the size of Hetch Hetchy.
- The SFPUC adopted its "Water First" policy, giving water supply priority over hydropower generation.

While it is prudent to prepare for climate change, the SFPUC and BAWSCA should not just consider potential challenges, but also benefits. For example, climate change is expected to cause earlier runoff as a result of more precipitation falling as rain and earlier melting of the snowpack. An assessment by The Bay Institute found that if the 1987-92 drought were to repeat, but runoff came three weeks earlier, the SFPUC would pick up an additional year's-worth of water. This is because some runoff would shift from the mid-April to mid-June period, when the Irrigation Districts are entitled to the first 4,000 cfs, to before mid-April, when the Irrigation Districts are entitled to the first 2,350 cfs.

Furthermore, climate change will likely lead to poor forest health and an increase in wildfires. While tragic from an environmental perspective, this will likely lead to an increase in runoff (water supply), as less precipitation is taken up by vegetation. For example, 2017 was the second wettest year on record in the Tuolumne watershed, but produced the most runoff by a considerable margin. Recall that the 2013 Rim Fire burned 20% of the Tuolumne watershed.

3. The population projections estimated for the BAWSCA service area are too high, including the projected housing need.

BAWSCA Response: BAWSCA relies on projected population figures from the Association of Bay Area Governments (ABAG) and locally adopted land use plans, both of which are highly detailed, based on sound science and reflect a comprehensive public engagement process.

TRT Response: The jobs and population projections in Plan Bay Area (ABAG) are very controversial. Many Bay Area cites are struggling with these projections, and are pushing back. The consequences of

Covid-19 also are unclear. BAWSCA's recent "Regional Water Demand and Conservation Projections" report acknowledged:

> Water demands are based on data provided from 1995 through 2018. This analysis was completed before the COVID-19 pandemic and does not incorporate any of the new changes in water use profiles, population, employment, or vacancies as the data was not yet available and was outside the scope of the current projects. However, it is recognized that the water demands may need review or modification depending on the impact of recent events.[12]

4. BAWSCA Member Agencies and their Customers can readily reduce water use during droughts as required by the Bay Delta Plan.

BAWSCA Response: While Member Agency customers responded strongly during the 2015 drought, the level of rationing required in the Bay-Delta Plan will reach 50% or greater, creating severe hardships beyond what any resident has experienced.

TRT Response: This statement is spurious. The Bay-Delta Plan does not require rationing. Perhaps BAWSCA meant 50% rationing would be necessary based on SFPUC assumptions. Assuming the latter, we will point out that 50% is an arbitrary number. It is based on the SFPUC planning for: 1) a 8.5-year drought (two years longer than any drought in the past 1,100 years); 2) demand of 265 mgd (22% higher than current demand); 3) the development of no new water supplies; and 4) assumes the State will not relax instream flow requirements nor mandate water transfers from irrigation districts to urban areas.

BAWSCA and SFPUC customers have indeed proven they can conserve water. Since the WSIP was adopted in 2008, water consumption has decreased by 21% in the SFPUC Regional Water System service area, and we are not currently experiencing a water conservation mandate. In both 2016 and 2017, water demand was lower than during the 1976/77 drought, despite population growth.

5. BAWSCA constituents do not support the TRVA.

BAWSCA Response: The business community as well as key community groups, such as the Silicon Valley Leadership Group (SVLG), have expressed support for the TRVA.

TRT Response: BAWSCA is essentially saying that the business community and a leading business advocacy group support the TRVA. So, one must ask why? The answer is two-fold. Businesses have been told by BAWSCA that the Bay Delta Plan would lead to a water crisis and that the TRVA would produce more fish with less water. Neither of these assertions is true, but this is what they're hearing. It's more than understandable they don't want to run out of water.

If BAWSCA were to poll residents in their service area, you would likely find tremendous support for restoration of the Bay-Delta and Tuolumne River. You also would learn that residents are outraged when they learn the water they conserved during the recent drought did not benefit the environment, but instead remained impounded behind dams until it had to be dumped in 2017 to prevent flooding downstream.

[12] BAWSCA's Regional Water Demand and Conservation Projections, Figure ES-2, June 26, 2020.

TRT commissioned such a survey of San Francisco voters in 2018, and while San Francisco is not part of BAWSCA, environmental ethics in the City are very similar to those on the Peninsula. We invite you to review our survey results at https://www.tuolumne.org/recent-news/survey.

6. There will be no economic impact on the Bay Area during a drought if the Bay-Delta Plan is implemented.

BAWSCA Response: An extensive economic analysis was prepared by the SFPUC and relied upon during a recently completed FERC Don Pedro Final EIS review. Results indicate severe economic impacts due to the high level of rationing that would be required.

TRT Response: The SFPUC's socioeconomic study has been refuted by recent real world experience.

In 2016, the General Manager of the SFPUC and CEO of BAWSCA had an OpEd published in the San Francisco Chronicle. It claimed:

> Our initial economic analysis of the first iteration of this plan forecast up to 51 percent rationing, resulting in 140,000 to 188,000 jobs lost in the Bay Area. These same forecasts also show between $37 billion and $49 billion in decreased sales transactions.[13]

It should be noted that the figures cited in the OpEd were from a 2009 study, despite the fact that the same author had updated his projections in 2014. The justification given by the SFPUC and BAWSCA for using the older figures was that the 2009 study had been finalized, but the 2014 update had not.

You'll see from the following chart that potential economic and job losses in the 2014 report were less than half of those in the 2009 report. The 2014 report was finalized in 2018, and the numbers changed very little. Despite the huge discrepancy between the 2009 and 2018 final reports, the SFPUC and BAWSCA never corrected the public record.

