

Wheeler Ridge-Maricopa Water Storage District

Wheeler Ridge-Maricopa GSA

Regular Board Meeting

Wednesday, April 10, 2024 @ 8:00 A.M.

District Headquarters Board Room

12109 Hwy 166, 6.5 miles west of Mettler, CA

Or via GoToMeeting

(Optional Remote Public Participation Only – See NOTICE Below)

Conference Line: +1 (872) 240-3212

Access Code: 211-452-397

<https://www.gotomeet.me/WRMWSD>

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A G E N D A

8:00 1. Call to Order

2. Closed Session

Conference with Legal Counsel Re: Existing Litigation (Govt. Code § 54956.9(a)):

1. *DWR v. All Persons Interested, etc. "Complaint for Validation" Re: SWP Contract Extension Amendment (Sacramento County Sup. Ct., Case No. 34-2018-00246183, 3rd Appellate Dist., Case No. C096316, and related cases and appeals)*
2. *Sierra Club v. DWR v. All Persons Interested, etc., consolidated CEQA Case and "Complaint for Validation" Re: Delta Program Revenue Bonds, Sacramento County Sup. Ct., Case No. 34-2020-80003517*
3. *CDWR Environmental Impact [WaterFix] Cases, Sacramento County Sup. Ct., Case No. JCCP No. 4942*
4. *Rosedale-Rio Bravo Water Storage District v. Kern County Water Agency, et al., Kern County Superior Court, Case No. BCV-21-100418*
5. *KWBA, et al. v. Kern LAFCo, et al., Kern County Sup. Ct., Case No. BCV-21-101310-GP*
6. *Friends of the River, et al., v. Sites Project Authority, Yolo County Sup. Ct., Case No. CV2023-2626 and related cases*
7. *Sierra Club, et al., v. DWR, Sacramento County Sup. Ct., Case No. 24WM000008, and related cases, challenging DCP EIR*
8. *State Water Resources Control Bd. Administrative Hearing Office (AHO) Proceeding Re Sites Project Authority Water Rights Applications*
9. *MFC Kern I LLC, et al. v. Wheeler Ridge-Maricopa WSD, Kern County Sup. Ct., Case No. BCV-24-100873*

Conference with Legal Counsel - Anticipated Litigation: Initiation of Litigation (Govt. Code § 54956.9(d)(4)):

10. *Two Potential Cases*

Conference with Legal Counsel - Anticipated Litigation: Significant Exposure to Litigation (Govt. Code § 54956.9(d)(2)):

11. *Two Potential Cases*

9:30 Open Session Pledge of Allegiance

3. Attorney's Report

Torigiani (5 mins)

1. Report from Closed Session (Gov. Code § 54957.1)
2. Legislative, Executive, Regulatory, and Legal Matters

4. Minutes

*

1. Approval of Minutes of the Regular Board Meeting March 13, 2024

Atkinson (2 mins)

*

2. Approval of Minutes of the Special Board Meeting March 19, 2024

5. **Financial Reports**
- * 1. Filing of Treasurer’s Report *Mettler* (5 mins)
 - * 2. Approve Payment of Accounts Payable *Mettler* (5 mins)
 - 2.1 Director Compensation and Expense *Mettler* (2 mins)
6. **Controller’s Report**
- 1. Delinquent Accounts Report for April 2024 *Smith* (2 mins)
 - 2. Budget Expenditures Report for January & February 2024 *Mielke* (5 mins)
7. **President’s Report** *Atkinson* (5 min)
8. **Engineer-Manager’s Report**
- 1. Filing of the Monthly Report *Nicholas* (5 mins)
 - 2. Water Supply – **2024 SWP Increased Allocation of 30%** *McDaris* (15 mins)
 - a. 2024 Water Supply/Demand Estimate
 - b. Other Purchases/Exchanges
 - 3. Proposed Landowner Well Meter Standard Policy *Suggs* (20 mins)
 - * 4. Reschedule Regular May Board Meeting – ****Resolution Required**** *Nicholas* (5 mins)
 - * 5. Consider TerraVerde Energy Proposal for Solar Management Services *Suggs* (10 mins)
 - 6. State Water Project / Delta Conveyance Project *Nicholas* (10 mins)
 - 7. Sites Reservoir *Kunde* (10 mins)
 - 8. WRMGSA *Staff* (30 mins)
 - a. Preliminary and Draft Groundwater Allocation Policy Update
 - * b. Consider Approval of Joint Exercise of Powers Agreement for the Kern Non-districted Lands Authority
 - c. Kern Subbasin GSP Update
9. **Reports**
- 1. Director’s Reports on Meetings Attended
 - 2. Kern County Water Agency *McDaris* (5 mins)
 - 3. Kern Water Bank Authority/ KWBGSA *Nicholas* (5 mins)
 - 4. South of Kern River GSP *Nicholas* (5 mins)
 - 5. White Wolf Groundwater Sustainability Agency *Nicholas* (5 mins)
 - 6. Kern River Watershed Coalition Authority *Blaine* (5 mins)
 - 7. Committee for Delta Reliability *Nicholas* (5 mins)
 - 8. South Valley Water Resource Authority *Nicholas* (5 mins)
10. **Unfinished and New Business**
11. **Public Comments**
12. **Adjournment**

*These items may require Board action and may be moved to earlier in the meeting to ensure the maximum number of Directors are present.

Posted pursuant to Government Code § 54954.2(a) at least 72 hours prior to said meeting.

By: Danyel Ruth

April 5, 2024

Per Govt. Code § 54953.2 and § 54961, requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in this meeting should be made to the Administrative Assistant (phone 661-527-6068) in advance of the meeting to ensure availability of the requested service or accommodation.

**Per Govt. Code § 54954.3(a), A member of the public may comment on any matter on the agenda, before or during the Board's consideration of the matter (and in the case of a closed session matter immediately before the Board goes into closed session) upon being recognized by the President and subject to any time constraints the President may impose from time to time.

AMENDED IN ASSEMBLY MARCH 21, 2024

CALIFORNIA LEGISLATURE—2023–24 REGULAR SESSION

ASSEMBLY BILL

No. 2079

Introduced by Assembly Member Bennett

February 5, 2024

An act to ~~amend Section 10735.4 of~~ *add Article 5 (commencing with Section 13807) to Chapter 10 of Division 7 of the Water Code, relating to groundwater.*

LEGISLATIVE COUNSEL'S DIGEST

AB 2079, as amended, Bennett. ~~Sustainable Groundwater Management Act: groundwater basins. Groundwater extraction: large-diameter, high-capacity wells: permits.~~

Existing law, the Sustainable Groundwater Management Act, requires all groundwater basins designated as high- or medium-priority basins by the Department of Water Resources to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans, except as specified. Existing law authorizes any local agency or combination of local agencies overlying a groundwater basin to decide to become a groundwater sustainability agency for that basin and imposes specified duties upon that agency or combination of agencies, as provided.

Existing law requires the State Water Resources Control Board to adopt a model water well, cathodic protection well, and monitoring well drilling and abandonment ordinance implementing certain standards for water well construction, maintenance, and abandonment and requires each county, city, or water agency, where appropriate, not later than January 15, 1990, to adopt a water well, cathodic protection well, and monitoring well drilling and abandonment

ordinance that meets or exceeds certain standards. Under existing law, if a county, city, or water agency, where appropriate, fails to adopt an ordinance establishing water well, cathodic protection well, and monitoring well drilling and abandonment standards, the model ordinance adopted by the state board is required to take effect on February 15, 1990, and is required to be enforced by the county or city and have the same force and effect as if adopted as a county or city ordinance.

This bill would require a local enforcement agency, as defined, to perform specified activities at least 30 days before determining whether to approve a permit for a new large-diameter, high-capacity well, as defined. By imposing additional requirements on a local enforcement agency, the bill would impose a state-mandated local program. The bill would require a groundwater sustainability agency with oversight for the area of the basin where the local enforcement agency has well permitting jurisdiction to provide specified information to the local enforcement agency, including, but not limited to, the name of the applicable groundwater sustainability agency, the agency manager and contact information, and the applicable sustainable management criteria related to groundwater levels, including the groundwater level measurable objectives and minimum thresholds. The bill would provide various requirements for the local enforcement agency to consider before approving or denying a permit. The bill would provide exemptions for its provisions for specified wells if they are proposed to be constructed with well screens and pump depths below the applicable minimum thresholds for groundwater levels as reported by the groundwater sustainability agency. The bill would provide that its provisions apply only to applications for permits for the construction, maintenance, abandonment, or destruction of water wells in basins identified in the Department of Water Resources Bulletin 118.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement.

This bill would provide that no reimbursement is required by this act for a specified reason.

~~Existing law, the Sustainable Groundwater Management Act, authorizes the State Water Resources Control Board to designate a groundwater basin as a probationary basin if the state board makes a certain determination and to develop an interim plan for the probationary~~

basin. The act requires that a local agency or groundwater sustainability agency have 180 days to remedy the deficiency if the board designates the basin as a probationary basin.

This bill would make nonsubstantive changes to the latter provision.

Vote: majority. Appropriation: no. Fiscal committee: ~~no~~-yes.

State-mandated local program: ~~no~~-yes.

The people of the State of California do enact as follows:

1 SECTION 1. Article 5 (commencing with Section 13807) is
2 added to Chapter 10 of Division 7 of the Water Code, to read:

3

4

Article 5. Well Sustainability

5

6 13807. This article shall apply only to applications for permits
7 for the construction, maintenance, abandonment, or destruction
8 of water wells in basins identified in the Department of Water
9 Resources Bulletin 118.

10 13807.5. The Legislature finds and declares all of the
11 following:

12 (a) The groundwater extraction from large-diameter,
13 high-capacity wells can interfere with nearby drinking water wells
14 and result in impacts to critical infrastructure from subsidence.

15 (b) It is in the public interest to ensure that the permitting of
16 new wells extracting groundwater will be conducted to minimize
17 the impacts to drinking water wells and subsidence.

18 (c) Sustainable groundwater management in many parts of the
19 state requires coordination between local agencies permitting
20 water wells and groundwater sustainability agencies managing
21 groundwater basins.

22 (d) People, businesses, and industries seeking to construct or
23 operate water wells should be adequately informed about
24 groundwater conditions and groundwater management programs
25 that may affect the current or future use and operation of their
26 wells.

27 (e) Applicants seeking, and agencies permitting, the construction
28 and operation of water wells should take into account the reliability
29 and sustainability of the groundwater sources intended to be used
30 to avoid unexpected or unplanned well dewatering or loss of well
31 production capacity, which could lead to higher rates of

1 unexpected, unplanned, or premature well abandonment and
2 dereliction that could pose additional threats to groundwater
3 quality.

4 (f) Agencies permitting for the construction and operation of
5 water wells should consider the potential for those wells to cause
6 or contribute to land subsidence, which can have impacts on water
7 quality by adversely affecting the concentration of naturally or
8 artificially occurring chemical constituents of concern and posing
9 other serious public health and economic problems.

10 13808. The following definitions shall apply to this article:

11 (a) "Large-diameter, high-capacity well" means any water well
12 with a diameter of more than eight inches and intended to produce
13 greater than two acre-feet annually.

14 (b) "Local enforcement agency" means any city, county, or
15 water agency that has adopted and is administering an ordinance
16 for the construction, maintenance, abandonment, or destruction
17 of a water well pursuant to this chapter.

18 13808.5. (a) A local enforcement agency shall perform all of
19 the following activities at least 30 days before determining whether
20 to approve a permit for a new large-diameter, high-capacity well:

21 (1) Provide electronic notice to the general public by posting
22 notice of receipt of the application and the contents of the
23 application on the local enforcement agency's internet website.

24 (2) Provide notice to all groundwater sustainability agencies
25 managing within a 10-mile radius of a proposed well, including
26 those in adjacent basins or counties, as applicable.

27 (3) Provide notice to all other local enforcement agencies, if
28 any, administering well permitting programs within the basin in
29 which the activities covered in the application would occur.

30 (4) Provide written notice through the United States Postal
31 Service to the registered owners or agents of all parcels within a
32 one-mile radius of the site where the activities covered in the
33 application would occur and any relevant information on the well
34 permitting process.

35 (b) The groundwater sustainability agency with oversight for
36 the area of the basin where the local enforcement agency has well
37 permitting jurisdiction shall provide all of the following
38 information to the local enforcement agency:

1 (1) *The name of the applicable groundwater sustainability plan*
2 *being implemented and where an electronic copy of the plan may*
3 *be accessed.*

4 (2) *The name of the applicable groundwater sustainability*
5 *agency, the agency manager and contact information, and the*
6 *applicable sustainable management criteria related to groundwater*
7 *levels, including the groundwater level measurable objectives and*
8 *minimum thresholds.*

9 (3) *The estimated depth to the groundwater level based on the*
10 *most recent monitoring conducted by the groundwater*
11 *sustainability agency for the area of the basin where the proposed*
12 *activities covered by the application would occur.*

13 (4) *Any fees, allocation, metering, spacing determinations, or*
14 *other regulations or ordinances that the groundwater sustainability*
15 *agency has adopted.*

16 (5) *Any updates to the information provided pursuant to this*
17 *subdivision as necessary, should changes occur.*

18 (c) *Before approving any well permit for a large-diameter,*
19 *high-capacity well, a local enforcement agency shall provide all*
20 *of the following information to the applicant:*

21 (1) *The basin name, number, and priority as assigned by the*
22 *department in its most recent Bulletin 118.*

23 (2) *The name of all groundwater sustainability agencies, if any,*
24 *managing the basin in which the activities covered in the*
25 *application would occur.*

26 (3) *Information on regulations or ordinances adopted by the*
27 *groundwater sustainability agency relevant to the construction*
28 *and operation of the proposed well.*

29 (4) *Notice to the applicant that the approval of the application*
30 *and granting of any associated permit is subject to the regulatory*
31 *authority of any groundwater sustainability agency managing the*
32 *portion of the basin in which the activities covered in the*
33 *application would occur. The notice shall specifically inform the*
34 *applicant that in addition to any regulatory authority already being*
35 *exercised, a groundwater sustainability agency may exercise*
36 *authority to limit groundwater extraction, the imposition of fees,*
37 *and metering.*

38 **13809. (a) A local enforcement agency shall not approve a**
39 **permit for a large-diameter, high-capacity well if that well is**
40 **proposed to be located within one-quarter mile of a well used for**

1 *supplying domestic water to one or more persons or to a*
2 *community.*

3 *(b) (1) A local enforcement agency shall not approve a permit*
4 *for a large-diameter, high-capacity well if that well is proposed*
5 *to be located within one-quarter mile of an area that has subsided*
6 *greater than 0.5 feet in total since January 1, 2015, as reported*
7 *and defined by the department based upon provided InSAR*
8 *subsidence data report posted on the Natural Resources Agency*
9 *open data portal and department internet websites.*

10 *(2) A local enforcement agency may approve a permit for a*
11 *large-diameter, high-capacity well if the area identified in*
12 *paragraph (1) has not had subsidence of over 0.1 feet for four*
13 *consecutive years, is consistent with the local groundwater*
14 *sustainability plan, and is screened above geologic units known*
15 *to be susceptible to compaction.*

16 *(c) A local enforcement agency shall not approve a permit for*
17 *any well unless that well is screened below the minimum thresholds*
18 *applicable to that portion of the basin as established by the*
19 *groundwater sustainability agency pursuant to paragraph (2) of*
20 *subdivision (b) of Section 13808.5.*

21 *(d) To ensure the reliability and long-term operation of wells*
22 *within its jurisdiction, a local enforcement agency may determine*
23 *not to approve an application or grant a permit based on criteria*
24 *that are more stringent than those provided in this section.*

25 *13809.5. This article does not apply to applications or permits*
26 *for the following wells if they are proposed to be constructed with*
27 *well screens and pump depths below the applicable minimum*
28 *thresholds for groundwater levels as reported by the groundwater*
29 *sustainability agency pursuant to paragraph (2) of subdivision (b)*
30 *of Section 13808.5 or otherwise provided to the local enforcement*
31 *agency by the groundwater sustainability agency:*

32 *(a) Wells that will draw less than two acre-feet per acre.*

33 *(b) Wells that will be located on a parcel of five acres or fewer*
34 *that is in an area that has been zoned by the local land use*
35 *authority for rural residential use.*

36 *(c) Public supply wells or state small or community water*
37 *systems.*

38 *SEC. 2. No reimbursement is required by this act pursuant to*
39 *Section 6 of Article XIII B of the California Constitution because*
40 *a local agency or school district has the authority to levy service*

1 *charges, fees, or assessments sufficient to pay for the program or*
2 *level of service mandated by this act, within the meaning of Section*
3 *17556 of the Government Code.*

4 SECTION 1. ~~Section 10735.4 of the Water Code is amended~~
5 ~~to read:~~

6 ~~10735.4. (a) If the board designates a basin a probationary~~
7 ~~basin pursuant to paragraph (1), (2), or (4) of subdivision (a) of~~
8 ~~Section 10735.2, a local agency or groundwater sustainability~~
9 ~~agency shall have 180 days to remedy the deficiency. The board~~
10 ~~may appoint a mediator or other facilitator, after consultation with~~
11 ~~affected local agencies, to assist in resolving disputes, and~~
12 ~~identifying and implementing actions that will remedy the~~
13 ~~deficiency.~~

14 ~~(b) After the 180-day period provided by subdivision (a), the~~
15 ~~board may provide additional time to remedy the deficiency if it~~
16 ~~finds that a local agency is making substantial progress toward~~
17 ~~remediating the deficiency.~~

18 ~~(c) The board may develop an interim plan pursuant to Section~~
19 ~~10735.8 for the probationary basin at the end of the period provided~~
20 ~~by subdivision (a) or any extension provided pursuant to~~
21 ~~subdivision (b), if the board, in consultation with the department,~~
22 ~~determines that a local agency has not remedied the deficiency~~
23 ~~that resulted in designating the basin a probationary basin.~~

O

Groundwater Well Permitting

Observations and Analysis of Executive Orders N-7-22 and N-3-23



MARCH 2024

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

Preamble

The following report, developed by the Sustainable Groundwater Management Office at the California Department of Water Resources (Department, DWR), summarizes the local actions taken by well permitting agencies and groundwater sustainability agencies to comply with the March 28, 2022 [Executive Order N-7-22](#) (Executive Order or EO), paragraph 9 (superseded by [Executive Order N-3-23](#), paragraph 4 on February 13, 2023), which included new well permitting requirements for local agencies to prepare for and lessen the effects of several years of intense drought conditions. While much of the focus of this report is on EO N-7-22 paragraph 9, the provisions in EO N-3-23 paragraph 4 are still in effect as of the release of this report. The Executive Orders specified additional considerations for local agencies to make when considering permitting wells to improve the understanding of the potential the effects of new or modified wells, such as potential interference with nearby, existing wells and adverse land subsidence impacts. This report includes a summary of various approaches taken by local agencies to comply with the Executive Orders, observations of groundwater conditions that occurred while these actions were taken, and policy recommendations that can be used to develop future solutions to align land use planning, well permitting, and groundwater management and use.