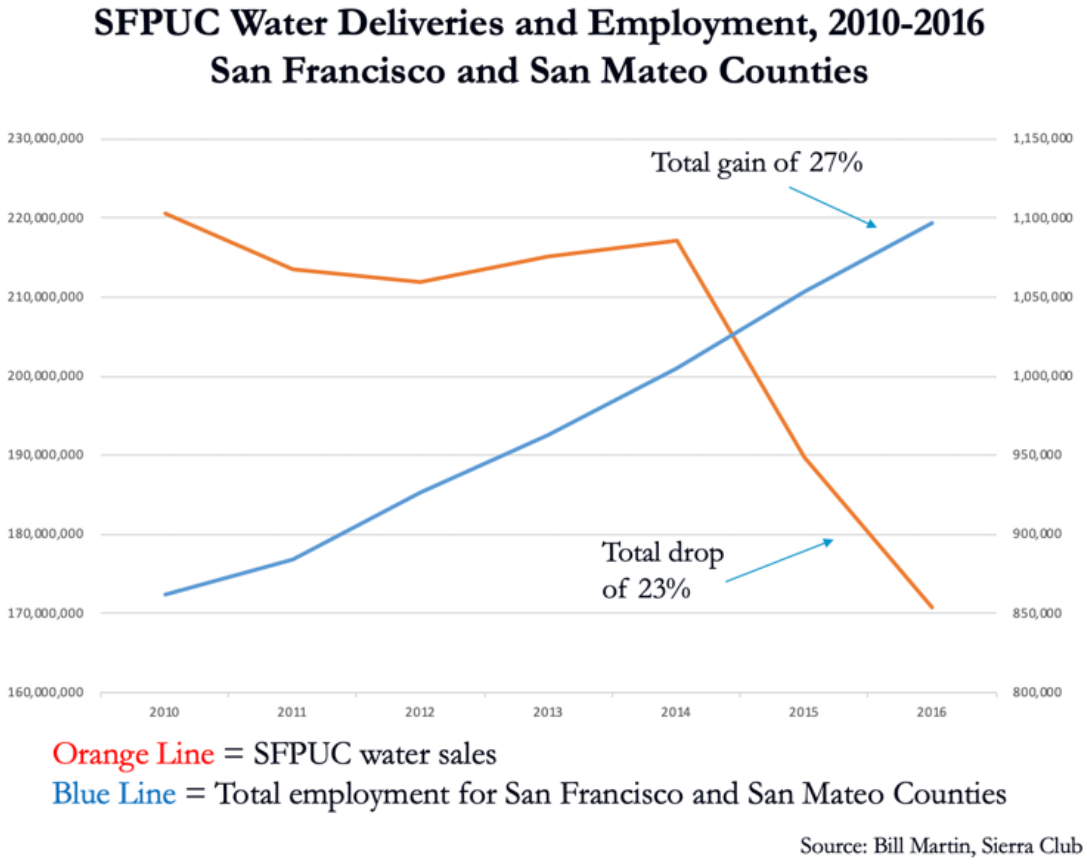
Water Supply Reduction	2009 Report		2014 Report		2016 OpEd		2018 Report	
	Jobs	$	Jobs	$	Jobs	$	Jobs	$
10%	4	2	3	>1	x	x	3	>1
20%	7	3	8	2	x	x	7	2
30%	x	x	25	7	x	x	22	6
40/41%	139	37	54	15	140	37	56	15
50/51%	188	49	71	21	188	49	72	21

Jobs = Projected job losses in thousands.
$ = Projected financial losses in billions of dollars.

[13] *San Francisco to state on water-use cutbacks: How low can we go?,* San Francisco Chronicle, October 7, 2016 – https://www.sfchronicle.com/opinion/article/San-Francisco-to-state-on-water-use-cutbacks-How-9940351.php

Between 2006 and 2016, water demand in the SFPUC service area decreased by 30%, the equivalent of a 30% reduction in water supply. The 2009 study did not look at a 30% reduction in water supply, but the 2018 report forecasted the loss of 22,000 jobs and $6 billion under such a scenario. Based on comparisons of the other scenarios, one would expect the 2009 study to have come up with twice the 2014/2018 impacts.

However, in the real world, BAWSCA and San Francisco did not experience economic and job losses during the drought. In fact, between 2010 and 2016 jobs increased by 27% in San Mateo and San Francisco Counties while water use declined by 23%.



7. BAWSCA staff and BAWSCA Board Members have no understanding of the TRVA or its components.

BAWSCA Response #1: BAWSCA was actively engaged in the TRVA development, its technical review, and is knowledgeable about its scientific basis, content, impacts and implementation.

BAWSCA Response #2: The BAWSCA Board is well informed on the TRVA through briefings by SFPUC and BAWSCA staff.

TRT Response: We will let this letter stand as our response.

8. BAWSCA has not provided opportunities for the public to discuss the Bay Delta Plan and the TRVA in an open forum / workshop.

BAWSCA Response #1: The Bay Delta Plan has been included as a regular item on the BAWSCA Board agendas since 2018, during which time the opportunity for public comment is provided.

TRT Response: We request a real dialogue with the BAWSCA Board. Getting three minutes to comment at BAWSCA meetings, and receiving no response to our comments, is not a dialogue. We feel ignored, and what we share appears to be seen as inconvenient truths by BAWSCA.

BAWSCA Response #2: At the September 19, 2019 BAWSCA Board meeting, the Bay Delta Plan was included as a special report with presentations by the Tuolumne River Trust, SFPUC and BAWSCA.

TRT Response: We appreciated the opportunity to present at the BAWSCA Board meeting. However, once again there was no dialogue. If we recall correctly, there were instructions that our presentation was "information only," and there were not to be any questions or comments. Simply listening to a different set of facts and perspectives is not the same as truly engaging.

We hope to have an opportunity to discuss the facts and perspectives presented in this letter with the BAWSCA Board.

Sincerely,

Peter Drekmeier
Policy Director

Dave Warner
TRT Volunteer

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NEWS RELEASE

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FOR IMMEDIATE RELEASE
December 6, 2023

Crystal Springs Dam Recognized as National Historic Civil Engineering Landmark

SAN MATEO COUNTY, CA — The American Society of Civil Engineers (ASCE) today recognized the Lower Crystal Springs Dam in San Mateo County, California as a National Historic Civil Engineering Landmark. Owned and operated by the San Francisco Public Utilities Commission, the dam was completed in 1890 and forms the backbone of a water system that serves more than one million people in northern San Mateo County and in San Francisco County.

“Water is our most important natural resource. It has defined where cities and communities are built, and changed the course of history,” said ASCE President Elect Feniosky Peña-Mora, Sc.D., P.E. “Innovative projects like the Crystal Springs Dam helped make the San Francisco Bay Area the thriving, vibrant community it is today, and its design helped pave the way for other dams, which have improved quality of life and access to drinking water for millions of people.”

Lower Crystal Springs Dam is the first mass concrete dam built in the United States and possibly in the world. The dam’s design and construction techniques became standard practice for other large mass concrete dams, including the Hoover and Grand Coulee Dams in the United States. The dam boasts a unique design. It is made of three-dimensional concrete puzzle pieces that make it resilient to earth movement.

“Despite being located a mere 1,000 feet from the San Andreas earthquake fault, this dam withstood both the 1906 and 1989 earthquakes with no significant damage,” said San Francisco Public Utilities Commission General Manager Dennis Herrera. “It’s not only an engineering marvel, but also a crucial part of our system. We continue to invest in it to ensure it supports by people of the Peninsula and San Francisco for generations to come.”

ASCE represents more than 150,000 members of the civil engineering profession worldwide. It is the oldest national engineering society in the United States. ASCE recognizes historically significant civil engineering projects, structures, and sites all over the world. Fourteen National Historic Civil Engineering Landmarks have been designated in California. Lower Crystal Springs Dam is only the fourth project awarded in Northern California, joining the Golden Gate Bridge, the San Francisco-Oakland Bay Bridge and the Alvord Lake Bridge with such a distinction.

San Mateo County Parks Director Nicholas Calderon said, “the Crystal Springs Dam and Bridge are beloved landmarks offering scenic routes for recreational activities and critical connections for motorists, pedestrians, and bicyclists. We here in San Mateo County have always known it is special and we’re thrilled it now gets national recognition, too.”

Leaders of ASCE, the San Francisco Public Utilities Commission and San Mateo County recognized the landmark at a dedication ceremony on top of the dam.

# # #

For more information about ASCE's Historic Civil Engineering Landmark Program, go to https://www.asce.org/about-civil-engineering/history-and-heritage/historic-landmarks

About the San Francisco Public Utilities Commission

The San Francisco Public Utilities Commission is a department of the City and County of San Francisco. It delivers drinking water to 2.7 million people in the Bay Area, collects and treats wastewater for the City and County of San Francisco, and meets over 70 percent of the electricity demand in San Francisco. Our mission is to provide our customers with high-quality, efficient and reliable water, power, and sewer services in a manner that values environmental and community interests and sustains the resources entrusted to our care. Learn more at www.sfpuc.org.

About the American Society of Civil Engineers

Founded in 1852, the American Society of Civil Engineers represents more than 150,000 civil engineers worldwide and is America's oldest national engineering society. ASCE works to raise awareness of the need to maintain and modernize the nation’s infrastructure using sustainable and resilient practices, advocates for increasing and optimizing investment in infrastructure, and improve engineering knowledge and competency. For more information, visit www.asce.org or www.infrastructurereportcard.org and follow us on Twitter, @ASCETweets and @ASCEGovRel.

CALIFORNIA DEPARTMENT OF
WATER RESOURCES

December 1, 2023

Contact:
Ryan Endean, Public Affairs, Department of Water Resources
media@water.ca.gov

DWR Announces Initial State Water Project Allocation of 10 Percent for 2024

Today, the Department of Water Resources (DWR) announced an initial State Water Project (SWP) allocation forecast of 10 percent of requested supplies for 2024. The SWP provides water to 29 public water agencies that serve 27 million Californians.

The December 1 initial water supply forecast is the first allocation of the new water year and is based on current reservoir storage and an assumption of very dry conditions. So far in October and November, storms have not brought as much rain and snow.

“California’s water year is off to a relatively dry start. While we are hopeful that this El Niño pattern will generate wet weather, this early in the season we have to plan with drier conditions in mind,” said DWR Director Karla Nemeth. “California’s water supply continues to benefit from our aggressive efforts last season to capture record rain and snow melt in our reservoirs and groundwater basins.”

The initial SWP allocation forecast is looking ahead to 2024 and only applies to water deliveries in the year ahead. The allocation is calculated based on October and November precipitation, dry soils, runoff, and storage in Lake Oroville. It has no bearing on current water supplies or water captured in 2023. Most reservoirs in the state remain above average for this time of year.

Highlights of California’s Water Supply Storage

Last winter, a total of 3.5 million acre-feet of water was captured in SWP reservoirs. The SWP delivered 2.7 million acre-feet in allocated water plus an additional 400,000 acre-feet of supplemental water to SWP contractors in 2023.
To date, Lake Oroville, the SWP’s largest reservoir, is at 133 percent of average.
San Luis Reservoir, jointly operated by the SWP and Central Valley Project, remains at 109 percent of average. Water stored in San Luis also includes water from 2023 being stored by water contractors for use in future dry years.
In coordination with the Metropolitan Water District (MWD), DWR provided water to fill up Diamond Valley Reservoir for the first time in three years. The facility is a critical part of the Southern California water delivery system.
California was also able to redirect excess storm water for groundwater recharge. DWR has estimated more than 3.8 million acre-feet of recharge capacity in 2023, including more than 1.2 million acre-feet of groundwater recharge permitted by State agencies, 390,817 acre-feet of

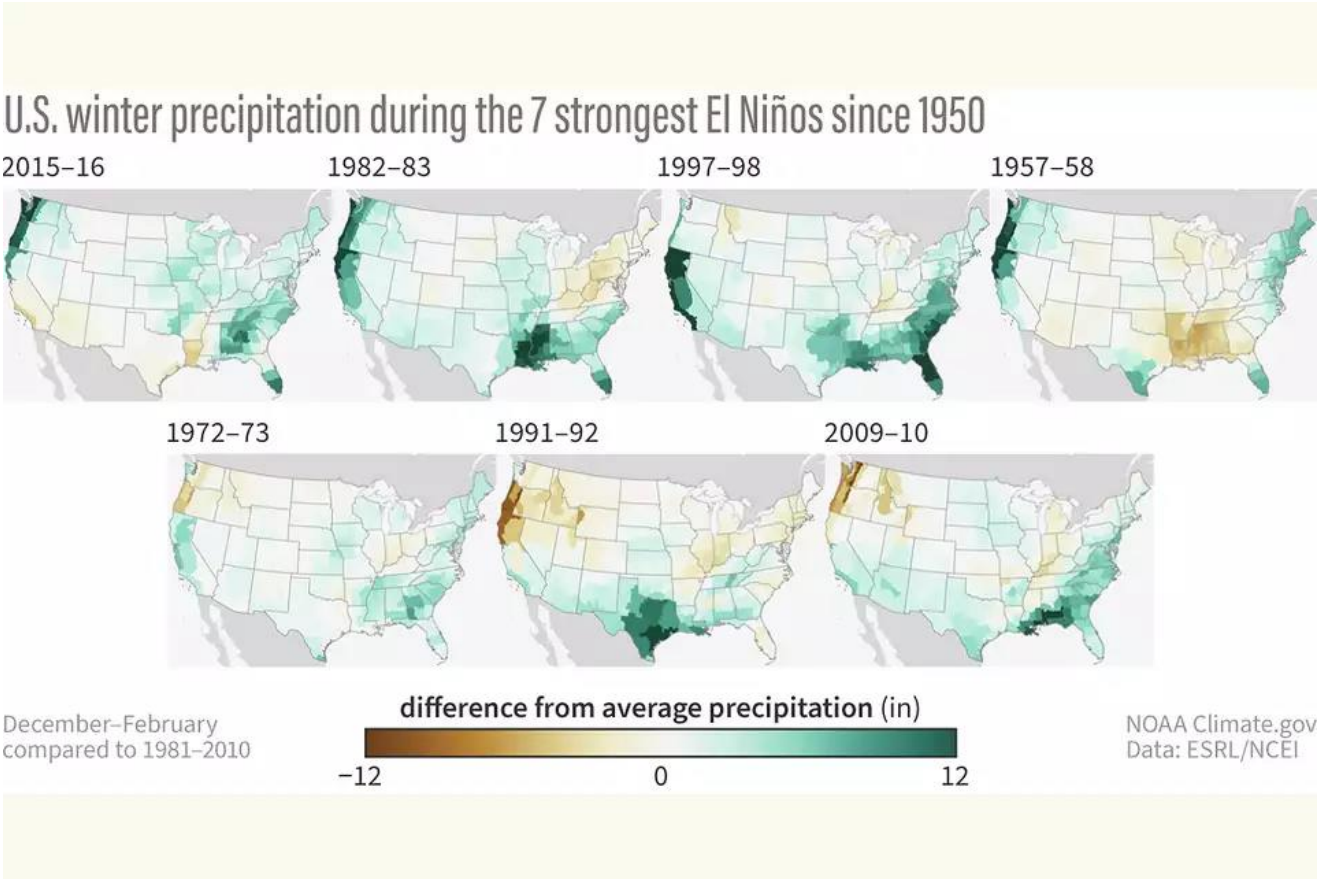
flood water recharged using the Governor's Executive Orders, and millions more acre-feet of managed and naturally occurring recharge.
It is not uncommon for the initial allocation forecast to be low following very wet years. For Water Year 2018, the initial allocation was 15 percent following an 85 percent final allocation in 2017. Water Year 2020 started with a 10 percent initial allocation following a 75 percent final allocation in 2019. Both 2017 and 2019 were very wet winters. More historical data on SWP allocations is available at https://water.ca.gov/programs/state-water-project/management/swp-water-contractors.