In December 2021, in response to paragraph 11 of the [April 2021 Drought Proclamation](#), the Department of Water Resources in coordination with the State Water Resources Control Board, released the State's [Groundwater Management and Drinking Water Wells Principles and Strategies](#). This document presents a framework of principles and strategies for State agencies to continue or implement to monitor, minimize, and analyze drought impacts on drinking water well users. The Principles and Strategies framework was developed with input from a robust public engagement process and specifically identified and recognized the importance of improving well permitting as it relates to the effects on groundwater extraction on shallow drinking water wells. The observations and analyses in this report, which were also informed by public input discussed further below, support the intent of Strategy 3.4 – Informed Well Permitting, by further defining the challenges related to well permitting and providing recommended solutions to improve these processes across the state of California.

Acknowledgements

DWR would like to recognize and acknowledge the engagement and contributions of the following organizations during the implementation of the Executive Order and the development of this report:

- The California State Association of Counties
- Rural County Representatives of California
- The Groundwater Resources Association
- Community Water Center
- Leadership Counsel for Justice and Accountability
- Self-Help Enterprises
- Clean Water Action
- Northern California Water Association

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DEFINITIONS OF KEY TERMS USED THROUGHOUT THIS DOCUMENT

EO – Executive Order

GSA – groundwater sustainability agency

LEA – local enforcing agency

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

I. Problem Statement

Over the last decade, California has experienced a significant shift in its climate, including increased temperatures and aridification, as well as steep swings between drought and flood. While experts stated in 2022 that California was facing a megadrought – the most intense drought conditions in over 1,200 years – the winter of 2023 then brought 31 atmospheric river systems that resulted in record snowpack conditions along portions of the Sierra Mountain Range in just several months. The variability in weather patterns, surrounded by unprecedented and prolonged drought conditions, has highlighted the importance of California’s groundwater basins as the buffer for water supplies when snowpack and surface water supplies are volatile and less plentiful. A wide variety of users, including industries, businesses, communities, and individual households, rely on and increase groundwater use during drought and dry periods – increasing from 40 to 60 percent of the state’s overall water use during average to drought years. Many groundwater basins have chronic lowering of groundwater levels and significant overdraft, which can lead to significant impacts. Increased groundwater demand during droughts can cause episodic impacts and in overdrafted basins those impacts can be significantly exacerbated. Impacts such as dry wells and infrastructure damage from land subsidence are known to have major consequences to communities or domestic well owners that rely on groundwater for drinking water purposes and critical infrastructure has major damage effects from sinking lands below. The intent of Executive Order N-7-22 paragraph 9 was to evaluate the permitting of wells that could impact domestic wells or increase subsidence during the drought emergency.

Executive Orders N-7-22 paragraph 9 and N-3-23 paragraph 4 applied to well permitting requirements within identified groundwater basins, therefore this report does not include analysis or recommendations for well permitting decisions in areas of fractured bedrock. Executive Order N-7-22 set the framework for coordination requirements between local well permit and groundwater management agencies, and Executive Order N-3-23 added a exemption on restrictions on permits for wells acquired by eminent domain or while under threat of condemnation. Land use planning and coordination is fundamental. With mounting demands for a reliable water supply, California’s groundwater supplies are continuing to be tapped. Consistent coordination of land use planning, well permitting, and groundwater use is essential to mitigate negative impacts. New and increased well permitting and construction, particularly in areas experiencing the impacts of dry wells and land subsidence, require careful planning to ensure that groundwater extraction does not exacerbate these issues.

Currently, most groundwater well permits are issued ministerially and done so in compliance with well construction standards (Bulletin 74) that primarily address protections for groundwater quality. Analyzing the availability of groundwater supply and the potential effects of increasing groundwater extraction when issuing well permits is usually not a consideration. There also is a lack of consistent and, in some areas of California, effective coordination between local well permitting entities and local groundwater sustainability agencies (GSAs), who are tasked with long-term groundwater planning and management. Lastly, there are no statewide standards, oversight, or centralization of local decisions made by well permitting entities to help advance and bring awareness to the variety of standards and practices related to well permitting.

To address current affects and proactively reduce future impacts like more dry wells and greater land subsidence, concerted actions are needed to improve the understanding of local effects on groundwater

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

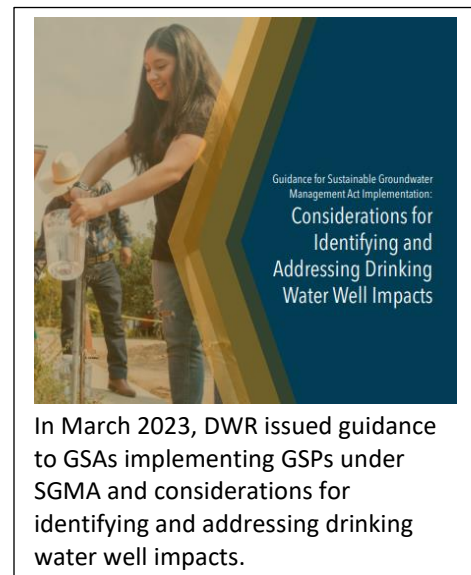
basin conditions. Information such as the location, construction, and pumping capacity of proposed wells increase analytical quality and better inform local decision-making, including the issuance of well permits, land use planning, and the management of groundwater resources. By taking wholistic consideration of the effects of these decisions, coupled with improved coordination, Californians can help mitigate worsening groundwater conditions and reduce the risk of negative and potentially irreversible impacts to California’s well users. This report includes policy recommendations and actions to help address identified challenges with the implementation of well permitting under the Executive Orders and foster continued collaboration.

II. Background

In California, multiple local government authorities typically oversee well permitting, land use planning, and groundwater management. Regulatory authority over well construction, alteration, and destruction activities can reside with any local agency (cities, counties, or water agencies) who has the authority to adopt a local well ordinance. Enforcement of the well ordinances, including issuing well permits, are administered by these local agencies and are also often referred to as local enforcing agencies (LEAs) because they can overlap multiple jurisdictions. Most frequently, the county departments of environmental health are the LEA. DWR maintains a [list of statewide LEAs](#) by county and encourages local agencies to help keep this list up to date.

State law requires that all California counties and cities adopt a General Plan, including a set of goals, objectives, policies, implementation measures, and maps. The General Plan is a blueprint for physical development, addressing needs such as new population growth, housing needs, and environmental protection. Seven elements (chapters) are mandatory in General Plans, including land use, circulation (mobility), housing, conservation, open space, noise and safety. General Plans can include optional elements such as a water resource element.

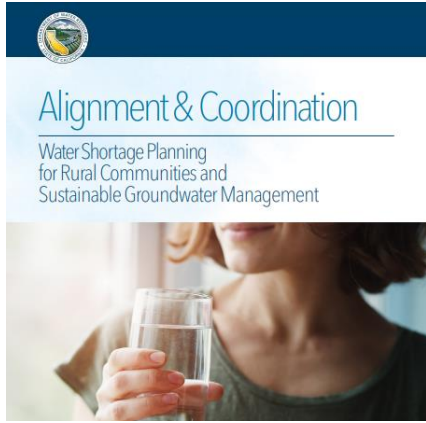
With the enactment of the Sustainable Groundwater Management Act (SGMA) in 2014, new local public agencies – called groundwater sustainability agencies or GSAs – formed in the state’s 94 high- and medium-priority basins to provide specific oversight and management of groundwater resources, and to achieve sustainable groundwater management within 20 years through the development and implementation of groundwater sustainability plans (GSPs) and associated projects and management actions. GSAs are required to include in their GSPs a discussion of how they will coordinate their groundwater management efforts with local land use authorities, including LEAs, and must consider all beneficial uses and users in their planning and implementation efforts, including drinking water well users among a variety of other industries and environmental needs. GSAs have a broad set of authorities including pumping limitations and well spacing. However, GSAs do not have authority over well permitting or land use. With the implementation of SGMA, the effects of groundwater extraction have begun to be quantified and analyzed for the capacity to cause undesirable results related to sustainability indicators like the chronic lowering of groundwater levels and land subsidence. As the first



Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

GSPs were only recently developed in 2020 and 2022, and with land use planning and well permitting processes under the authorities of other local agencies, GSAs are working to develop a comprehensive understanding of such effects. GSPs are now in the implementation phase for basins providing 98 percent of the total groundwater pumped in the state.

While GSAs are managing for groundwater sustainability over the long-term, more recent state law, [Senate Bill 552 \(2021\)](#), requires counties to establish a standing drought task force and develop drought resilience plans for rural communities, including domestic well owners and state small water systems (typically a system of 5 to 14 connections). While the drought resilience plans are a relatively new requirement that are currently being developed by county planning or utility staff, these plans must include a domestic well drinking water mitigation program, provisions for emergency and interim drinking water solutions, consolidations for existing water systems and domestic wells, an analysis of steps necessary to implement the plan, and an analysis of local, state, and federal funding sources available to implement the plan. While dry wells can occur at any time of the year, they typically increase during drought or seasons of below average rainfall when groundwater extractions increase. Senate Bill 552 set forth a framework for counties to consider the actions, solutions, and, more specifically, domestic well mitigation programs to help plan for a reliable water supply for the shallow-most wells in a groundwater basin during times of drought. With the new drought resilience plans currently under development, great opportunities lie ahead for coordination and alignment between counties, GSAs, and LEAs, particularly in understanding the nexus of well permitting and groundwater use in their area.



In March 2023, DWR issued guidance to GSAs implementing GSPs under SGMA and counties developing drought resilience plans under Senate Bill 552 on how to improve coordination and alignment.

III. The Drought Executive Orders

On March 28, 2022 Governor Newsom issued [Executive Order N-7-22 \(EO\)](#) that included new well permitting requirements for local agencies to prepare for and lessen the effects of drought conditions (paragraph 9). Then on February 13, 2023 the Governor issued [EO N-3-23](#), which included paragraph 4 to add the exemption on restrictions on permits for equivalent replacement wells because the currently permitted well is acquired by eminent domain or acquired while under threat of condemnation.

Given the record drought conditions the state faced in prior years, the EOs required additional actions be taken by LEAs prior to issuing a new or modified well permit. Local LEAs retained existing well permitting authorities, including reviewing and administering well permits. However, under the EOs, LEAs are required to make the following considerations during the well permitting process for new or modified wells:

If the proposed well is located in one of the 94 high- or medium-priority groundwater basins, according to the Department's [basin prioritization](#), the well permitting agency or LEA needs to consult with the GSA and receive written verification from the GSA that the proposed well location is generally consistent (not inconsistent) with the applicable GSP and will not decrease the likelihood of achieving the sustainability goals that the GSAs have developed under SGMA.

For all well permit applications, including areas of the state that do not have a designated high- and medium-priority groundwater basin, the local well permitting agency or LEA needs to determine before issuing a well permit that the extraction of groundwater from the proposed well is not likely to interfere with the production and functionality of existing nearby wells and is not likely to cause subsidence that would adversely impact or damage nearby infrastructure. As seen in the last paragraph of the excerpt to the right, domestic and public supply wells, and those being replaced because the currently permitted well is acquired by eminent domain or acquired while under threat of condemnation, are exempt from paragraph 4.

Excerpt of Paragraph 4 from Drought Executive Order N-3-23:

To protect health, safety, and the environment during this drought emergency, a county, city, or other public agency shall not:

a. Approve a permit for a new groundwater well or for alteration of an existing well in a basin subject to the Sustainable Groundwater Management Act and classified as medium- or high-priority without first obtaining written verification from a Groundwater Sustainability Agency managing the basin or area of the basin where the well is proposed to be located that groundwater extraction by the proposed well would not be inconsistent with any sustainable groundwater management program established in any applicable Groundwater Sustainability Plan adopted by that Groundwater Sustainability Agency and would not decrease the likelihood of achieving a sustainability goal for the basin covered by such a plan; or

b. Issue a permit for a new groundwater well or for alteration of an existing well without first determining that extraction of groundwater from the proposed well is (1) not likely to interfere with the production and functioning of existing nearby wells, and (2) not likely to cause subsidence that would adversely impact or damage nearby infrastructure.

This paragraph shall not apply to permits for wells (i) that will provide less than two acre-feet per year of groundwater for individual domestic users, (ii) that will exclusively provide groundwater to public water supply systems as defined in section 116275 of the Health and Safety Code, or (iii) that are replacing existing, currently permitted wells with new wells that will produce an equivalent quantity of water as the well being replaced when the existing well is being replaced because it has been acquired by eminent domain or acquired while under threat of condemnation.

IV. Local Approaches Taken to Comply with the Executive Orders

The EOs uniquely protect existing authorities of LEAs and GSAs and other facets of local planning and water management; therefore, approaches to comply with the EOs varied by region and local entity. In April of 2022, DWR hosted a webinar for LEA and GSA representatives to understand the various local directives in EO N-7-22 and reinforced that there was no state oversight or enforcement included in the EO. The [presentation](#), [recording](#), [Fact Sheet](#), and [Frequently Asked Questions](#) document from the webinar session are available on [DWR's Drought webpage](#), under Drought Well Permitting Requirements.

After one year of the EO provisions being implemented by local agencies, DWR conducted a feedback survey during the spring of 2023 for local well permitting entities and GSAs representatives to share the actions they took to comply with EO N-7-22 paragraph 9. A full synthesis of DWR's survey results can be found in Appendix A of this report. Of all 58 counties and the 94 high- and medium-priority groundwater basins required to comply with the EO, DWR received a 50 percent survey response rate from well permitting staff and a 45 percent survey response rate from the GSAs. All respondents identified the region of the state they are located in, which is available in Appendix A, with the exception of one LEA and two GSAs who did not specify which county or basin they represented.

On-the-ground perspectives were shared by community members during a listening session that took place in September 2023 (included in Appendix B), and was facilitated by local non-governmental and community-based groups. Many of the community members have been affected by conditions due to the installation of nearby high-capacity wells during the implementation of the EOs. Appendix B also includes local agency case examples taken from the survey results, which identifies a variety of approaches taken to comply with EO N-7-22 paragraph 9, including developing procedural, technical, and informational assistance for permit applicants.

V. Observed Conditions Summary

While conducting the local agency feedback survey, DWR also analyzed groundwater conditions statewide to understand the effects of EO N-7-22. The EO specified analyzing impacts from proposed new wells on neighboring wells (dry wells) and land subsidence. Updated maps and figures of these and more recent observed conditions can be found in Appendix C of this report.

Dry Wells and Subsidence Conditions

Since enactment of EO N-7-22, observed state-wide groundwater conditions data indicated 1,911 wells were voluntarily reported dry to DWR's Dry Well Reporting System through August 28, 2023. The top ten counties with the greatest number of wells reported to the Dry Well Reporting System since the EO include: Fresno, Tulare, Madera, Tehama, Merced, San Joaquin, Stanislaus, San Luis Obispo, Kings, and Shasta; a large concentration of these reports were from the San Joaquin and Tulare Basins (see Figure C-1 in Appendix C). Land subsidence was also observed in various regions of the state since April 2022 (see Figure C-5 in Appendix C), with vertical ground surface displacements ranging as follows:

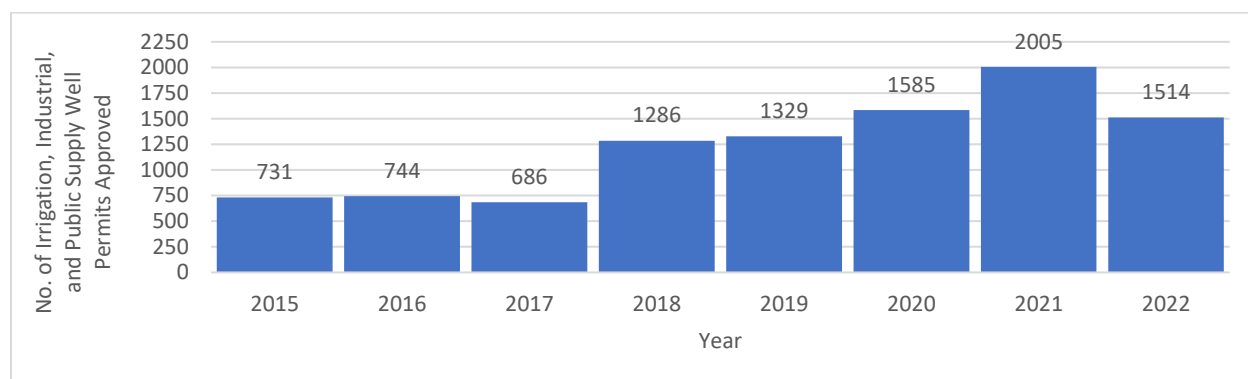
- Sacramento Valley: approximately -0.1 up to -1.0 feet with two primary areas exceeding -0.5 feet in Glenn and Colusa Counties.
- San Joaquin Valley: approximately -0.1 feet to -0.8 feet in Madera and Merced Counties, up to -1.0 feet or more within the Tulare Basin located mainly in Tulare and Kings Counties.

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Statewide groundwater elevation data, elevation trends, subsidence data, well infrastructure updates, and a discussion of current concerns such as drought conditions can be found in DWR's [California's Groundwater Conditions Semi-Annual Update](#). These reports are published in March and October.

Reported Well Permitting

Of the 2,012 industrial, irrigation, and public supply wells installed statewide between March 28, 2022 and September 7, 2023, 541 of those wells were permitted on or before March 28, 2022, meaning that those wells were approved for permitting before EO N-7-22 was enacted and that permit was potentially not re-evaluated due to the EO. As such, 1,471 industrial, irrigation, and public supply wells were permitted between March 28, 2022 and September 7, 2023. For context, the graph below shows the number of industrial, irrigation, and public supply well permits approved statewide for completed wells each calendar year since SGMA went into effect (January 1, 2015). Compared to 2021, the number of well permits issued statewide decreased by 24 percent in 2022, which contrasts with the increasing trend observed each year since 2018.



As reported to DWR, the top ten counties with the greatest total number of well permits approved for industrial, irrigation, and public supply wells since the EOs include: Tulare, Fresno, Kern, Kings, Merced, Stanislaus, Madera, Sonoma, San Luis Obispo, and Glenn (see Figure C-2 in Appendix C). Seven of these ten counties overlie an extensive clay layer in the San Joaquin Valley, known as the Corcoran Clay (see Figure C-6 in Appendix C). Areas overlying the Corcoran Clay have historically exhibited the greatest extent and rate of land subsidence in the state. Reported well permitting data indicated 408 irrigation, industrial, and public supply wells were permitted for completion at depths below the top of the Corcoran Clay in all counties. Wells completed at those depths suggest deep aquifer and potentially higher capacity pumping with greater potential to exacerbate land subsidence in those areas than lower pumping capacity wells completed at shallower depths above the Corcoran Clay.

VI. Conclusion

The analyses and observations summarized in this report demonstrate that the EOs caused some changes in well permitting considerations, by increasing coordination among local agencies responsible for differing aspects of protecting groundwater for all users. The EOs accomplished a shift in the well permitting process from the primary concern of protecting groundwater quality to a broader concern that includes SGMA regulations and the goal of sustainable groundwater management. Managing groundwater sustainably in a basin or subbasin beckons the need to fully consider the effects of new or modified well construction. During the most severe drought emergency, the EOs provided critical direction and understanding to local agencies of how SGMA requirements should be considered and

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how those considerations could be included in the well permitting process. However, as indicated in the results of the well permitting survey (Attachment A), the EOs as written do not fully address the complexities of well permitting and more structure is needed to align the process with SGMA goals.

There also is no mechanism in the EOs to ensure compliance. The observed conditions of continued subsidence and well permitting in vulnerable areas indicate that in many respects, the EOs failed to achieve its goal. Further, well interference and increase subsidence from new wells can occur in non-drought years. Therefore, enactment of well permitting standards to address well interference and subsidence should apply to all water year types and in all basins. There are a variety of efforts (e.g., policies, assistance, rules) that could be employed to fulfill the intent of the EOs and minimize impacts from new well extractions, not just during droughts, but in all years.

The following Department recommendation is informed by local input, to support improvements to the well permitting process, groundwater management, land use planning, and drought management, each of which have a particular facet of the challenges that the EO was intending to address. These recommendations are presented to foster constructive dialogue in the hopes of reaching consensus on a solution.

Department Recommendation

The Department recommends enactment of the following statutory concepts to replace the provisions of EO N-3-23 paragraph 4 and to ensure continued advancement toward a reliable groundwater supply for the future. The statutory language consists of four components:

1. Require Disclosures

One of the key facets of the EOs are the provision for improved coordination between LEAs and GSAs. This report identified that improved communication and disclosure to the public about pending well permit applications will improve transparency. Statutory provisions should be enacted that provides public disclosure of well permit applications and collaboration between LEAs and GSAs.

2. Set Minimum Standards

Statutorily set well spacing and well depth standards to reduce future impacts to community supplies and domestic wells. The prohibition of new well permits in areas where subsidence impacts are occurring will minimize or eliminate subsidence and impacts to critical infrastructure.

3. Exempt Certain Discrete Types of Wells and Procedures

Exempt certain domestic wells based on size and volume as well as small, public supply wells.

4. Establish Applicability of Requirements

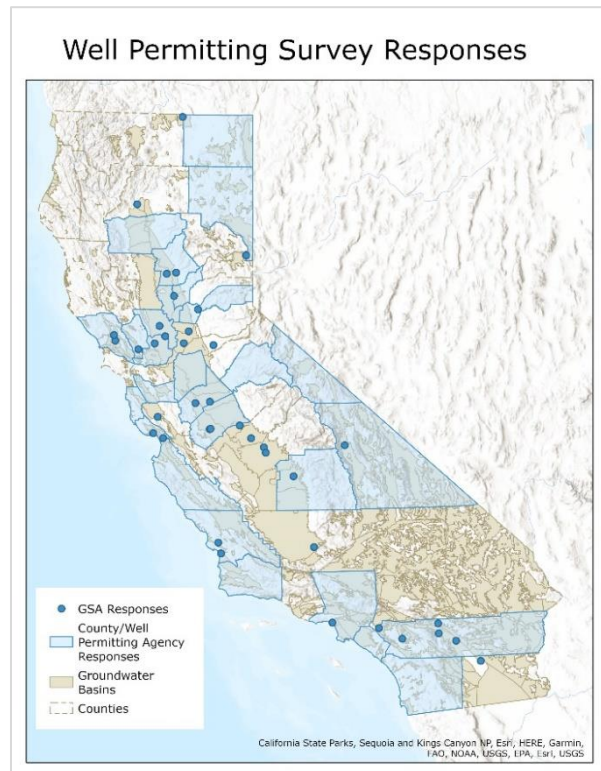
The previous provisions are applicable within all groundwater basins, as defined in the Department's *California's Groundwater* (Bulletin 118). There should be standards of applicability or exemption set for basins with low- and very low-priority designations (those with optional GSAs and GSPs) or in non-alluvial areas.

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Appendix A: Summary of State Survey Conducted: Local Approaches Taken

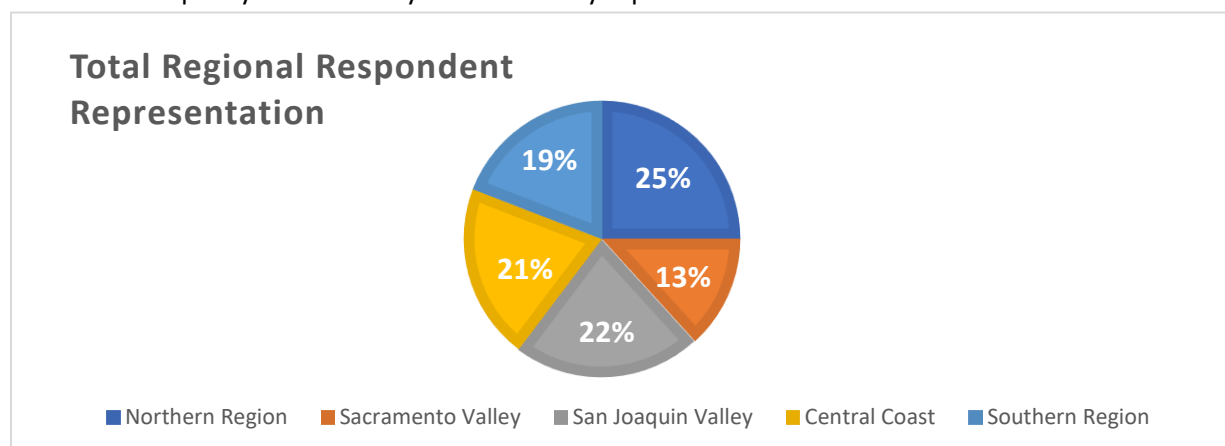
Survey Solicitation and Participation

On April 7, 2023, DWR sent solicitations to county well permitting entities and representatives of GSAs to participate in an informational survey regarding actions taken to comply with the EO N-7-22, paragraph 9. The survey was open for approximately six weeks and closed on May 23, 2023. Survey questions were tailored to both local well permitting agencies, LEAs, and GSAs to better understand the approaches these agencies deployed when implementing the EO. The goal of the survey was to hear from local entities as to what approaches were or were not successful and to centralize suggestions for improved long-term coordination of well permitting and groundwater management beyond the EO expiration. The survey information has also served as a basis for DWR to develop the observations and analysis contained in this report, which discusses how the EO was implemented and offers policy recommendations. Note: the survey did not address the additional language from EO N-3-23 paragraph 4. Survey responses are summarized below.



Regional Representation of Respondents

Survey respondents were located throughout the state (shown in the figure above) and regional representation of respondents is shown in the chart below. Generally, both GSA and County responses were limited in less populated areas, such as the northwestern and southeastern parts of the state. GSA responses came from 42 groundwater basins, out of the 94 medium- or high-priority basins required to form GSAs and develop GSPs as part of SGMA. Responses from 11 GSAs came from the state's 21 critically overdrafted groundwater basins. LEA responses came from 29 out of the 58 counties in California, overlapping 15 critically overdrafted groundwater basins. Responses from one LEA and two GSAs did not specify which county and basin they represented.



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Executive Order Exemptions

As stated above, the EO specified that its requirements did not apply to wells that pump less than 2 acre-feet per year (de minimus users) and wells that exclusively provide groundwater to public water supply systems. GSAs and LEAs processed these exemptions in several ways. Some local agencies required the verification of domestic and public supply wells through the use of data and tools, relying on expertise from GSA and county staff, and implementing certain processes or requirements, such as:

- Requiring applicants to submit a “declaration of use” or self-certification form.
- Allowing individual wells used for drinking water consumption to be categorically exempt and therefore processing the well permit applications ministerially.
- Requiring information for review and concurrence pursuant to Senate Bill 1263 of 2016 (where public supply well must submit a preliminary technical report to the Regional or State Water Resources Control Board on their water supply).
- Requiring water quality and quantity testing to be performed after the well is drilled for the exempt wells.

In ten county respondents to the survey, no additional requirements were set in place due to the EO for the exempt wells. In at least one county, the exemptions under the EO were not upheld for public supply wells, but instead a California Environmental Quality Act (CEQA) review of the proposed well was required, placing additional burdens to what should have been a well exempt from the EO requirements.

Required Consultation Between GSAs and LEAs

In complying with EO N-7-22 paragraph 9(a), consultation and coordination were required between the GSAs and LEAs. Half of respondents indicate that paragraph 9 helped build the working relationships between the LEAs and GSAs, while almost a quarter of respondents feel they either already had a working relationship or were working to establish that prior to the EO. The most commonly reported form of communication and coordination between the LEAs and GSAs from the survey was regular communication and specific procedures that were either in place or established due to the EO. Additional feedback from survey reported that there was some confusion in roles and responsibilities between the GSAs and the LEAs as well as both parties looking to have the legal liability of “making findings” on the other local entity, which led to local challenges.

When asked about the types of well permit application practices that were in place prior to the EO, respondents indicated the following were in place in various regions of the state:

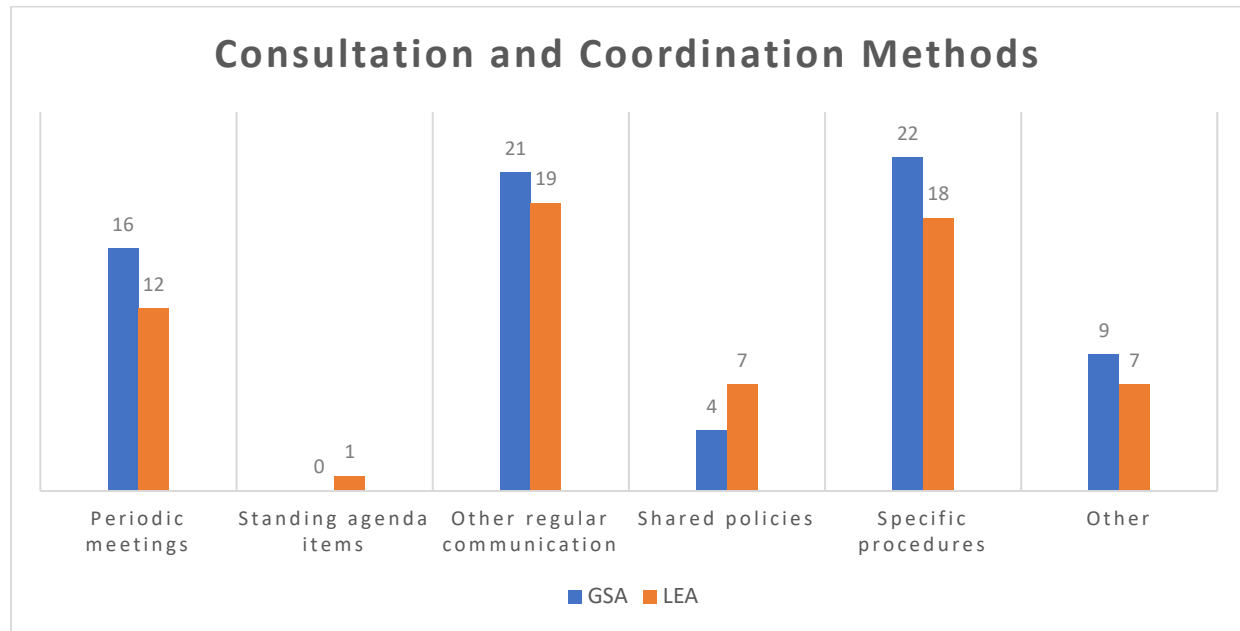
- Local ordinances or regulations related to well permitting.
- General Plan provisions related to groundwater use and land use.
- Coordination with the local GSAs and local water agencies.
- Setback requirements and referencing DWR Bulletins 74-81 and 74-90 and the California Water Well Standards.

Local ordinances that were referenced in the survey included a variety of well permitting considerations, such as: well design, well drilling, well spacing (up to a 1/4 of a mile), well capacity limits, and other well permitting restrictions, including moratoriums (i.e., suspensions or freezes), limits on the number of permits issued in a given time period, and stricter requirements during declared drought emergencies.

Consultation and coordination between GSAs and LEAs to comply with the EO was conducted in the following additional ways: periodic meetings, standing agenda items, other regular communication,

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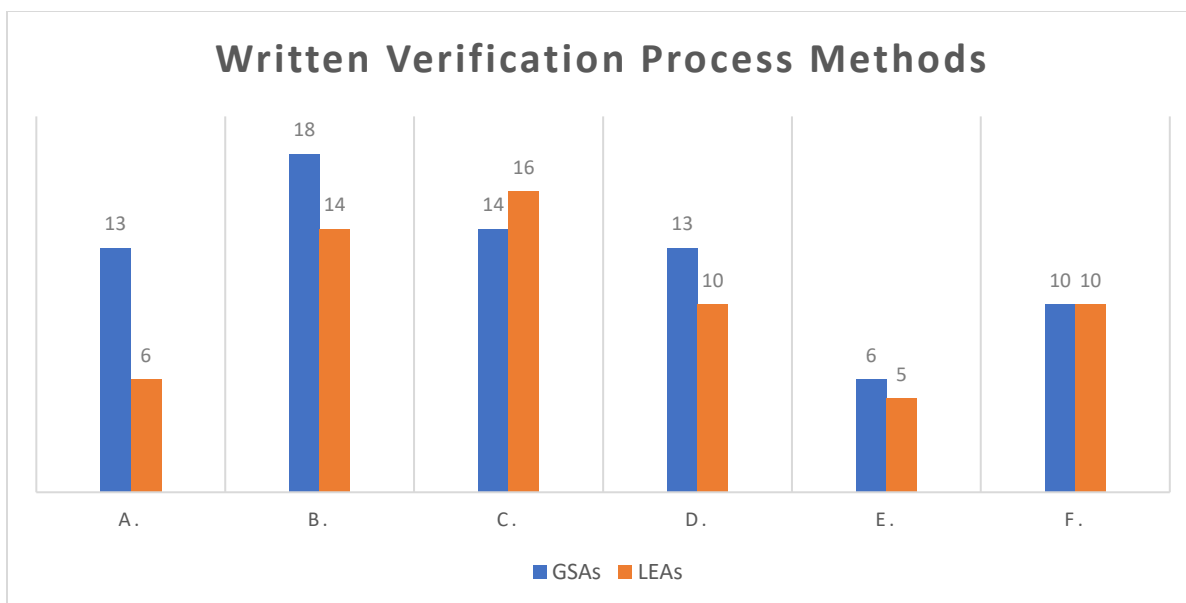
shared policies, and ‘other’. Some of the ‘other’ responses included feedback such as that the GSAs and LEAs were not working well together, some held initial meetings and then did not need to meet again, some hosted joint public workshops together, others passed local resolutions claiming any new well proposed would not be inconsistent with the GSP and therefore coordination was not needed and well permitting could continue during the drought, per status quo. Some respondents shared in feedback that compliance with EO paragraph 9 was focused on “on paper” coordination only (see written verification responses below) and others stated that coordination was not needed since no wells were permitted since EO paragraph 9 took effect.