As the winter progresses, if California sees an increase in rain and snowfall, the allocation forecast may increase.

Each year, DWR provides the initial SWP allocation by December 1 based on available water storage, projected water supply, and water demands. Allocations are updated monthly as snowpack, rainfall, and runoff information is assessed, with a final allocation typically determined in May or June.

# # #

NOAA lays out what could happen in California during strong El Niño
SF Gate | December 7, 2023 | Amy Graff



Map showing U.S precipitation of the strongest El Niños since 1950. Dec. 1, 2023. NOAA

A strong El Niño developed in the fall and could strengthen even more in coming months, according to the National Oceanic and Atmospheric Administration.

The pattern is predicted to be a driving factor of weather across the globe and has left Californians wondering how El Niño will affect winter conditions.

A series of maps released last week by NOAA may offer some clues. The maps depict precipitation data from the seven strongest El Niño events since 1950 and show the odds are tilted slightly in favor of above-normal precipitation in California, especially in Southern California, said Nat Johnson, a NOAA meteorologist who conducted the analysis and created the maps. But it's not a guarantee; parts of California have seen normal or below-normal precipitation in strong El Niño years.

"I think specifically [the data] shows that there are a wide range of outcomes that can happen for California because the chaotic weather variability has so much impact," Johnson told SFGATE. "For California specifically, in the winter time, you get a large amount of your seasonal

precipitation often in a small number of storms, atmospheric rivers that dump a lot of precipitation. It's hard to predict the details of these atmospheric rivers."

El Niño develops when the Pacific Ocean near the Equator warms and temperatures rise above normal, according to NOAA. The rise in sea surface temperatures can shift the jet stream — those high-altitude winds that move across the continent and serve as a track for storms — often pushing it to the south. The movement of the jet stream leads some areas to be wetter or drier than normal.

NOAA uses the Oceanic Niño Index, which is based off of temperatures in the eastern tropical Pacific, to classify El Niño events. When the index rises above 1.5 degrees Celsius (about 34.7 degrees Fahrenheit), which it did earlier this fall, an El Niño is considered strong. When the index exceeds 2 degrees Celsius, the El Niño is considered historically strong, matching the power of 2015-16, 1997-98 and 1982-83, the three strongest El Niños in recent years.

"The models are taking it right to 2.0," said Jan Null, a Bay Area meteorologist with the private consulting company Golden Gate Weather Services, about the height of this winter's El Niño. That's actually a downgrade, Null said: "Earlier models showed it at 2.4."

Even if this year's El Niño were to become historically strong, there's no guarantee that California would see above normal precipitation. While the winters of 1997-98 and 1982-83 were generally wet in California, 2015-16 was unusually dry, the maps from NOAA show. Null said the variability shows that an array of weather patterns beyond El Niño can impact California's winter weather. For example, last year a weather pattern known as the Madden-Julian oscillation, marked by thunderstorms that circle the Equator and help foster storms, was likely one of the drivers behind the historically wet winter.

"There are lots of other things going on around our atmosphere," Null said. "It's complicated. … There's an alphabet soup of things going on. Sometimes they will do things to increase rain in California, and other times they will do things to decrease rain in California."

# # #

Are more mostly dry months ahead for California?

As we enter the critical rainy months of December through March, we find ourselves in two unusual and conflicting situations: lack of water and an abundance of it.

KTVU 2 | December 6, 2023 | Tom Vacar

OAKLAND, Calif. - As we enter the critical rainy months of December through March, we find ourselves in two unusual and conflicting situations: lack of water and an abundance of it.

So far this rainy season, the Department of Water Resources says California's water year is off to a relatively dry start with October and November.

"Now we've seen, so far through the fall, a pretty dry year; only half of the precip we would expect by now," said state climatologist Michael Anderson.

UC Merced's Center of Watershed Sciences expert agrees.

"Average snow water content is much lower. Precipitation is much lower than average for this time of the year, so that's where we are," Josue Medellin-Azuara said.

Last week, the department announced that its customers who serve 27 million Californians, will get only ten percent of their water rights. The department further says it is hopeful that this El Niño pattern will generate wet weather, but it may not.

"When we look at the outcomes of the seven events of the 21st century, they've been all over the board. We've had two dry years, two wet years and three near-average years," said Anderson.

Julie Kalansky, PhD of the Scripps Institute of Oceanography at UC San Diego said "For the southern portion of California, historically, it has generally meant that there have not been dry years. The relationship between El Niño and northern California is not very consistent and there's a lot of variability from year to year."

"We find ourselves in a rather unique position here for the 21st century in that we're above average in our reservoir storage for this time of year," said climatologist Anderson.

The good news is, as of Tuesday midnight, California's six largest mega reservoirs are sitting at almost 67% of their capacity; almost 120% of their historical capacity on Dec. 5.

Exactly one year earlier, with no promise or inkling of an end to the long drought, those same reservoirs were at just 30% of capacity and only 52% of their historical average; less than half of now. On top of that, there's enough extra water to inject the equivalent of Lake Oroville's huge capacity for underground storage.

Having said all that now is no time to start surging our water supply, because we simply do not know what the next three to three-and-a-half months will bring in terms of water.

But the good news is, in the winter months, both residents and agriculture, tend to use a lot less water, counting on Mother Nature.