Required Written Verification Process and Methods Between GSAs and LEAs

Under the EO, LEAs were required to obtain written verification from the GSA managing the area of the proposed new or modified well within groundwater basins. Respondents could select from the general methods for meeting the written verification requirement from the options below, shown in the following chart:

- A. The GSA performs general consultation with the local well permitting agency.
- B. The GSA performs an evaluation on new well permit applications prior to issuance by the local well permitting agency, including evaluation of the potential for interference with nearby wells and the location with respect to areas of land subsidence.
- C. The GSA makes findings from reviewing new well permit applications and provides recommendations to approve or not approve well permits.
- D. The GSA and local well permitting agency developed and use a shared form, tool, or process to route well permit applications.
- E. Either the GSA or County contracts with a professional (e.g., Hydrogeologist, Engineer, etc.) to certify well permitting applications.
- F. Other (write-in answer)



In the survey feedback, GSA respondents ranked the highest that their written verification steps were consistent with the approach identified by the EO. LEA respondents ranked the highest that the GSA written verification process was done in a way that the GSA made findings from reviewing new well permit applications and provided recommendations to approve or deny well permits. The remaining responses in option F, ‘other’ included:

- Individual consultation on a permit-by-permit basis.
- GSAs only provided information to the LEA or applicant based on request.
- The LEA had existing setback requirements that were considered sufficient.
- The LEA and GSA were the same entity and therefore a process was not needed.
- GSAs did not provide verification, so LEA prepared a technical report.
- LEA or GSA contracted with either a Certified Hydrogeologist and/or a Professional Engineer to certify the well permit applications.
- GSAs and LEAs were both not willing to perform verification process.

Data and Information Gathering Approaches to Complying with the Executive Order

GSAs and LEAs took many approaches to gather relevant information on whether the issuance of a well permit could potentially interfere with nearby wells or contribute to land subsidence in areas where it may or is known to be occurring. These approaches include the use of various local and state agency data and tools, and relying on the expertise from hired consultants, existing county and GSA staff, and other professionals such as drillers and hydrogeologists with local and historical knowledge. Many entities relied on information that was provided by well permit applicants, including maps of all wells in the area (with specific capacities/sizes, setbacks, and analyses), and reports and certifications from hired professionals (at the applicant’s expense). In one case, well permit applicants were to provide a report to the local permitting agency, signed by a hydrogeologist, certifying that no interference would occur with nearby wells and there were no issues with subsidence. In another case, the GSAs determined that there were generally no significant impacts to the local groundwater basin and therefore well permit applicants submitted a pre-populated acknowledgement form attesting they understood the implications and possible future impacts of their well.

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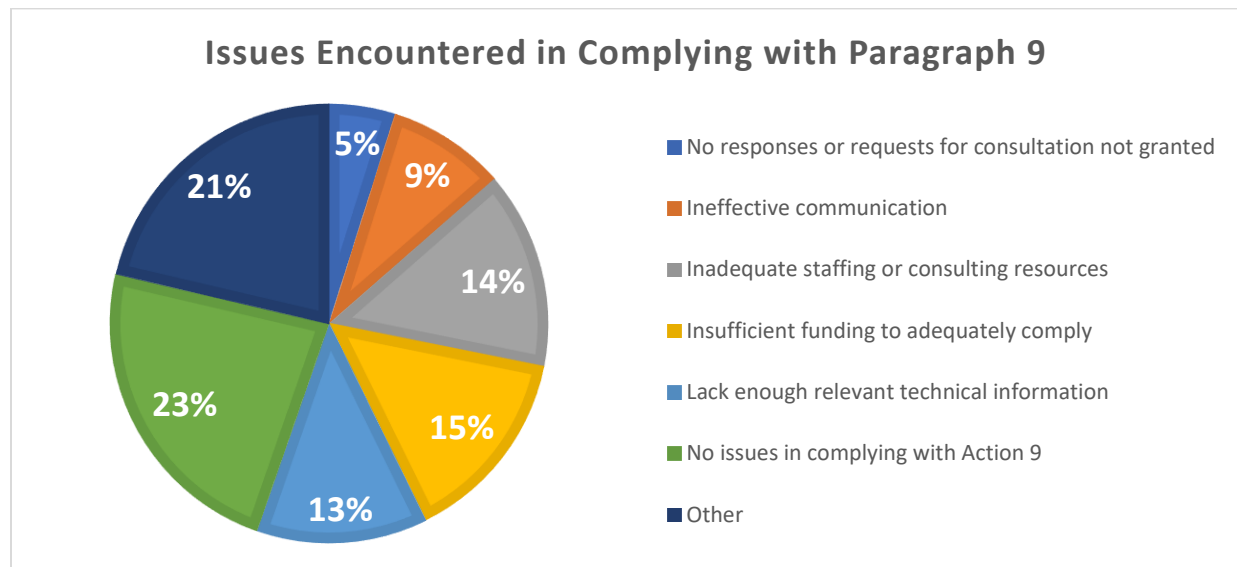
Cost and Time Feedback to Implement the Executive Order

In the majority of responses from LEAs, no additional costs were incurred by the well permitting agencies for a variety of reasons, including the applicant and/or property owner had to pay the fee (or newly increased fees), the requirements of the EO were previously required by a county ordinance, costs were absorbed by another local department within the county, and in several examples very few well permits were processed due to an ongoing well permit moratorium. With regard to requiring costs be covered by the well permit applicant, one LEA stated that applicants paid for a \$5,000 report to include in their application to comply with the EO. Some LEAs did not know what the costs to them were since the EO processes were still being established, but others estimate that due to a significant increase in staff time, costs could be as much as an additional \$50,000 per year for local agencies to implement.

In the survey responses, ten counties reported no effect in the processing time of permit applications for all well types (domestic, agriculture, and "other"). Processing times for domestic well permit applications remained the same for approximately 60 percent of LEA respondents, approximately 31 percent of agriculture wells, and approximately 47 percent of "other" well types while carrying out the EO. Processing times were reported to range from as little as a 1 to 2 hours to as long as 3 to 6 months, depending on the completeness of applications, information to consider, and whether a CEQA review was necessary. The average survey response regarding the amount of time to process a well permit application was 2 weeks. With regard to time delays, one survey respondent stated that the GSA's unwillingness to comply with the EO for a new "non-exempt" well adversely impacted their business and profitability of a small agricultural producer in an economically disadvantaged area (compared to larger producers).

Issues in Complying with the Executive Order

While 23 percent of entities indicated they did not encounter issues in complying with the EO, the remaining LEAs and GSAs encountered some form of issue or challenge.



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The remaining respondents primarily indicated other issues, including:

- Difficulty explaining the requirements to applicants and GSAs.
- The inability of GSAs “to provide written verifications” which delayed the well permitting process.
- Confusion over who is in charge of the well permitting process and questioning the distinction between the roles and responsibilities of the GSAs and LEAs (legally, who is responsible for the end decision of approving or denying a well permit application based on the EO requirements).
- A sense of ‘overreach’ by certified professionals urging certain analyses that local agencies were unsure were needed (providing a certain level of legal basis for decisions under the EO).
- Adding another process to perform while GSAs are in the process of implementing groundwater pumping allocations to control use.
- Local agencies shared opinions about not have autonomy over their existing authorities.
- Some local entities shared they felt the EO was a punitive, restrictive, and unfair process.

Local Recommendations for Improvements Related to the Executive Order

Approximately half of respondents had no recommendations to improve their efforts to meet EO requirements. While many respondents shared they would like to see the EO discontinued since these actions are already covered through SGMA implementation, another respondent believes that the EO is a good policy, and it should continue as a requirement beyond the drought. Some respondents reported their negative experiences in implementing the EO and working with other agencies in their areas.

Some respondents indicated that **more data and tools** are needed to support their written verification, such as a spreadsheet or online calculator to support the evaluation of well interference, a well permitting agency database or portal where information such as well completion reports and groundwater information can more easily be obtained by the local agencies, and a central clearinghouse for local agencies to leverage other approaches to implement the EO. Many respondents stated that **state funding and technical assistance** are needed to support local agencies, including hydrogeologists or technical experts, general funding and staffing to local jurisdictions to implement these efforts, additional support from DWR for GSAs and the “review certainty” of their GSPs to complete the written verification process, and additional local staffing and time to implement metering to better understand groundwater extraction and use. Some survey respondents called the EO an “unfunded mandate.”

Additional or standardized guidance on how to implement the EO was another area that local agencies needed assistance, including clearer language for terms such as “likely to impact”, standard (or specific when necessary) procedures for reviewing well permits developed by the State Office of Planning and Research (OPR), checklists to better facilitate permit reviews, and better educational information for interested parties regarding the well permitting review process and groundwater management. Respondents indicated that **improved communication was needed from the state** on the expectations of the EO between the GSAs and well permitting agencies. One respondent suggested that there should be a delineated appeals process with the GSA if the homeowner or property owner wants to contest the GSA's written verification and recommendation for a well permit denial. As previously stated, legal challenges were raised over who is responsible for the well permit approval or denial. What has been an established ministerial process became a discretionary, complicated, and data-specific process, which has been challenging for some. For example, creating general guidelines on where agriculture wells should be screened to avoid interaction with neighboring wells.

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Respondents had *other recommendations*, including allowing GSAs to incorporate activities required in EO in their next GSP update, requiring GSAs to work with their counties and cities on a permitting process, not exempting domestic and public wells (as this was stated to be a “bad policy” that could lead to wells being drilled without any considerations, thus creating issues in those areas of increased extraction), and clarifying the LEA's responsibilities under the EO and ensuring compliance with those obligations.

Appendix B: On-the-Ground Perspectives & Local Agency Case Examples

On-the-Ground Perspectives

The following perspectives were shared by individuals who experienced effects such as dry wells during the drought in the following communities or County Service Areas:

- Cantua Creek, El Porvenir, and Lanare in Fresno County that are unincorporated and severely disadvantaged.
- Fairmead in Madera County, where community members have had to deepen their well to deal with nitrate concentrations up to three times California maximum contaminant levels for drinking water and otherwise insufficient well capacity.
- Orosi/East Orosi, West Goshen and other small communities in Tulare County that rely on small capacity community wells or individual private wells.

With respect to conditions experienced during drought, the shared perspectives included:

- Their areas and neighboring areas have generally experienced disproportionately challenging water supply conditions compared to many other parts of the state.
- Descriptions of unresolved dry well outages dating as far back as 2011.
- Continued reliance on bottled and tanked (hailed) water to meet basic household needs.
- Receiving a quote for \$30,000 to deepen a 190-foot-deep domestic well to keep up with the lowering groundwater table, but that the driller could not guarantee the well would produce enough water to sustain the needs of the home.
- One person's account of their neighbor receiving a local assistance in the form of a tank on their property to be regularly filled by water haul trucks; however, for reasons unknown to them, their own property was not deemed eligible for a tank.

Shared perspectives about local well impacts included:

- Accounts of an increase of new irrigation wells surrounding their communities being the cause of wells going dry in many homes reliant on groundwater for domestic water needs.
- Suffering of residents because agricultural wells operate with such large capacities and cause such great drawdown of groundwater levels.
- Unreliable and often contaminated residential water supplies due to excessive groundwater level drawdowns have caused many residents to be afraid each morning due to uncertainty of whether or not water will come from the tap and if it will be drinkable.
- Concerns that their community was being surrounded by irrigation wells so that residents would be "run out of town," or that "a new phenomenon" of high-capacity wells being installed adjacent to residents has become a standard practice that residents should expect.
- A report of an irrigation well being installed within approximately 75 yards of their residence.
- Concerns from residents whose community can install a new drinking water well, but are fearful the new well will quickly become obsolete if nearby irrigation wells are allowed to run unregulated.
- That irrigation wells can run 24-hours a day, sometimes five to six days at a time, have an unfair effect on their right to pump groundwater.

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In conclusion, community members that spoke with DWR collectively feel the number of irrigation well installations have increased and irrigation pumping has been prioritized over domestic well users in their areas. More assistance is needed in these communities and local agencies should be aware of the challenges residents are facing when competing with high-capacity wells.

Local Agency Case Examples

As identified in Appendix A, local agencies took a variety of approaches to implement EO N-7-22. Different local agency examples are identified below to highlight procedural, technical, and informational assistance to prospective well permittees.

Local Ordinances in Place Prior to EO N-7-22

Some local agencies shared that they have been evaluating well permit applications using similar methods to what the EO required, prior to its adoption. Three such examples are:

The Sierra Valley Groundwater Management District (SVGMD), one of the GSAs for the Sierra Valley Groundwater Subbasin (No. 5-012.01), adopted [Ordinance No. 18-01](#) in April 2018. Section 8 of Ordinance 18-01 discusses the required coordination between the Counties (Plumas and Sierra) and the SVGMD, upon receipt of an application for a new or modified high-capacity well. Ordinance 18-01 also includes a map (Exhibit A), which shows areas where high-capacity wells are prohibited from being installed, as specified by the SVGMD's appointed hydrogeologist; a new map with a larger high-capacity well restriction area was adopted in May 2021.

Merced County adopted [Ordinance No. 1930](#) in March 2015. Domestic well permits are exempt from the Ordinance and are processed and issued by the County; however, public supply wells are not exempt. Chapter 27, Section 050 of Ordinance 1930 requires entities claiming an exemption to pump groundwater in excess of established extraction patterns, to work with the County (who is a member agency of the Merced Subbasin GSA) directly to obtain the determination that their application is consistent with groundwater management plans prior to permit issuance. One criterion required for a claimant to meet the burden of establishing that the exemption applies includes that "replacement of existing wells... do not produce further decline of groundwater levels, land subsidence, or other significant environmental damage."

In November 2014, Stanislaus County adopted their [Well Permit Application Review Process](#), which discusses the process of County review (Section 2) to determine whether an application is subject to, or exempt from, the prohibitions in the Groundwater Ordinance against unsustainable groundwater extraction and the export of water. Based on this review, if the application is found to be exempt, it is processed and a permit is issued. The Process document goes on to state that "[a]fter adoption of a Groundwater Sustainability Plan (GSP), the prohibition against unsustainable groundwater extraction will be applicable to any well for which the County reasonably concludes that the extraction of groundwater constitutes unsustainable extraction of groundwater. This would include applications for wells that are found not to be in compliance with a GSP." The Process document also includes a 'Discretionary Well Permitting Framework under the Stanislaus County Groundwater Ordinance', which discusses county management thresholds and actions and potential well permit conditions related to undesirable results for applicable SGMA sustainability indicators.

Well Permit Moratoriums

Some local agencies shared that they have placed temporary prohibitions or moratoriums on approving well permits since adoption of the EO. One such example is:

In October 2022, the Sonoma County Board of Supervisors adopted a [temporary moratorium on well permits](#), which directed the permitting agency to convene a working group to discuss policy options for consideration of impacts on public trust resources. The resulting recommendations were considered, and an amended well ordinance was brought to the Board of Supervisors and final approval was granted in April 2023. Additionally, a [Well Ordinance Map](#) viewer tool was developed for the public to view which areas of the County are within the “Public Trust Review Area”; if a proposed well site is within this area, additional review related to impacts to public trust resources may be required by the well permitting agency.

LEA Use of Well Setback Requirements

The use of “separation”, also known as “setbacks” is a common way that LEAs provide guidance to well permit applicants to locate their well an adequate horizontal distance, or separation from, sites of known or potential sources of pollution and contamination. Setbacks can be an effective presumption for attempting to reduce land subsidence and impacts to neighboring wells. Some local agencies shared how they have encouraged or required the use of setbacks. Six such examples are:

- Mono County stated they use setback requirements per the County Code, consistent with DWR’s Bulletin 74-81, Water Well Standards (December 1981) and 74-90, California Well Standards (June 1991).
- Yolo County explained they hired a local engineering firm to develop a setback table, based on local conditions, to ensure the impact of the proposed new well to the nearby wells is unlikely.
- San Mateo County indicated their Wells Ordinance has adequate setback requirements to deal with almost all of the setback issues encountered, which mitigate potential well-to-well interference. Further evaluation is built into the San Mateo County Local Coastal Program.
- Butte County stated that applicants must use a local GIS map, which shows nearby groundwater monitoring wells, to include all nearby wells if well pump capacity is large enough to warrant nearby well setbacks. Setbacks are required for large diameter wells that are greater than 8 inches in diameter with a minimum pump capacity of 1,000 gallons per minute or greater.

**Bulletin 74-81/74-90, Part II.,
Section 8. Well Location With
Respect to Pollutants and
Contaminants, and Structures:**

A. Separation. All water wells shall be located an adequate horizontal distance from known or potential sources of pollution and contamination. Such sources include, but are not limited to:

- *sanitary, industrial, and storm sewers;*
- *septic tanks and leachfields;*
- *sewage and industrial waste ponds;*
- *barnyard and stable areas;*
- *feedlots;*
- *solid waste disposal sites;*
- *above and below ground tanks and pipelines for storage and conveyance of petroleum products or other chemicals;*
- *storage and preparation areas for pesticides, fertilizers, and other chemicals.*

Consideration should also be given to adequate separation from sites or areas with known or suspected soil or water pollution or contamination.

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

- Stanislaus County explained they hired a qualified professional to develop a Technical Memorandum, which includes the use of lookup nomographs to determine compliance with the Executive Order, on behalf of the permit applicant. Information provided by the applicant allows the County to determine if any minimum setback screening distance is required to prevent well interference, or subsidence that may likely adversely impact or damage critical infrastructure.
- Solano County stated they require applicants to provide a map of existing water wells within 1,500 feet of the proposed well. Wells within that setback may require additional testing to ensure no negative impacts will occur to nearby wells.

Well Permitting Information, Processes, Tools, and Additional EO Requirements

Many local agencies shared that they developed guidance and information, and web tools and maps to inform well permit applicants about requirements of the EO and their permitting process. Three such examples are:

Yolo County's [Water Well Program website](#) has a 'News & Updates' Section, which includes information about the EO N-7-22 paragraph 9, declaration forms for exempt well applicants, and temporary well permitting procedures to ensure compliance with paragraph 9, including additional handouts and a supplemental questionnaire.

Riverside County's ["Map My County" interactive mapping tool](#) has, among many others, layers that identify General Plan land uses (within 'Planning Layers') and subsidence (within 'Geographic Layers'). The map can be used to gather relevant information on whether the issuance of a well permit could potentially interfere with nearby wells or contribute to land subsidence in areas where it may be or is known to occur.

Glenn County amended Chapter 20.08 of [Ordinance 1323](#) in May 2023 to include, among other additions, Section 20.08.090: Consultant Review Required for Non-Exempt Wells. This Section describes the process and requirements that all non-exempt well permit applications shall include, the proposed well construction design, and the maximum pump size and specifications, which shall be reviewed against categories identified in the GSP. A technical review required is to determine the likelihood that extractions from the proposed well will cause any of the following: interference with the production and function of existing nearby wells; subsidence that would adversely impact or damage nearby infrastructure or cause exceedance of GSP minimum thresholds for land subsidence; groundwater level declines that will cause exceedance of GSP minimum thresholds for groundwater levels; exceedance of GSP minimum thresholds for water quality; or, exacerbate a substantial adverse impact on public trust resources of navigable waters.

Appendix C: Observed Conditions Maps and Figures

This report, and specifically this appendix, discusses various types of wells and utilizes publicly available datasets to show observed conditions since the adoption of the EO. The well types discussed in this document and shown in this appendix are primarily defined in the Bulletin 74-81/74-90 [California Well Standards, Combined](#), as:

- **Well or Water Wells.** As defined in Section 13710 of the Water Code, well or water well:
 - "...means any artificial excavation constructed by any method for the purpose of extracting water from, or injecting water into, the underground. This definition shall not include: (a) oil and gas wells, or geothermal wells constructed under the jurisdiction of the California Department of Conservation, except those wells converted to use as water wells; or (b) wells used for the purpose of (1) dewatering excavations during construction, or (2) stabilizing hillsides or earth embankments."
- **Community Water Supply Well.** A water well used to supply water for domestic purposes in systems subject to Chapter 7, Part 1, Division 5 of the California Health and Safety Code. Included are wells supplying public water systems classified by the Department of Health Services as "Noncommunity water systems" and "State small water systems" (California Waterworks Standards, Title 22, California Administrative Code). Such wells are variously referred to as "Municipal Wells", "City Wells", or "Public Water Supply Wells".
 - **Public Water System**, as mentioned in the EO, is defined in the [California Health & Safety Code Section 116275\(h\)](#). The Department's datasets refer to these as "Public Supply Wells".
- **Individual Domestic Well.** A water well used to supply water for the domestic needs of an individual residence or systems of four or less service connections (or "hook-ups" as they are often called).
- **Industrial Wells.** Water wells used to supply industry on an individual basis (in contrast to supplies provided through community systems).
- **Agricultural Wells.** Water wells used to supply water only for irrigation or other agricultural purposes, including so-called "stock wells". The Department's datasets refer to these as "Irrigation Wells".

Some of the Department's [curated set of data, interactive mapping tools, and reports](#), which are important resources to inform sustainable groundwater management decision-making, include the following. You can use these interactive tools to further explore data shown in Appendix C maps and other information.

- [California's Groundwater Live Online](#) – A user-friendly interactive website that allows users to explore, analyze, and visualize the latest groundwater data and information for California.
- [Dry Well Reporting System](#) – Californians experiencing problems with their private wells can report a dry well in a few steps and find available resources.
- [Online System for Well Completion Reports \(OSWCR\)](#) and [Well Completion Report Map Application](#) – Drillers must submit a well completion report to OSWCR when a well is constructed, altered, or destroyed within 60 days of the completion of the work. DWR stores those well reports and have also created an interactive map for searching them.
- [SGMA Data Viewer](#) – Provides access to groundwater related datasets that are organized by the requirements of SGMA and the GSP Regulations for the purpose of supporting GSP development and implementation.

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

- [GSA Map Viewer](#) – Find your local groundwater sustainability agency and engage in their long-term groundwater planning efforts (simply type in your address).

Department datasets can be found on the California Natural Resources Agency Open Data Portal:

- [Dry Well Reporting System Data](#)
- [Well Completion Reports \(WCRs\)](#)
- [InSAR Remote Sensing Subsidence Data](#)

Data Methods and Assumptions Made in Preparing Appendix C

Below are general methods and assumptions that were taken to prepare this appendix. Specific approaches taken for the figures in the following pages are included in the text preceding that figure. Unless otherwise specified, only WCR Record Types of “New” or “Modified/Repaired” are included in these analyses.

Dates Used for Analysis: Data are presented, unless otherwise noted, as the period of “after 3/28/2022” (the day the EO was enacted) through 9/7/2023. Note that the WCR data used in the analyses or observed conditions represent wells that were completed and had a WCR submitted to the Department's Online System of Well Completion Reports (OSWCR) after 3/28/2022. Because the WCR dataset is so large and is not able to be saved outside of Excel “.csv” format, Department staff suggest users add filters in the ‘Preview’ mode of the data in the Open Data Portal, rather than downloading the full dataset. For example, to find the number of wells permitted since SGMA was enacted (see the graph in the [Observed Conditions Summary](#) section), a filter was applied to show only “Modification or Repair” and “New” Production or Monitoring Wells, which made the dataset smaller and therefore, easier to sort and filter.

WCR ‘Date Work Ended’ Data: Of the 9,440 WCRs analyzed for this report, 582 WCRs were submitted to the Department after 3/28/2022, but had a ‘DateWorkEnded’ (i.e., well installation completion date) after 9/7/2023. These dates are assumed by Department staff to be errors since WCRs submitted by 9/7/2023 would indicate that the well was installed prior to that date. These incorrect dates are associated with WCRs submitted prior to the implementation of a required permit and end date in completing a WCR. As such, these 582 WCRs are included in this analysis.

Well Types Analyzed: The well types used in the analyses below vary and are described for each figure. Although public supply wells are exempt from consideration in the EOs, they were included in many of the analyses with non-exempt well types due to their high pumping capacity. Of the 9,440 total wells with Well Completion Reports after 3/28/2022 (shown in the table to the right), 719 well types were left blank (i.e., unspecified) and 1,622 were monitoring wells.

Neither of these well types are included in this observed data. For informational purposes, the top ten counties that installed monitoring wells during this time period were: Los Angeles (293), Alameda (213), Orange (143), Santa Clara (108), San Diego (58), Contra Costa (57), Kern (53), San Mateo (52), Santa Cruz (47), and Sacramento (44). Note: if a well is permitted, that may not guarantee that a WCR was submitted to OSWCR; also, DWR is not informed of wells that are permitted but never drilled, and therefore, DWR does not know how many installed wells do not have WCRs submitted to OSWCR.

	Well Type	No. of WCRs
Exempt	Domestic	5,042
	Public Supply	146
Non-Exempt	Industrial	31
	Irrigation	1,880
Misc.	Monitoring	1,622
	Unknown	719
Total		9,440

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

Figure C-1 shows the locations of voluntarily reported dry wells statewide with a report date after 3/28/2022. Key terms shown on this figure are defined as 1) Outage: A dry well report that has been submitted to the Dry Well Reporting System with no reported resolution and 2) Resolved: A dry well condition that has been addressed by either repair, replacement, or groundwater level recovery. As of 8/31/2023, approximately 48 percent of the dry wells reported have been flagged as resolved based on follow-up efforts, though the Department notes that not all initial reports of outages are verified with followed up efforts.

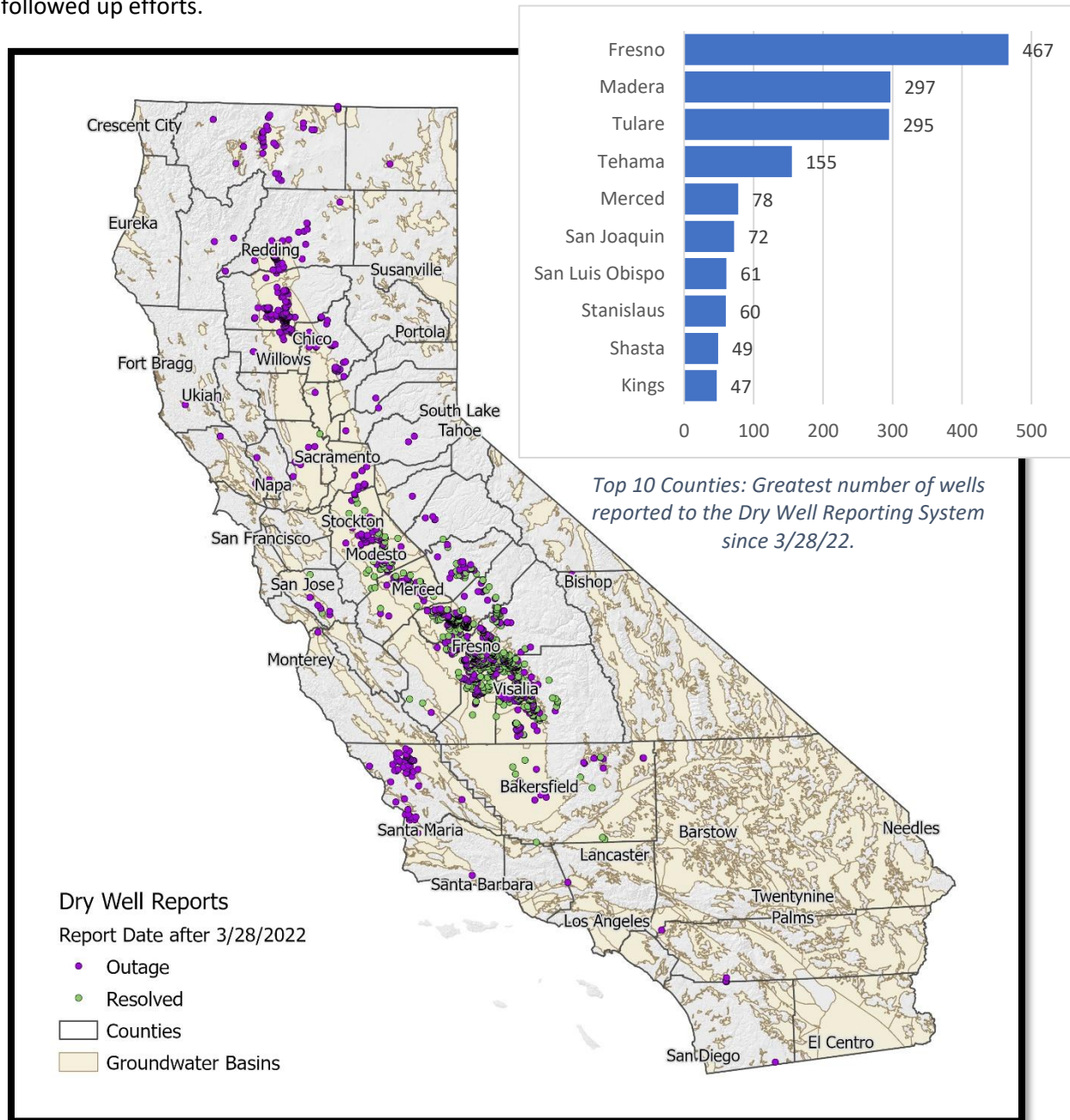


Figure C-1 – Statewide Voluntarily Reported Dry Well Locations – Outages and Resolved.

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

Figure C-2 shows the locations of new or modified irrigation, public supply (PS), or industrial wells permitted and completed statewide since 3/28/2022. Overlaid on the mapped well locations is a graph of the top 10 counties by total number of these three well types permitted and a table showing the total number of wells permitted for all well types since 3/28/2022. As noted above, blank (unspecified), monitoring, and domestic well types are not included in this observed data.

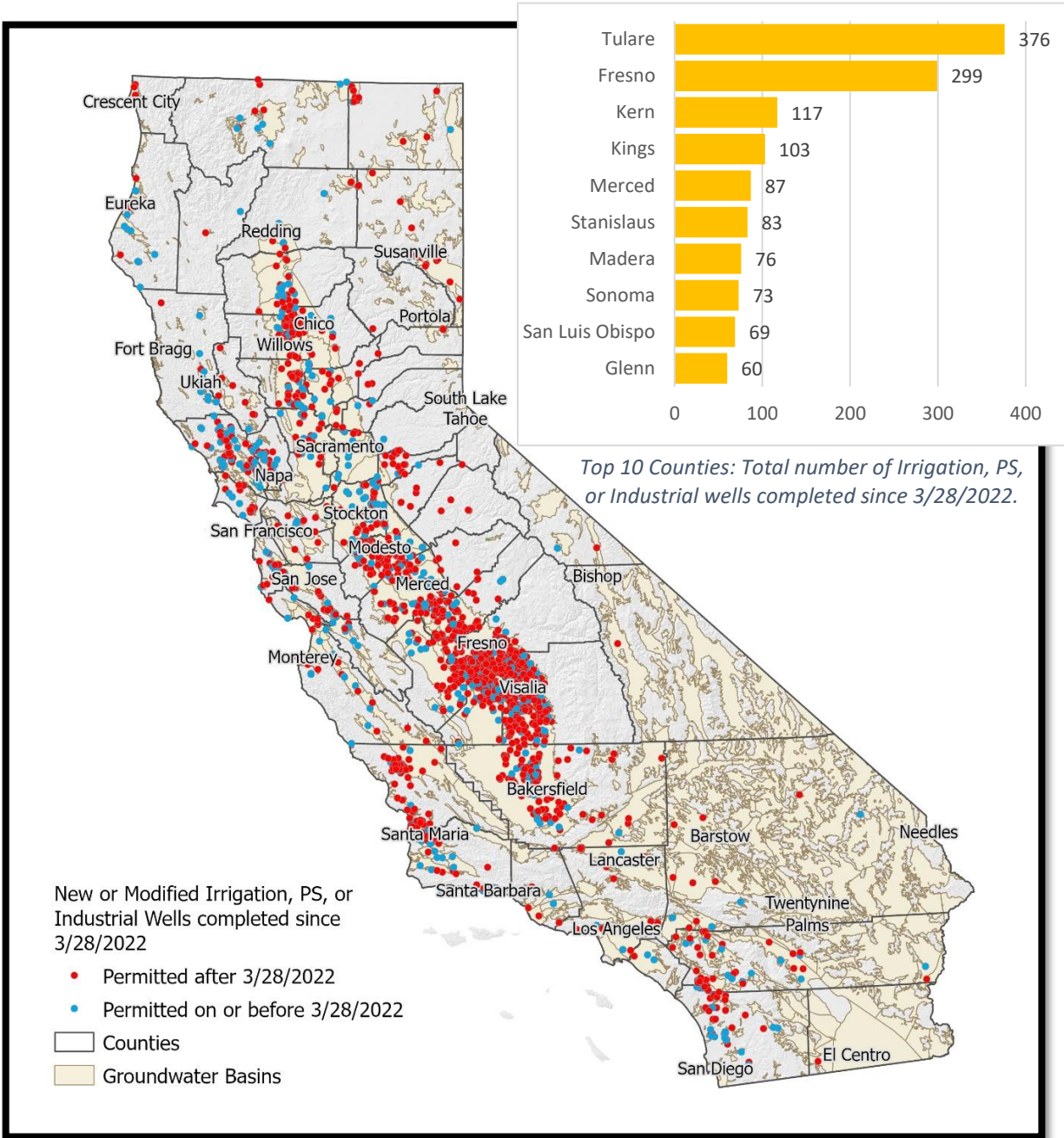


Figure C-2 - New or Modified Irrigation, Public Supply (PS), and Industrial Wells Permitted and Completed After 3/28/2022.

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

Figure C-3 is a graph of the top 10 counties by total number of irrigation and industrial combined (i.e., non-exempt well types) permitted and completed since 3/28/2022. Note for non-exempt wells: 1% of WCRs were for modification or repair and 99% were for new wells.

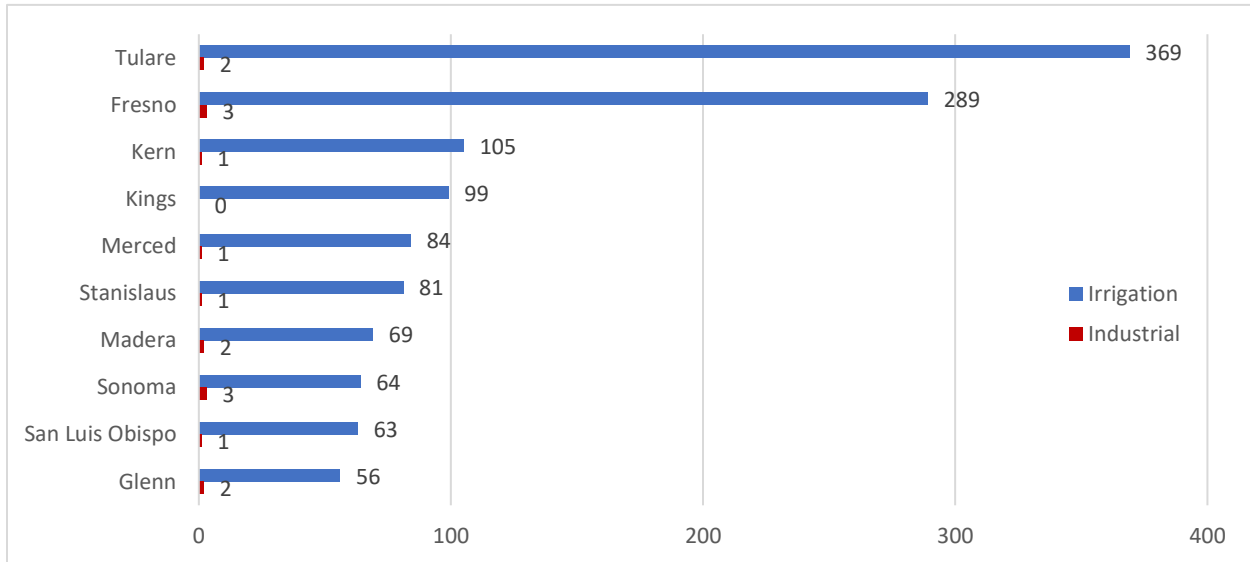


Figure C-3 - Top 10 Counties: Total Number of Non-Exempt Wells Permitted and Completed After 3/28/2022.