# # #

Slow Start To Rainy Season Could Impact Local Water Supplies
While El Nino implies a wet winter, rainfall has been slow so far this year.
Patch | December 4 2023 | Bay City News, News Partner

CALIFORNIA — California's State Water Project expects to provide only 10% of requested water supplies for 2024, the Department of Water Resources said Friday. However, that figure could change by the time final allocations are determined in May or June.

Each year, the state provides an initial allocation by Dec. 1 based on available water storage, projected water supply and water demands. The figures are updated monthly as snowpack, rainfall and runoff is assessed.

The initial water supply forecast is the first allocation of the new "water year," which began on Oct. 1. The forecast is calculated based on October and November precipitation, dry soils, runoff, and storage in Lake Oroville, the largest reservoir of the system. So far in October and November, storms have not brought as much rain and snow.

"California's water year is off to a relatively dry start," DWR Director Karla Nemeth said in a statement. "While we are hopeful that this El Niño pattern will generate wet weather, this early in the season, we have to plan with drier conditions in mind."

It's not uncommon for the initial allocation forecast to be low following very wet years, the state agency said in a press release.

The SWP provides water to 29 public water agencies that serve 27 million Californians. In the San Francisco Bay Area, they include the Alameda County Water District, the Zone 7 Water Agency that supplies Tri-Valley, Napa County Flood Control and Water Conservation District, Santa Clara Valley Water District, and Solano County Water Agency.

# # #

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California officials warn of potentially low water supplies next year
SF Chronicle | December 1, 2023 | Kurtis Alexander

Lake Oroville, spanned by the Enterprise Bridge, shows the reservoir filled to capacity this summer after last winter's storms. Carlos Avila Gonzalez/The Chronicle

California water officials on Friday provided a conservative estimate of how much water they expect to deliver from state reservoirs next year: just 10% of what was requested.

The low projection, state officials say, is the result of a slow start to the still early wet season. The actual amount of water that will be sent to suppliers, from the Bay Area to Southern California, could go up from the initial estimate once rain and snow levels are tallied next spring.

California reservoir levels: Charts show water supply across the state

The State Water Project's nearly three dozen reservoirs, lakes and storage facilities filled with last winter's historic storms but they've dropped since, as they do during California's dry summer months.

"While we are hopeful that this El Niño pattern will generate wet weather, this early in the season we have to plan with drier conditions in mind," said Karla Nemeth, director of the California Department of Water Resources, in a statement.

The state's water supplies, which include giant Lake Oroville, provide for 27 million Californians. In the Bay Area, parts of the East Bay, San Jose and Napa County rely on the water.

Joy Eldredge, deputy utilities director for the city of Napa, said she's not worried about the low projection — at least, not yet.

"I'm not really surprised," she said. "Historically, they've been very conservative with these initial allocations. They just don't want to pull them back."

During the three-year drought, the State Water Project provided as little as 5% of what was requested by suppliers, forcing them to go elsewhere for water or go without. But most years saw the state's water commitment grow as the rainy season progressed.

Last year, the state provided 100% of the water that was requested.

The State Water Project works in tandem with the federally operated Central Valley Project, moving water from California's mountains to cities and farms. The federal project has not announced an estimated allocation for next year.

# # #

Breaking boundaries: How Northern California could help Las Vegas during drought
Nevada Independent | November 30, 2023 | Jim Peifer

Sand Harbor at Lake Tahoe Nevada State Park in Incline Village on Friday, Jan. 20, 2023. (David Calvert/The Nevada Independent)

It might seem hard to imagine, but there's a connection between water supplies in Northern California's Sacramento region and distant cities such as Las Vegas. We may be separated by deserts and mountain ranges, but these very different places could actually share water. And with a little cooperation, all of us could survive the challenges of climate change, whether it's a shrinking Colorado River or declining Sierra Nevada snowpack.

Here's how it could work.

Sacramento has a highly developed groundwater basin underlying its urban core and the American and Sacramento rivers, and there's plenty of room in that aquifer to store more water.

In wet winters the aquifer can be filled with surplus flow from the two rivers, like adding money to an underground bank account. In fact, it is called the Sacramento Regional Water Bank. Then, in drought years when the Sierra Nevada snowpack shrinks, that groundwater can be reliably pumped out to avoid straining depleted rivers. This is vital to protecting native salmon and steelhead that rely on the rivers.

By using less water from the rivers during drought times, more water becomes available to the environment or another beneficial use downstream after local needs are met. Using California's

existing canal system, this water can be offered for one-time use to cities in Southern California, which could then reduce diversions from the Colorado River. This, in turn, frees up more Colorado River water for others, including Las Vegas.

Sacramento-area water providers have been banking groundwater for the past two decades, and it works. Even during the ongoing megadrought in the Western United States, the region managed to capture more water in a way that's also good for the environment.

There’s tremendous capacity to expand the water bank, which is great, because California needs more water storage. The region’s biggest reservoir (Folsom) fills up and empties three times in a typical year. That’s a lot of water. But there aren’t enough good locations for dams left in the state to build more surface reservoirs. Instead, the focus needs to be put on future investment on groundwater reservoirs.

Local entities are already investing to make the groundwater system more effective, but they could do it on a larger scale and faster. What would it take? Matching funds from those who see the promise and potential for the water bank: federal and state infrastructure grant programs or even new partners located far away from the region.

People sometimes think there won't be enough water in the West to go around because of climate change. That’s not necessarily true. The water can be available, but it is predicted to come more as rain rather than snow and in shorter, more intense storms. We need to be ready to adapt to these changes.

Instead of mostly relying on dams as we have in the past, we should focus on capturing water in underground aquifers, a strategy inspired by nature. These aquifers have an enormous amount of empty space. The California Department of Water Resources estimates the state’s groundwater aquifers can hold 850 million to 1.3 billion acre-feet of water. That’s extraordinary compared to the approximately 50 million acre-feet held by all existing surface reservoirs in the state.

We must change when and how we capture water. Linking this natural water management approach with major cities in the West is possible and already in progress. Additionally, we should shift our investment strategy to make groundwater storage a primary focus, with costs and benefits distributed more widely.

Water supplies in the West are connected in ways we often fail to see. Through collaboration that transcends traditional boundaries, we can ensure a reliable water supply for all.

Jim Peifer is executive director of the Sacramento Regional Water Authority and the Sacramento Groundwater Authority, representing water providers serving 2.2 million people in the Sacramento region of Northern California.

The Nevada Independent welcomes informed, cogent rebuttals to opinion pieces such as this. Send them to submissions@thenvindy.com.

# # #

City officials outlaw common landscaping tactic once touted as the solution to drought: 'It's a ticking time bomb'
Yahoo | November 29, 2023 | Leo Collis

The Millbrae City Council in California has unanimously implemented measures to stop residents from installing artificial turf.

The move continues a temporary restriction on new installations set in place in a 2021 moratorium.