Figure C-4 is a graph of the top 10 counties by total number of domestic and public supply combined (i.e., exempt well types) permitted and completed since 3/28/2022. Note for exempt wells: 4% of WCRs were for modification or repair and 96% were for new wells.

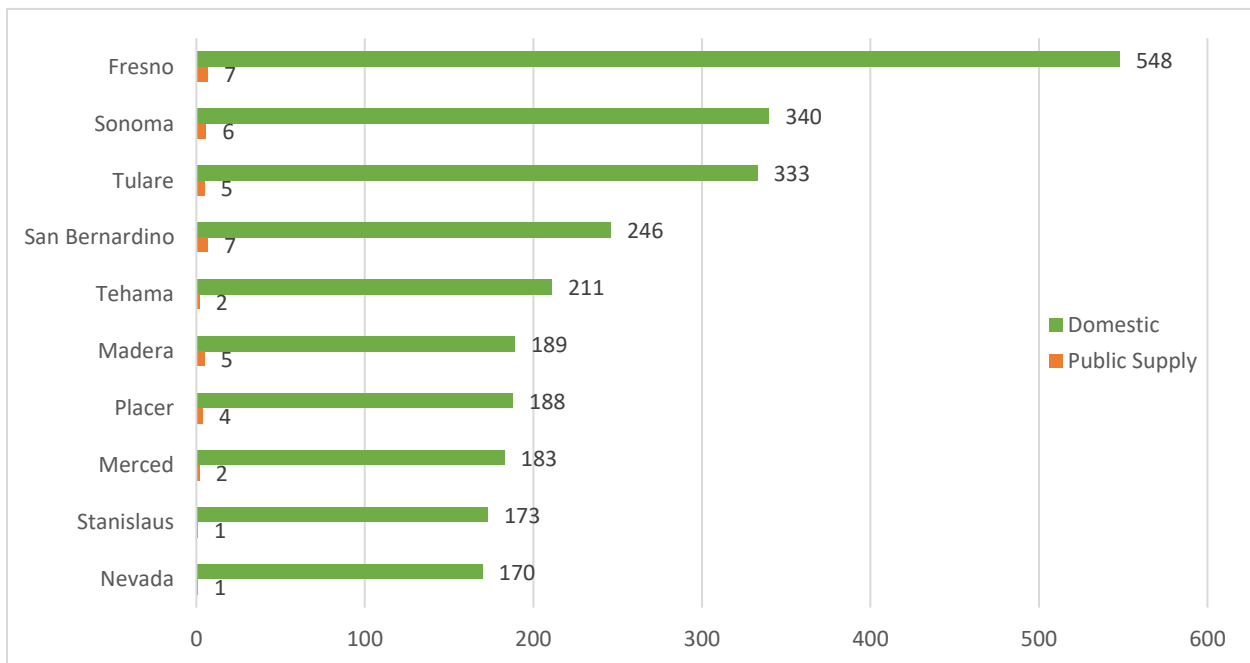


Figure C-4 - Top 10 Counties: Total Number of Exempt Wells Permitted and Completed After 3/28/2022.

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

Figure C-5 shows land subsidence conditions, primarily in California's Central Valley, that have occurred since the adoption of the Executive Order. Subsidence is represented as vertical ground surface displacement. Estimates of this displacement are derived from Interferometric Synthetic Aperture Radar (InSAR) data, a dataset DWR has maintained and reported on annually for areas of California since June of 2015 and began reporting quarterly in the Summer of 2022. Note: data are shown for 4/1/2022 to 7/1/2023.

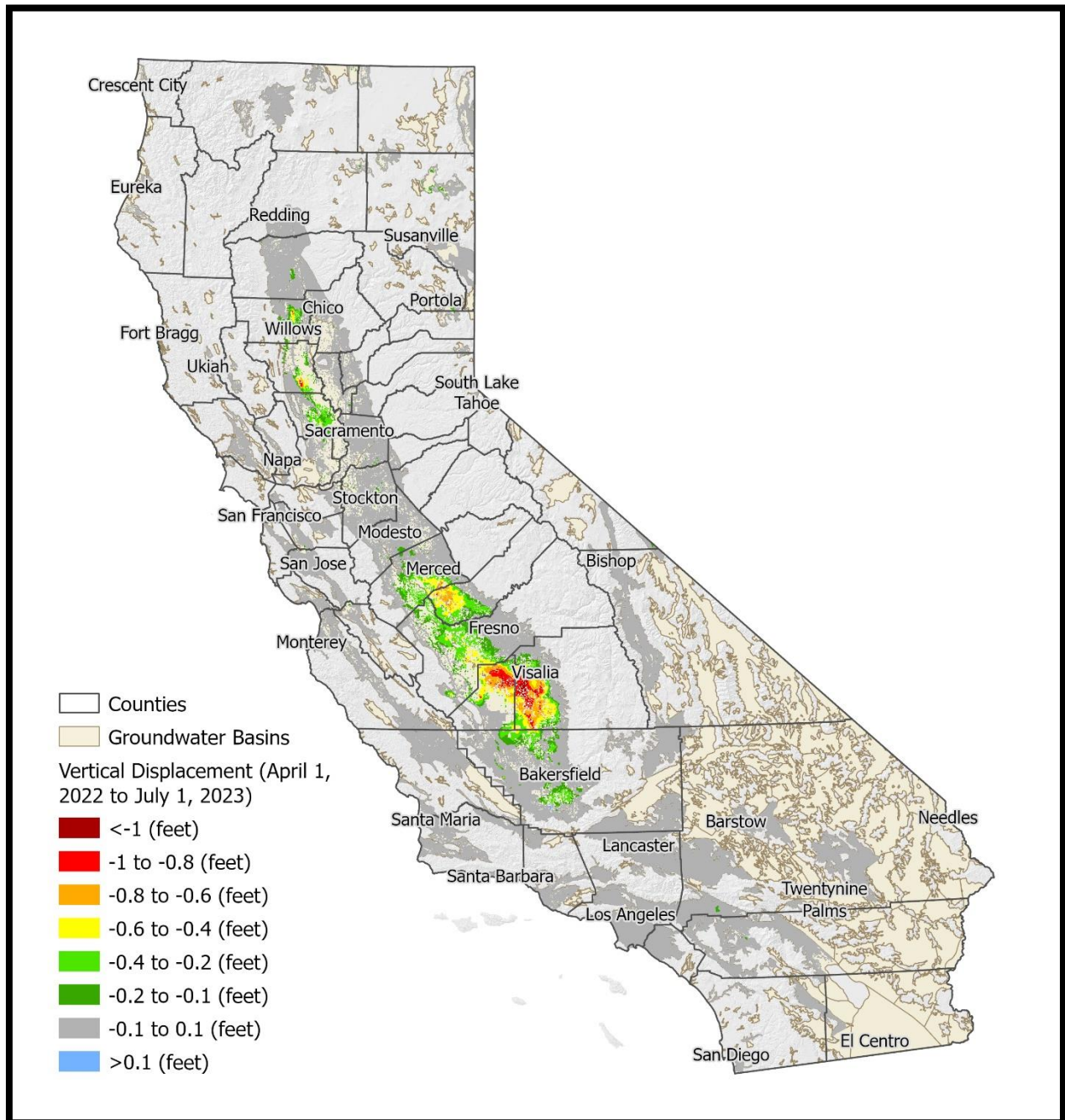


Figure C-5 - Land Subsidence Conditions – 4/1/2022 to 7/1/2023.

Groundwater Well Permitting: Observations and Analysis of Executive Orders N-7-22 and N-3-23

Figure C-6 shows wells that are ‘Above’ the Corcoran Clay, meaning they have a completion (bottom) depth above the top of the Corcoran Clay. Wells installed outside of the Corcoran Clay boundary or extent are also shown. Vertical ground surface displacements are also shown that show subsidence conditions experienced since 3/28/2022 related to wells installed in that time.

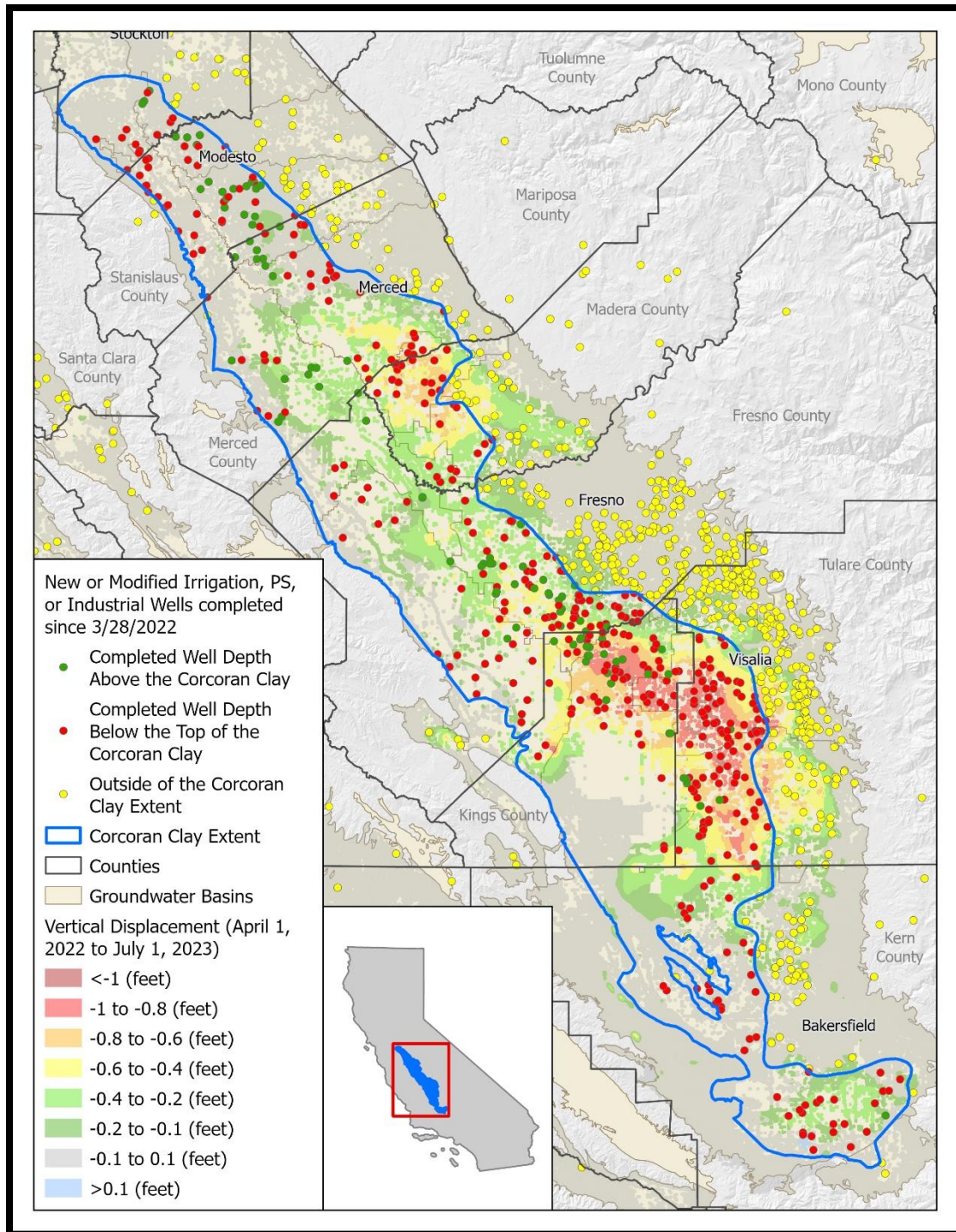


Figure C-6 - New or Modified Wells Completed Within and Outside the Extent of the Corcoran Clay and Land Subsidence Conditions Since Implementation of the Executive Order on 3/28/2022.





MONTHLY REGULATORY ROUNDUP



APRIL 2024

UPCOMING ACWA EVENTS

ACWA 2024 LEGISLATIVE SYMPOSIUM

ACWA will host its 2024 Legislative Symposium on April 10 from 1:00 – 5:00 pm in Sacramento. Register [here](#) to attend.

ACWA REGION EVENTS

ACWA Region 9 / Agency Tour and Board Meeting / April 12 at 10:00 am / Register [here](#).

ACWA SPRING 2024 CONFERENCE

ACWA will host its 2024 Spring Conference and Exhibition in Sacramento, CA from May 7-9. ACWA Regulatory Committee Meetings will be held in person on Tuesday, May 7 (schedule below). Click [here](#) to register for Spring Conference, including the Regulatory Committee Meetings.

8:00 am – 9:15 am	Agriculture Committee
9:30 am – 10:45 am	Groundwater Committee
11:00 am – 12:15 pm	Water Management Committee
11:00 am – 12:15 pm	Energy Committee
1:45 pm – 3:00 pm	Water Quality Committee

POLICY UPDATES

FEDERAL

ACWA’s Federal Regulatory Issues chart is accessible [here](#).

WATER MANAGEMENT

PRIORITY Bay-Delta Plan: Agreements to Support Healthy Rivers and Landscapes

- On March 8, the State Water Resources Control Board (State Water Board) released a [Notice of Board Workshop on Proposed Voluntary Agreements Related to the Sacramento/Delta Update to the Water Quality Control Plan for the Bay-Delta Plan](#) (Bay-Delta Plan Update). The State Water Board will hold a three-day workshop to provide a detailed overview of the Voluntary Agreements (now referred to as the Agreements to Support Healthy Rivers and Landscapes) and receive input and answer questions from Board members, and receive input from the public.
 - Public Workshop: April 24-26 at 9:00 am

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PRIORITY Bay-Delta Plan: Lower San Joaquin River and Southern Delta

- On March 15, the Sacramento Superior Court [ruled in favor](#) of the State Water Board’s 2018 Bay-Delta Plan Update for the Lower San Joaquin River flow and Southern Delta salinity components, denying all 116 claims that challenged the action.

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Delta Protection Advisory Committee

- [Applications](#) to fill six seats on the [Delta Protection Advisory Committee](#) (DPAC) are now open. DPAC provides recommendations to the [Delta](#)

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<p>Protection Commission on diverse interests within the Delta. DPAC meets every other month and committee members, who serve three-year terms, are expected to attend six meetings per year.</p> <ul style="list-style-type: none"> ○ Deadline to submit Committee member application: April 12 	
<p>Flood-MAR</p> <ul style="list-style-type: none"> • The Flood-MAR Network will host a series of public webinars to discuss topics relevant to Flood-MAR. <ul style="list-style-type: none"> ○ Public Workshops: April 3 from 12:30 – 1:30 pm 	<p>Staff Contact Soren Nelson sorenn@acwa.com</p>
<p>Instream Flow Recommendations</p> <ul style="list-style-type: none"> • On March 6, the State Water Board released a corrected message on its receipt of the California Department of Fish and Wildlife’s (CDFW) letter regarding its submission of instream flow recommendations to inform a long-term flow-setting process to support anadromous salmonids and year-round ecological stream function on Mill, Deer, and Antelope Creeks. CDFW’s letter is available upon request. 	<p>Staff Contact Stephen Pang stephenp@acwa.com</p>
<p>PRIORITY Making Conservation a California Way of Life</p> <ul style="list-style-type: none"> • On March 12, the State Water Board issued a Notice of Public Availability of Changes to the Proposed Regulation regarding Making Conservation a California Way of Life. Written comments on the updated proposed text were due March 27. On March 20, the State Water Board held a Board Workshop to receive oral comments and on March 25, the Board held a staff workshop and question and answer session. 	<p>Staff Contact Chelsea Haines chelseah@acwa.com</p> 
<p>Model Water Efficient Landscape Ordinance</p> <ul style="list-style-type: none"> • On March 18, the Department of Water Resources (DWR) published a Notice of Public Availability of Modified Text and 15-day Comment Period Amendments to California Code of Regulations, Title 23, Division 2, Chapter 2.7 Model Water Efficient Landscape Ordinance (MWELO). The proposed changes are intended to simplify and clarify MWELO’s requirements. <ul style="list-style-type: none"> ○ Written comments due April 3 by 5:00 pm 	<p>Staff Contact Chelsea Haines chelseah@acwa.com</p>
<p>State Water Project</p> <ul style="list-style-type: none"> • On March 6, DWR released its five-year strategic plan, Elevate to '28, for the State Water Project. The plan outlines goals and corresponding actions, including strengthening resiliency for a changing climate, that the State Water Project will implement. 	<p>Staff Contact Stephen Pang stephenp@acwa.com</p>
<p>UPWARD Advisory Group</p> <ul style="list-style-type: none"> • The State Water Board will convene the second UPWARD Advisory Group meeting. The meeting will showcase granular aspects of the legacy data system (eWRIMS) and demonstrate ways the new CalWATRS system will provide new functionalities and improve data quality. <ul style="list-style-type: none"> ○ Advisory Group meeting: May 1 from 1:00 – 3:00 pm 	<p>Staff Contact Chelsea Haines chelseah@acwa.com</p>
<p>Urban Water Management Plan</p> <ul style="list-style-type: none"> • DWR will hold a scoping meeting to discuss updates to its 2025 Urban Water Management Plan Guidebook. DWR will solicit input from water suppliers to help inform the updates. 	<p>Staff Contact Chelsea Haines chelseah@acwa.com</p>

- [Scoping Meeting](#): April 10 from 9:00 – 11:00 am

GROUNDWATER

Airborne Electromagnetic Survey

- On March 6, DWR [announced](#) the completion of the first phase of its statewide [Airborne Electromagnetic \(AEM\) Survey Project](#). The [publicly available data](#) will help identify locations to implement [groundwater recharge projects](#). DWR is now moving into the next phase of the AEM Survey, the [Basin Characterization](#), which will provide data for understanding and managing groundwater on local, regional, and statewide levels.