With water conservation required state-wide in hot and dry periods, a lack of watering leads to lawns becoming brown and soil turning to dust, making for an undesirable appearance and increasing the risk of respiratory health problems.

Synthetic grass was seen as a handy solution in an area where drought conditions are becoming more severe and lasting for an increasingly long time — with global heating a key driver of this extreme weather — but the material's negative environmental impacts have become more apparent in recent years.

Many examples of this product contain "forever chemicals," which don't break down naturally and have been linked to some forms of cancer, liver problems, and high cholesterol, according to CleanWater.org.

“We’re concerned about the health and safety of synthetic materials,” Andy Mogensen, community development director for the city of Millbrae, told The Daily Journal. “There’s plastics, nylon, different kinds of materials in there. And we are concerned with its impact on our stormwater, aquatic life and things of that nature.”

Indeed, these chemicals and harmful materials, like microplastics, can enter water supplies after flooding because of water runoff into sewage networks.

On properties that already have artificial turf installed, the draft ordinance is calling for the fake grass to be replaced by January 1, 2028.

Some council members have suggested that this deadline will place an unnecessary and costly burden on residents to comply, but there are solutions for a low-maintenance, low-water lawn.

Plants native to California should be more hardy in drought conditions, while clover lawns are also drought-tolerant and require little water — with the additional benefit that they require less mowing than other grass types.

The state of California as a whole is looking to ban synthetic grass, with Democrats looking to pass a bill that would discourage the take-up of this once-touted lawn solution.

“I strongly believe that there will be legislation coming down federally and state wise that holds cities accountable for microplastics entering waterways because it’s entering into our food system,” said Mayor Ann Schneider. “And then these highly carcinogenic — full of PFAS, or forever chemicals — are getting into our food supply, so it’s a ticking time bomb.”

# # #

Millbrae bans new artificial turf

Council votes unanimously to prohibit synthetic grass and enact maintenance requirements for current installations

Daily Journal | October 30, 2023 | Alyse DiNapoli

Workers install artificial turf in the yard of a home in Los Angeles in 2015. Lucy Nicholson/Reuters

Millbrae City Council passed an ordinance that bans the installment of artificial turf and synthetic grass and mandates proper maintenance of existing turf if it was installed legally.

The prohibition is a more permanent continuation of the moratorium enacted by the city in 2021 that paused all new synthetic turf installations after negative environmental impacts began to surface.

“We’re concerned about the health and safety of synthetic materials. There’s plastics, nylon, different kinds of materials in there,” said Community Development Director Andy Mogensen. “And we are concerned with its impact on our stormwater, aquatic life and things of that nature,” he said.

During the staff presentation to the council Tuesday, Oct. 24, Mogensen also explained the draft ordinance would require residents to replace turf currently in place by Jan. 1, 2028. But several councilmembers, such as Angelina Cahalan and Anders Fung expressed concern that a fixed time limit would place undue burden on those who installed it in good faith.

“Before people learned more, they probably put these in because we were going through years and years of drought, and they thought they were being environmentally mindful, trying to do the right thing,” said Cahalan. “But this is also really expensive. Doing landscape projects is not a

small amount of money, and to ask people to completely change something they may have recently put in and then start fining them for it if they can't afford to do so puts people in a really difficult financial situation."

In 2016, the state prohibited jurisdictions from enacting ordinances that limited residents' ability to install drought-tolerant landscaping, but the recently passed Senate Bill 676 updates the language to allow local governments to enact more restrictions on artificial turf and synthetic grass, as statewide concern about their environmental damage continues to grow.

"I strongly believe that there will be legislation coming down federally and state wise that holds cities accountable for microplastics entering waterways, because it's entering into our food system. And then these highly carcinogenic — full of PFAS, or forever chemicals — are getting into our food supply, so it's a ticking time bomb," said Mayor Ann Schneider.

Staff updated the ordinance to allow residents to maintain synthetic grass or artificial turf if it has already been legally installed, as long as it adheres to certain maintenance requirements. Councilmembers also discussed the possibility of revisiting a time limit for all turf installations if and when funding could be secured to financially help residents replace the material. Once revisions were made, the council approved the resolution unanimously.

# # #

Lead pipe rule changes: What does this mean for California?
According to estimates from the Environmental Protection Agency and the Natural Resources Defense Council, there could be between 13,000 and 65,000 lead pipes in California.
ABC 7 | December 1, 2023 | Josh Haskell

LOS ANGELES (KABC) -- For years, we've known about the harmful effects lead in drinking water can have on the public, especially children, but millions of lead pipes still exist throughout the country.

Now, most U.S. cities would have to replace lead water pipes within 10 years under strict new rules proposed by the Environmental Protection Agency as the Biden administration moves to reduce lead in drinking water and prevent public health crises like the ones in Flint, Michigan and Washington, D.C.

"This is as much about public health as it is about equity," said Mike McNutt, the communications manager for the Las Virgenes Municipal Water District. "Everyone deserves to have clean water as a human right. Everyone deserves to have healthy children and a healthy lifestyle. This is long overdue. It's something that's going to benefit the entire country."

Millions of people consume drinking water from lead pipes and the agency said tighter standards would improve IQ scores in children and reduce high blood pressure and heart disease in adults.

What does this mean for California?
According to estimates from the EPA and the Natural Resources Defense Council, there could be between 13,000 and 65,000 lead pipes in California.

For both estimates, California has the lowest rate of estimated lead pipes per 100,000 people of any state in the country.

The NRDC found removing these pipes in California could save between $1 billion and $5.5 billion in health costs over the next 35 years.

"For short term, let's talk about adults. Especially those who are pregnant, there could be an effect on the mother and the baby, but mostly on the baby with the development of the baby," said Charlie Abraham, the Chief Medical Officer at Dignity Health St. Bernardine Medical Center in San Bernardino. "Also, low sperm count in men. Low blood count that could cause a condition called anemia."

Studies on the long-term effects of lead point to increased death rates, mortality related to heart disease, increased blood pressure, kidney issues and digestive issues.

The move is the strongest overhaul of lead rules in more than three decades, and will cost billions of dollars.

The EPA estimates this could cost $20 billion to 30 $billion for utility companies to pull off, with $15 billion available in federal dollars from the 2021 infrastructure law.

"When you own a home that pre-dates any real known understanding of how lead is a potential public health issue, the fact that there's this pot of money that's going to be earmarked to remove those hazardous pipes and infrastructure from people's homes is a testament to real need, and the empathy, and the equity, that comes with making sure everyone has safe clean water," said McNutt.

# # #

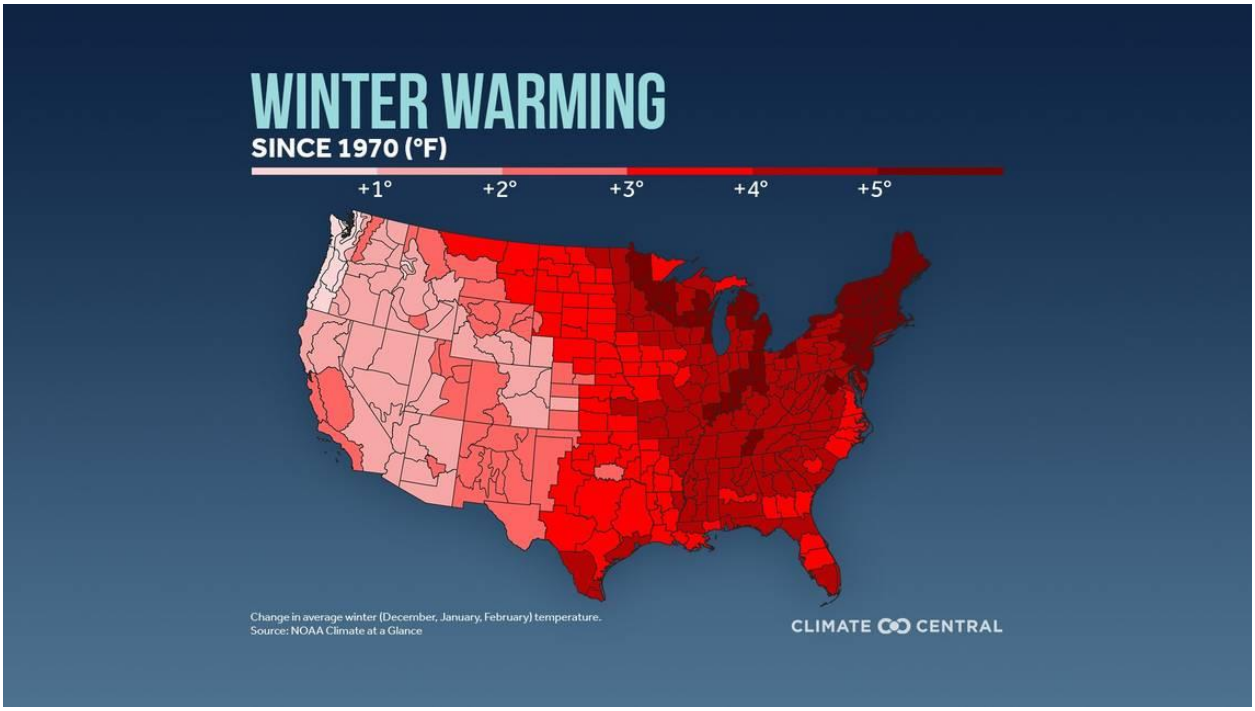
Warmer winter temperatures in California could make ‘storms more hazardous,’ report says
Sacramento Bee | December 4, 2023 | Brianna Taylor

Winters in California aren’t as cold as they used to be — and that’s not a good thing.

Temperatures across the Central Valley, Central Coast and parts of Southern California have increased at least 2 degrees over the past several decades, according to Climate Central’s “2023 Winter Package.” Other parts of the state have warmed at least 1 degree, and the majority of the U.S. has risen an average of 3.8 degrees, posing a long-term threat to water supplies, energy use, public health and agriculture.

In California, warm and short-lived winters could disturb fruit and nut crops.

Climate Central analyzed temperatures and days recorded above normal between December and February — from 1969-70 to 2022-23 — with data from the National Oceanic Atmospheric Administration’s Regional Climate Centers.



Climate Central’s “2023 Winter Package” graphic shows the average change in winter temperature between December and February, from 1970 to 2022. Climate Central

“Warmer temperatures can make winter storms more hazardous, with sleet and freezing rain,” Climate Central wrote on its website.

Meteorologist Katrina Hand with the National Weather Service said wet conditions are “certainly a possibility” in California as a “strong” El Niño continues through the winter season.

Historically, El Niño winters have been anywhere from very dry to very wet, with warmer-than-normal temperatures.

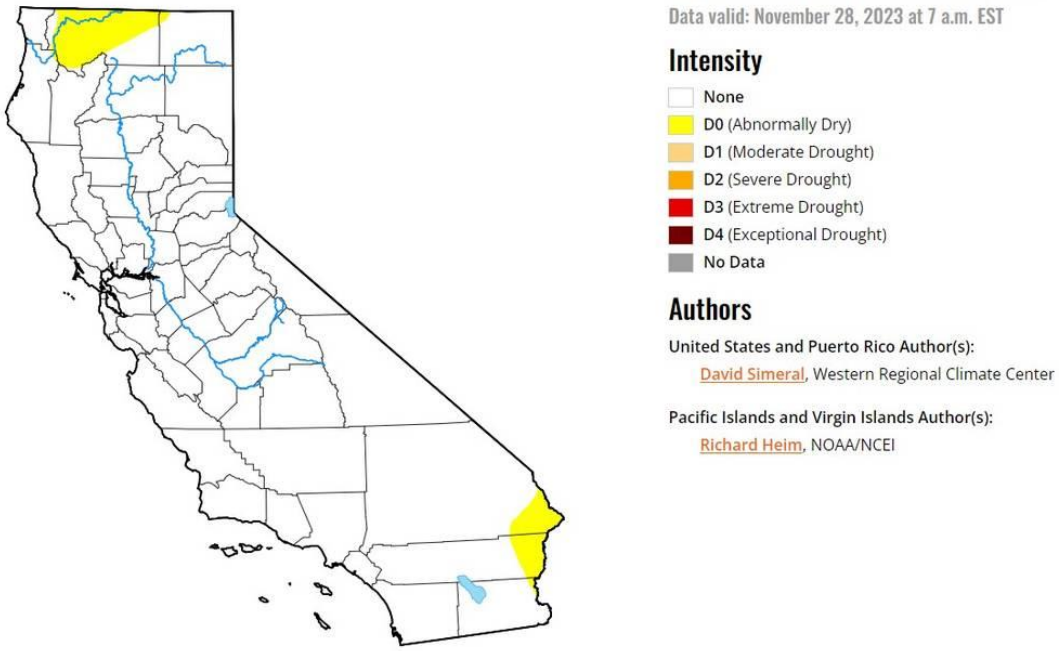
It’s unclear what this winter will bring.

In January, extreme winter storms hit the region with historical flooding, downed trees and extensive power outages. There's a 100% chance El Niño will last the entire winter with a 75 to 85% chance it will be "strong," The Sacramento Bee previously reported.

The deadly storms led a state once gripped with arid conditions and water shortage out of a three-year drought.

No one in California has lived in a drought area since November — according to a Thursday update from the U.S. Drought Monitor — a significant decrease from roughly 9,800 people in September.