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Groundwater Well Permitting Report

- On March 6, DWR released its [Groundwater Well Permitting Report regarding Observations and Analysis of Executive Orders \(EO\) N-7-22 and N-3-23](#). The Report summarizes different approaches taken by well permitting and groundwater sustainability agencies (GSA) to comply with the EOs’ requirements and proposes policy recommendations that can be used to develop future solutions to align land use planning, well permitting, and groundwater management.

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SGMA Fees

- On March 26, the State Water Board released a [Notice of Proposed Emergency Rulemaking Regarding Sustainable Groundwater Management Act \(SGMA\) Fees Amendments to Division 3 of Title 23 of the California Coded of Regulations](#). The proposed text of the emergency regulation reduces the volumetric component of annual SGMA fees for extractors in probationary basins from \$40 per acre-foot extracted to \$20 per acre-foot. The existing \$300 fee per groundwater well remains in place.

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SGMA Implementation Funding Guide

- On March 22, DWR released a [Resource Guide on Funding SGMA Implementation](#). The Resource Guide outlines funding mechanisms available to GSAs and provides approaches to consider in their development of rate structures.

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PRIORITY State Intervention: Tulare Lake Subbasin Staff Report and Hearing

- On March 26, the State Water Board released the [Final Tulare Lake Subbasin Probationary Hearing Staff Report](#) (Final Staff Report). The Final Staff Report recommends that the Tulare Lake Subbasin be designated as probationary and identifies specific deficiencies in the Tulare Lake Subbasin 2022 Groundwater Sustainability Plan along with potential corrective actions to address them. If placed on probation, the subbasin will have one year to address and resolve these deficiencies.
 - Public Board Hearing: April 16 at 9:30 am

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State Intervention: Tule Subbasin Staff Report

- On March 7, the State Water Board released a [Notice of Opportunity to Provide Feedback, Public Staff Workshops, and Public Board Hearing for the Proposed Designation of Tule Subbasin as a Probationary Basin](#). The State Water Board will not decide on a probationary designation for

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- Tule Subbasin prior to the Public Board Hearing, but it will accept input on the [Tule Subbasin Probationary Hearing Draft Staff Report](#).
- [Virtual Staff Workshop](#): April 5 from 11:00 am – 1:30 pm
 - In-Person Staff Workshop: April 8 from 5:30 – 8:30 pm
 - Public Board Hearing: September 17 at 9:00 am
 - Written comments due May 7 at 12:00 pm

WATER QUALITY

California Clean Water Act: 2024 California Integrated Report

- On March 19, the State Water Board [announced](#) the availability of the final 2024 California Integrated Report. The report includes Section 303(d) lists and 305(b) reports which identify waters of the United States that do not meet applicable water quality standards and the overall conditions of the state’s surface waterbodies, respectively. Final documents and comment summaries can be accessed [here](#).
 - Anticipated submission to U.S. Environmental Protection Agency: Spring 2024

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Central Valley Salinity Alternatives

- On February 28, the State Water Board released a [Notice of Public Hearing Concerning the Central Valley Salinity Alternatives for Long-Term Sustainability Nitrate Control Program Management Zone Implementation Plans \(MZIPs\)](#). MZIPs provide detailed strategies and actions for managing groundwater quality within specific groundwater basins and subbasins. The State Water Board will consider oral comments concerning the [MZIPs](#) and recommendations provided by Staff; formal action will not be taken.
 - Public Hearing: April 19 at 9:00 am

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Fresh Harmful Algal Bloom

- On March 7, the California Water Quality Monitoring Council [announced](#) the accessibility of freshwater harmful algal bloom data on the [Open Data Portal](#). Data may include waterbody name and location, potential algal bloom location and characteristics, field observations and/or analytical sampling results, water body and/or land management, general information, recommended advisory status, and bloom status.

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PRIORITY Hexavalent Chromium Maximum Contaminant Level

- On April 17, the State Water Board plans to adopt the proposed Hexavalent Chromium (Cr(VI)) Maximum Contaminant Level (MCL) regulations. The proposed Cr(VI) MCL is 0.010 milligrams per liter (mg/L) (or 10 parts per billion).
 - Adoption Hearing: April 17

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PRIORITY 2024 Drinking Water Priorities

- On March 5, the State Water Board adopted the [proposed Resolution](#) adopting the prioritization of drinking water regulations development for calendar year 2024. Priorities include, but are not limited to, MCLs for Cr(VI), perfluoro-octanoic acid (PFOA) and perfluoro-octane sulfonic acid (PFOS), arsenic, and lead and copper rule revisions.

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ENERGY

<p>PRIORITY CARB Advanced Clean Fleets Regulation</p> <ul style="list-style-type: none"> On March 25, CARB held the first workshop to address amendments to the Advanced Clean Fleets regulation (ACF) as required by AB 1594 (Garcia, 2023) to more fully consider public agency utility fleet needs. CARB proposes to affirm which “traditional utility-specialized vehicles” are eligible for consideration under AB 1594, re-evaluate the 13 year minimum useful life threshold used to determine exemption eligibility under ACF, and expand the existing daily use exemption to allow for more comprehensive usage data plans. <ul style="list-style-type: none"> Informal comments due April 30 	<p>Staff Contact Nick Blair nickb@acwa.com</p> 
<p>Senate Bill 100 Report</p> <ul style="list-style-type: none"> The California Energy Commission, California Public Utilities Commission, and CARB will hold a joint workshop to discuss the approach and implications of examining non-energy benefits and social costs in the upcoming 2025 Senate Bill (SB) 100 Report. SB 100 requires that renewable energy and zero-carbon resources supply 100 percent of electric retail sales to end-use customers by 2045 and that 60 percent of the State’s electricity is renewable by 2030. <ul style="list-style-type: none"> Joint Workshop: April 16 from 9:30 am – 4:00 pm 	<p>Staff Contact Nick Blair nickb@acwa.com</p> 

ACWA COMMENT LETTERS

- [Making Conservation a California Way of Life](#), State Water Resources Control Board, March 27, 2024

To receive a monthly email of the Regulatory Roundup, please contact [Sonja Eschenburg](#). The Regulatory Roundup is also available on ACWA's [website](#).

 Indicates ACWA Working Group
 Indicates ACWA Priority Issue

SACRAMENTO REPORT

March 2024



Volume 19, Issue 3



VAWC Takes Positions on New Bills

With the passage of the February 16, 2024 deadline to introduce new bills, the second year of the 2023-24 Legislative Session is now in full swing. The Valley Ag Water Coalition took positions on the following bills during its committee meeting last month:

AB 2060, by Assemblymember Esmeralda Soria (D-Fresno): The bill would repeal the January 1, 2029 sunset date for provisions included in the public resources budget trailer bill for FY 2023-2024, which did not require an appropriate water right for the diversion of groundwater recharge under certain conditions. VAWC took a support position on the bill as repealing this sunset date would allow for the continued diversion of flood flows in the San Joaquin Valley, protecting communities from possible flood damage and supporting groundwater recharge.

ACA 2, by Assemblymember Juan Alanis (R-Modesto): The measure, should it be approved by voters, would require the California Treasurer to annually transfer an amount equal to 1.5% of all state revenues from the General Fund to the California Resiliency Trust Fund, which the measure would create. The measure would continuously appropriate money in the fund to the California Water Commission to cover the costs of implementing these provisions and for specified water projects. VAWC is supporting ACA 2 as it would allow state agencies and

See VAWC Positions, page 2

LAO Estimates \$15 Billion Increase in Budget Deficit; Senate Democrats Release Plan to “Shrink the Shortfall”

Last month, the Legislative Analyst’s Office (LAO) released a deficit update for the 2024–25 state budget. According to the LAO, recent revenue collections data indicate a \$15 billion increase to the budget problem, raising the estimated deficit from \$58 billion to \$73 billion.

To resolve the increase, the LAO recommends the California Legislature start by reviewing whether “recent augmentations for one-time and temporary spending could be pulled back or reduced” to achieve savings.

See Budget Deficit, page 2

NEWS BRIEFS

Opportunities for Public Comment on the Proposed Designation of Tule Basin as Probationary Basin

The California State Water Resources Control Board (State Water Board or Board) will hold a public hearing on September 17, at which it will consider designating the Tule Subbasin as a probationary basin pursuant to the Sustainable Groundwater Management Act (SGMA). The Board is seeking comments from the public to inform its decision.

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Inside Sacramento Report

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NEWS BRIEFS *continued*

Board staff have developed a draft recommendation for the Board to consider, which describes the actions staff recommends the Board should take. Public comment on the [draft staff report](#) is requested to be submitted no later than May 7, 2024, at 12:00 noon. All comments received by the deadline will be considered by Board Staff when developing the final staff report.

Staff will also hold two [public staff workshops](#) to explain the draft staff report and share more about how to participate in the State Water Board's state intervention process. Verbal public comments may be provided on the draft staff report at the workshops.

Virtual Staff Workshop

Friday, April 5, 2024

11:00 AM – 1:30 PM

Staff presentation will start at 11:00 AM

Staff will begin accepting public comments at 12:15 PM

Zoom link: <https://kearnswest.zoom.us/j/84005853021>

In-Person Staff Workshop

Monday, April 8, 2024

5:30 PM – 8:30 PM

Staff presentation will start at 5:30 PM

Staff will begin accepting public comments at 7:00 PM

Porterville Veterans Memorial Building at 1900 W Olive Ave, Porterville, CA 93257

While a quorum of the State Water Board may be present, the State Water Board will not take regulatory action at the workshops.

continued on next page

VAWC Positions, *continued from page 1*

local agencies to access state financial assistance for infrastructure projects regardless of fluctuations in state revenues from year to year. Though this would reduce the flexibility of the Governor and Legislature to respond to economic downturns and their effects on state revenues, setting aside state revenues for infrastructure on a “pay-as-you-go” basis is more cost effective over time compared to issuing general bonds. Further, by ensuring there is continued funding available for critical infrastructure projects, ACA 2 would ultimately bolster overall climate resilience against the current and future impacts of climate change in the state.

SB 973, by Senator Shannon Grove (R-Bakersfield): The bill would authorize a board of supervisors or city council to grant a petition for cancellation of a Williamson Act contract where the land subject to the contract is located in a basin under the jurisdiction of an adjudicated watermaster or the groundwater sustainability agency. The bill would require the landowner to commit to limiting the amount of water rights to a specific solar energy project that uses less water than the agricultural use. According to the author's office, farmland is coming out of production due to water limitations in water basins from the Sustainable Groundwater Management Act and adjudicated basins in both the Central Valley and the desert areas. However, the fee to the state if a Williamson Act Contract is canceled by a board of supervisors is a disincentive for companies to use that land for utility-scale solar. An estimated 140,000 acres of land that could produce over 20 GW of solar and battery storage could be opened up with SB 973. The legislation is sponsored by Kern County. VAWC has taken a watch position on the bill.

SB 1390, by Senator Anna Caballero (D-Merced): The bill proposes to tackle the same subject as AB 2060; however, instead of repealing the January 1, 2029 sunset provision, SB 1390 proposes to extend the application of the permits through January 1, 2034. Further, the bill would expand authority to divert floodflows to a local or regional agency that has a county emergency operations plan or a publicly available regional flood plan certified by the Department of Water Resources. Additionally, this legislation also would expand authority beyond where flows would inundate ordinarily dry areas in the bed of a terminal lake to a depth that floods dairies and other ongoing agricultural activities, or areas with substantial residential, commercial, or industrial development and would authorize the diversion of floodflows where they are projected to inundate in ordinarily dry areas. As with AB 2060, the Coalition has taken a support position on this bill.

Budget Deficit, *continued from page 1*

“We recommend this approach for two key reasons,” the LAO writes in the report. “First, when this one-time and temporary spending was adopted, it was understood that doing so would provide a cushion for future budget problems... Second, the more the Legislature reduces one-time and temporary spending this year, the more other tools it can preserve for future budget problems.”

According to estimates, after setting aside disbursements and Governor's budget proposals, the state could pull back and reduce one-time and temporary spending by as much as \$6.4 billion in 2023-24, \$4.1 billion in 2024-25, and \$5.1 billion in 2025-26. These reductions would come from a variety of program areas, including education, health and human services, transportation, environmental programs, housing and homelessness. These could include potential cuts to water resilience projects, flood and dam safety, urban flood risk reduction, and water conveyance and water storage projects.

See Budget Deficit, page 3

Budget Deficit, continued from page 2

The LAO notes that reducing one-time and temporary spending is a “use-or-lose” tool for addressing the budget problem as once the funds are disbursed to recipients, they can no longer be pulled back. Other tools, such as reserve withdrawals and cost shifts, also can be used only once, but at any time; thus, they should be reserved for deployment in the future to avoid cuts to ongoing services.

Legislators on both sides of the aisle have reacted to the LAO’s update with concerns for California’s future fiscal health. “We are very concerned about short-term fixes for long-term problems,” said Assembly Speaker Robert Rivas (D-Hollister) in a statement. “Clearly, we need to prioritize oversight and curb spending and our investments.”

Republicans, however, have been more critical of the ballooning deficit, citing it as the result of fiscal irresponsibility, and highlighting the stark contrast between the LAO’s estimates and Governor Gavin Newsom’s more “optimistic” deficit projection of \$38 billion.

On March 14, Senate Democrats released an early action plan titled “Shrink the Shortfall” which proposes a series of budget solutions to reduce the budget deficit by \$17.1 billion. According to the plan, these early actions are step one of a two-prong strategy, with step two to be released later in the spring and provide a comprehensive proposal for balancing the budget.

Combined with the Governor’s proposed partial use of the Rainy Day Fund, the intent with step one is to “shrink the shortfall” from a projected \$38-\$53 billion, to a more manageable \$9-24 billion.

The Plan is light on the details but would approve several of Newsom’s January budget proposals. These proposals include \$3.7 billion in a combination of program reductions, revenue/borrowing, fund shifts, delays and deferrals in FY 2023-24 (which ends on June 30) and \$13.4 in FY 2024-25 (which begins on July 1). Of these solutions, \$3,747 million would come from Resources and Energy Programs — \$1,105 in FY 2023-24 and \$2,641 in FY 2024-25.

The Plan’s proposed early actions include:

- Approval of the Governor’s level of fund shifts from the General Fund to the Greenhouse Gas Reduction Fund of \$557 million in FY 2023-24 and \$1,721 million in FY 2024-25. The specific programs to backfill to be determined through continued discussions between legislative leadership.
- Approval of the Governor’s proposal to delay \$100 million and reduce \$174.4 million in FY 2023-24 for water recycling/groundwater cleanup. This solution is expected to be offset by the Infrastructure Investment and Jobs Act (IIJA) contribution to the State Revolving Fund Program.
- Approval of the Governor’s proposal to reduce the forecasted informed reservoir operations budget by \$6.8 million in FY 2024-25.
- Approval of the Governor’s proposal to reduce \$5 million for climate adaptation and resilience planning grants.
- Partial approval of half of the Governor’s proposal to reduce \$413.3 million for watershed climate resilience, for a total of \$296.7 million. The plan points out to a possible upcoming bond as a potential source of funding for offsetting this reduction.

See *Budget Deficit*, page 4

NEWS BRIEFS *continued*

Spotlight on Rural California

Rural California is vast— and varied. It faces unique challenges, from high poverty to sparse social services to a lingering digital divide. What are the most immediate challenges and how are leaders and stakeholders addressing them?

Join PPIC on March 21, 2024, from 11:30am-1:00pm, for a conversation between James Gallagher, assembly Republican leader, and Tani Cantil-Sakauye, president and CEO of PPIC, followed by a panel discussion with State and local leaders.

Registration and event information is available [Here](#).

Salinity Management Workshop 2024

The Delta Science Program is hosting a two-day virtual workshop to discuss tools and strategies, identify knowledge gaps, and build shared goals for adaptively managing ocean saltwater intrusion in the Sacramento-San Joaquin Delta. This free workshop will include presentations from researchers on the human dimensions of salinity management and on modeling tools to assess the impacts of various management actions. It will feature interactive sessions to share ideas and gather input from participants about the impacts of management actions, their tradeoffs, and ways of improving modeling tools. Topics of conversation will include drought, climate change, ecosystem responses, human dimensions, conceptual models, management approaches, tradeoffs, partnership opportunities, and more.

continued on next page

NEWS BRIEFS *continued*

[Register](#) to attend via Zoom.

[March 26 Zoom Registration](#)

[March 27 Zoom Registration](#)

An information sheet titled “[A Primer on Delta Salinity: Natural and Human Influences](#)” has been posted as part of the workshop announcement.