The update showed 0% of California has "moderate drought," down from 0.07% on Oct. 10. Roughly 4.6% of the state — parts of Siskiyou, Modoc, San Bernardino, Riverside and Imperial counties — remains "abnormally dry" as of Nov. 28. Before that, conditions teetered between 25% and 32% from May to mid-August.



California has been 100% drought-free since October. "Abnormally dry" conditions are located in both the northernmost and southernmost portions of the state including Siskiyou, Modoc, San Bernardino, Riverside and Imperial counties. U.S. Drought Monitor U.S. Drought Monitor,.

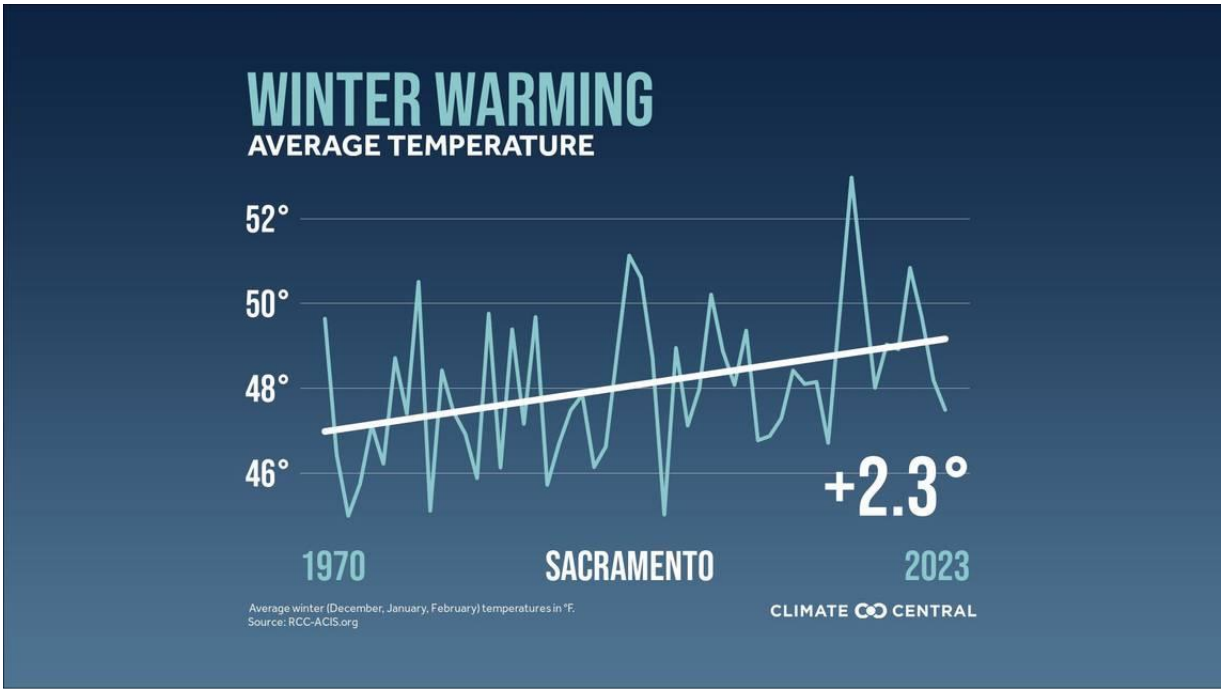
WEATHER IN SACRAMENTO

A brief stint of warmer temperatures will soon blanket Northern California but not enough to have any lasting effects on climate.

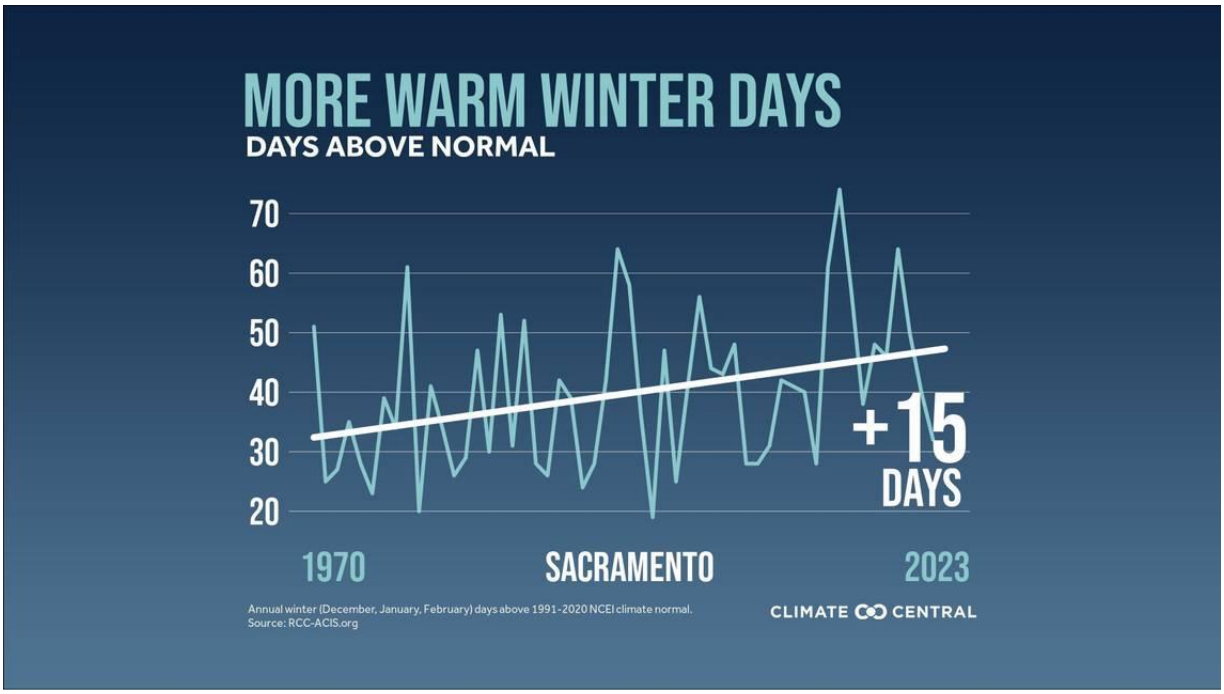
"There's not a crazy fluctuation or anything," Hand said.

The Sacramento Valley will see a "slight" warming trend in daytime temperature highs over the weekend into early next week as the region undergoes high pressure. By the end of next week, cooler temperatures will creep back into the valley, and with it; the possibility of showers and mountain snow.

Over the past several years, Sacramento has warmed up by an average of more than 2.3 degrees, according to Climate Central. The city recorded more than 15 days of above-normal temperatures during the winter, between 1991 and 2020.



Climate Central's "2023 Winter Package" shows the winter warming trend in Sacramento.



Climate Central Climate Central's "2023 Winter Package" shows the winter warming trend in Sacramento. Climate Central

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