Lunch-MAR

On April 3, DWR Flood-Managed Aquifer Recharge (Flood-MAR) Program will host the monthly [Lunch-MAR webinar](#). Lunch-MAR webinars take place the first Wednesday of each month. In these webinars, network members and invited guests present on and discuss a wide range of topics relevant to Flood-MAR, ranging from water rights to geophysics. To join a Lunch-MAR Session, please use this [registration link](#)

Explore Flood Risks with a New Online Tool

A new website created by the Delta Stewardship Council helps people explore flood risks on Delta islands. The Delta Levees Investment Strategy (DLIS) Decision Support Tool, unveiled this month, [is here](#).

The site shows risks under various scenarios and timeframes. The strategy prioritizes levee investments in the Delta based on risks. It became State law as part of the Delta Plan in January. Learn more about the DLIS in [this storymap](#).

continued on next page

Budget Deficit *continued from page 3*

The Shrink the Shortfall early action plan will be heard in the Senate Budget and Fiscal Review Committee and could come up for a vote on the Senate Floor as soon as there is agreement with the Assembly and Governor.

“The deficit we’re facing this year will require big solutions, and I appreciate the Senate’s plan to close California’s budget deficit by \$17 billion. I look forward to seeing this proposal move forward quickly.” Governor Newsom said of the Plan.

For the full LAO report, please visit the [LAO’s website](#), the Senate Democrats proposal can be found [Here](#).

Assembly Holds Joint Hearing on SGMA Implementation

February 21, 2024—A joint hearing held by the Assembly Budget Subcommittee No. 4 on Climate Crisis, Resources, Energy, and Transportation, and the Assembly Water, Parks, and Wildlife Committee discussed the next phase of the Sustainable Groundwater Management Act (SGMA). The informational hearing was led by Budget Subcommittee No.4 Chair Steve Bennett (D-Ventura) and Assembly Water Committee Chair Diane Papan (D-San Mateo). Panelists providing testimony for the hearing included: Sonja Petek from the Legislative Analyst’s Office (LAO); Paul Gosselin, DWR; James Nachbaur and Tina Leahy, State Water Resources Control Board (State Water Board); Jeff Pratt, Fox Canyon Groundwater Management Agency (FCGMA); and Professor Jennifer Harder, McGeorge School of Law.

The first half of the meeting centered on the implementation phase of SGMA, with the announcement of the Department of Water Resources (DWR’s) completed assessments of all groundwater sustainability plans (GSPs). According to the Chairs, with SGMA at this critical juncture, it is important to define areas where the state may be helpful and useful in the implementation of GSPs. Assembly-member Bennett added that with the millions of dollars invested into SGMA, the Budget Subcommittee’s approach is to ensure that resources directed towards groundwater sustainability agencies (GSAs) were “good” investments and consider all groundwater users to move forward.

At the hearing, the LAO provided an overview of SGMA while DWR and State Water Board staff discussed their roles moving forward. The LAO reported that with most GSPs approved (about 2/3), SGMA is now in “full implementation mode.” The state has provided over \$900 million for SGMA implementation in various forms, such as local assistance grants, planning grants, and implementation grants. Some funding has gone directly to DWR and the State Water Board to support state operations for SGMA; however, some of this funding is set to expire. Though SGMA was largely supported by bond funding (Proposition 1 and Proposition 68) during its early years, such funding has now been exhausted; thus, the state has more recently heavily relied on the General Fund. The governor’s current budget proposal for 2024–25, however, does not include any new funding for the program aside from \$50 million of previously authorized funding for state operations.

While significant progress has already been made to bring basins into sustainability, groundwater basins in California remain in drought conditions. Implementation will likely be difficult with considerable work ahead. During the implementation phase of SGMA, DWR noted that their role in the process transitions

See SGMA Implementation, page 5

to that of “basin stewardship,” providing assistance and regulatory oversight to ensure basins continue on their path to sustainability and maintain compliance. This will include periodic evaluations, during which GSPs could still be deemed incomplete or inadequate depending on the circumstances. With plans that are now approved, DWR also noted that some basins will need to adjust their GSPs, starting in 2025, as their plans could potentially impede adjoining basins from achieving their sustainability goals.

The State Water Board, meanwhile, will possess a role of intervention that only begins with a triggering event, such as a GSP being determined inadequate by DWR. Throughout the hearing, Board staff repeatedly maintained that its role is temporary with the discretion to evaluate whether or not probation is warranted through a public process. The public process will include providing notice and holding public hearings, during which interested parties will have the opportunity to address the Board. Staff also noted that by the time a public hearing takes place, the Board will have worked with the basin to address some of the deficiencies in their plans. Should a basin be placed under probation, pumpers in the basin would be subject to reporting requirements and fees. Fees are currently structured under 2017 assumptions (\$300 per well charge, and \$40 per acre foot), however, SGMA allows the Board to change this fee structure. The State Water Board has already asked staff to reevaluate the fee structure; with Board staff reporting that fee revenues from probationary designations are likely to be volatile, thus it may be prudent to lower fees in the future depending on how many basins will be subject to fees.

The latter half of the hearing focused on groundwater adjudication. Professor Harder provided an overview of groundwater rights and groundwater adjudication in California; Pratt discussed the FCGMA’s groundwater adjudication case, which he believed could be used as a template in other cases throughout the state.

SGMA designated FCGMA as the exclusive GSA for the three basins within its boundaries, and required the development of GSPs for all three basins, including Las Posas Valley. SGMA also further provided FCGMA new authorities: to establish programs and projects to develop new supplies to augment basin yields; to acquire water rights/supplies to augment basin yields and groundwater resources; and to impose and collect fees to construct projects. All of the GSPs submitted by FCGMA were approved and adopted in December 2019.

While GSPs were under development, separate lawsuits were filed against the Las Posas Valley GSP due to disputes between mutual water companies and their shareholders regarding whether mutual water companies or their shareholders owned the water rights. The judgment ultimately determined all water rights in the Las Posas Valley basin, appointed FCGMA as Watermaster for the basin, incorporated the Las Posas Valley GSP, and authorized FCGMA/Watermaster basin assessments for the administration of judgment/physical solution and implementation/construction costs.

The judgment, however, also created new policy and technical advisory committees and required FCGMA/Watermaster to compensate the technical advisory committee members. The technical advisory committee is not subject to the Brown Act and is made up of agricultural interest. As a result, FCGMA will essentially pay to develop the record that will potentially be used to challenge its

Division of Boating and Waterways Set to Control Aquatic Invasive Plants in the Sacramento-San Joaquin Delta

California State Parks’ Division of Boating and Waterways (DBW) announced plans to control aquatic invasive plants in the west coast’s largest estuary, the Sacramento-San Joaquin Delta and its southern tributaries. Starting March 6 through November 30, 2024, DBW crews will begin herbicide treatments on water hyacinth, South American spongeplant, Uruguay water primrose, Alligator weed, Brazilian waterweed, curlyleaf pondweed, Eurasian watermilfoil, coontail, ribbon weed, and fanwort in the Delta. Depending on weather conditions and plant growth/movement, treatment dates may change. Select areas of the Delta with high infestations or coverage of water hyacinth will be controlled using mechanical harvesting efforts through December 2024.

Read the [news release](#) for more information.

Series of Papers on Interconnected Surface Water Begins

The Department of Water Resources (DWR) has started [releasing a series of papers](#) on the technical aspects of interconnected surface water (ISW). The first paper, [Depletions of Interconnected Surface Water: An Introduction](#), defines ISW and explains how it is identified. There is also information on the basic concepts of depletion. The next two papers in the series will be released this spring.

continued on next page

CA Water Institute Begins Quarterly Newsletter

The [California Water Institute](#) (CWI) has released its [inaugural newsletter](#), a quarterly report that will provide updates on CWI's projects, upcoming events, and other related news. The first issue includes an item on subsurface artificial groundwater recharge. An [online subscription form](#) is available on the CWI's website.

Still Reeling from Pandemic, Sacramento Delta Residents Eye Major Deals

Courthouse News Service — California's fertile Sacramento Delta region has long been central to debates over how to best manage California's water resources and agricultural lands. But as the region recovers from the pandemic, many residents are more concerned with immediate problems like power outages and business growth. [Read the entire article.](#)

Final 2024 California Integrated Report

The State Water Resources Control Board adopted California's Clean Water Act Section 303(d) List portion of the 2024 California Integrated Report on February 6, 2024. Changes were incorporated into the final documents as directed by the Board at the February adoption meeting, Resolution No. 2024-0007, and Change Sheet #1. The Final Documents and Summary of Comments and Responses are posted to the program's [webpage](#). Board staff will submit the 2024 California Integrated Report to the U.S. EPA by April 1, 2024.

management actions/decisions in court. FCGMA anticipated that this "committee consultation" process would be used to challenge FCGMA's science and technical solutions, specifically those related to Las Posas Valley GSP. In the judgment, the physical solution allocated 42 thousand acre-feet in contrast to the sustainable yield of 31 thousand acre-feet.

According to Pratt, the judgment virtually eliminated the possibility of an open and public water market, which had started long before SGMA hit. All FCGMA/Watermaster actions are subject to the court's continuing jurisdiction, which means any party can challenge almost any action/decision made by FCGMA/Watermaster. Further, FCGMA/Watermaster actions and decisions are subject to de novo review, a standard that does not give deference to a previous court's decisions. According to Pratt, the judgment ultimately allows the court to decide the science, creating potential conflicts with the approved GSPs. He then asserted that the case has the potential to become a template for litigation against GSPs.

Though the joint hearing was primarily informational, questions and discussions posed by legislators throughout the hearing implied possible actions they believed could continue to support SGMA.

For example, lines of questioning from the committee chairs indicated possible future legislation to ensure that the FCGMA case settlement would not become the template for the state. Bennett stated that adjudication could make it more difficult for GSPs to meet the goals of SGMA and asserted that it would be "incumbent" on the legislature to stop that from happening. Papan agreed stating that the utilization of the FCGMA case as a template could be "circumvented at the state level." Bennett additionally inquired as to whether legislation requiring GSPs to be exposed to the courts at the onset of litigation would be beneficial. In response, both Pratt and Harder agreed that doing so could provide significant value to the courts.

On SGMA implementation, Bennett opined that GSPs have "significant conflicts of interest" with the potential to "drag feet" in terms of compliance with SGMA. The implication is that GSPs could continue to improperly implement SGMA multiple times; should this be the case, Bennett suggested that the state should impose consequences. This apparent distrust of GSPs and their methods is further reflected in Bennett's line of questioning regarding metering requirements. In response to Bennett's questions, Nachbaur noted that SGMA allows multiple methods for estimating pumping. Bennett responded to this answer that based on his experienced in Ventura County "there is nothing more accurate than using meters on the well".

Papan meanwhile focused her questions on the fees that would be imposed on basins should they be placed on probation by the State Water Board. She noted that compliance could bury GSPs to the point where they don't have enough funds to implement. She argued that perhaps some of the fee revenue collected by the State Water Board could be redirected to GSPs to help them comply. Nachbaur responded that the State Water Board's revenues from fee collection would be used to cover their operations costs. Bennett later commented that the fees seem to be punitive in nature, noting that there is a reason why there are other funding sources; Papan, however, pointed out that many of those are in "short supply."

For more information, a recording of the joint hearing is available on the State Assembly's media archives [website](#).

DWR Releases Groundwater Well Permitting Report

Earlier this month, the Department of Water Resources (DWR) released a report discussing the ways well-permitting agencies and groundwater sustainability agencies (GSAs) met executive order (EO) requirements for lessening the effects of drought conditions.

The report summarizes the local actions taken to comply with EO N-7-22 and EO N-3-23. These EOs specified additional considerations for local agencies to make when considering permitting wells to improve the understanding of the potential effects of new or modified wells. The report also includes observations of groundwater conditions that occurred while these actions were taken and policy recommendations that DWR believes could be used to develop future solutions to align land use planning, well permitting, and groundwater management and use.

“To address current effects and proactively reduce future impacts like more dry wells and greater land subsidence, concerted actions are needed to improve the understanding of local effects on groundwater basin conditions,” DWR states in the report. “By taking holistic consideration of the effects of these decisions, coupled with improved coordination, Californians can help mitigate worsening groundwater conditions and reduce the risk of negative and potentially irreversible impacts to California’s well users.”

DWR found that the EOs caused some changes in well-permitting considerations, such as a shift from the primary concern of protecting groundwater quality to a broader concern that includes sustainable groundwater management. According to DWR’s analysis, though the EOs provided critical direction and understanding to local agencies of how SGMA considerations could be included in the well permitting process, the EOs do not fully address the complexities of well permitting, and more structure is needed.

To conclude the report, DWR recommended the enactment of four statutory concepts to “fulfill the intent of the EOs and minimize impacts from new well extractions, not just during drought years, but in all years.” These concepts are: (1) statutory provisions that would provide public disclosure of well permit applications and collaborations between local enforcing agencies and GSAs; (2) statutory minimum standards for well spacing and well depth, and the prohibition of new well permits in areas where subsidence impacts are occurring; (3) the exemption of certain wells from the previously recommended statutes, based on size and volume as well as small, public supply wells; and (4) standards of applicability or exemption set for basins with low- and very low-priority designations or in non-alluvial areas.

To view the full report, please visit DWR’s Wells [webpage](#).

Proposed Order Setting Aside Water Quality Certifications

On March 11, 2024, the State Water Resources Control Board (State Water Board) issued a Notice of Opportunity for Public Comments and Board Consideration of a Proposed Order Reconsidering Water Quality Certifications ([Notice](#)).

The State Water Board will accept written comments on a [proposed order](#) setting aside the water quality certifications (certifications) for hydropower project licenses for: (1) Merced Irrigation District’s Merced River Hydroelectric Project and Merced Falls Hydroelectric Project (Federal Energy Regulatory Commission

See [Proposed Order](#), page 8

UPCOMING MEETINGS

State Water Resources Control Board

March 19-20, 2023; 9:00am
Joe Serna Jr. - CalEPA Building
1001 I St., Coastal Hearing Rm
Sacramento, CA 95814
[Agenda](#), [Webcast](#)
[Participation Guide](#)

Central Valley Flood Protection Board

March 22, 2024; 9:00am
Sacramento Area Council of Governments
1415 L Street, Suite 300
Sacramento, CA 95814
[Agenda](#), [Zoom](#)
Dial-in: +1 669 219 2599
Enter Webinar ID:
*868 5917 3646

Delta Independent Science Board Meeting

March 22, 2024; 10:00am
Remove Participation Only
[Agenda](#), [Meeting Materials](#)
[Webcast](#), [Zoom](#)

Sacramento-San Joaquin Delta Conservancy

March 27, 2024; 9:00am
Location TBD
[Agenda and Participation Guide](#)
(Not Yet Posted)

State Water Resources Control Board

April 3-4, 2023; 9:00am
Joe Serna Jr. - CalEPA Building
1001 I St., Coastal Hearing Rm
Sacramento, CA 95814
[Agenda](#) (Not Yet Posted)

continued on next page

UPCOMING MEETINGS

continued

Central Valley Flood Protection Board

April 12, 2024; 9:00am
Remote Participation Only
[Agenda and Participation Guide](#) (Not Yet Posted)

State Water Resources Control Board

April 16-17, 2023; 9:00am
Joe Serna Jr. - CalEPA Building
1001 I St., Coastal Hearing Rm
Sacramento, CA 95814
[Agenda](#) (Not Yet Posted)

California Water Commission

April 17, 2024; 9:30am
State of CA, Resources Bldg
715 P St., 1st Floor Auditorium
Sacramento, CA 95814
[Agenda](#) (Available April 5)

Central Valley Regional Water Quality Control Board

April 18-19, 2024
1685 E. Street
Fresno, CA 93706
[Agenda and Participation Guide](#) (Not Yet Posted)

Delta Stewardship Council

April 25-26, 2024
Meeting location TBD
[Agenda](#) (Available April 15)

Proposed Order, continued from page 7

[FERC] Project Nos. 2179 and 2467), issued on July 31, 2020; (2) Nevada Irrigation District's Yuba-Bear Hydroelectric Project (FERC Project No. 2266), issued on August 14, 2020; and (3) Turlock Irrigation District's and Modesto Irrigation District's Don Pedro Hydroelectric Project and La Grange Hydroelectric Project (FERC Project Nos. 2299 and 14581), issued on January 15, 2021. The proposed order would set aside these three certifications and dismiss the pending petitions for reconsideration of these certifications.

The Notice includes information on how to access the proposed order. Any person wishing to file a written comment with the State Water Board must do so by 12:00 noon on Tuesday, April 9, 2024, as directed in the Notice.

BACKGROUND

On September 27, 2023, the United States Environmental Protection Agency (USEPA) promulgated the Clean Water Act Section 401 Water Quality Certification Improvement Rule (2023 Rule). In the preamble accompanying the 2023 Rule, USEPA provided, for the first time, an interpretation of section 401 of the federal Clean Water Act (Section 401) that precludes certifying authorities such as the State Water Board from issuing a certification in the absence of a currently pending request for certification. In light of USEPA's new interpretation, the proposed order sets aside the three certifications listed above that were issued by the State Water Board's Executive Director without a pending request for certification, where the State Water Board had previously received a request for certification that had either been denied or withdrawn, and the project proponent(s) was still actively pursuing a federal hydropower license. Although the State Water Board believes its issuance of these certifications was proper and its interpretation of Section 401 remains reasonable, the State Water Board defers to USEPA's new interpretation. If these certifications are set aside by the proposed order, there would no longer be any action of the State Water Board to be reconsidered. Therefore, to avoid the unnecessary expenditure of resources, the proposed order also dismisses the petitions for reconsideration of these certifications.

As discussed in the Notice, the State Water Board will consider adoption of the proposed order at the State Water Board meeting on Tuesday, May 7, 2024.

(Source: State Water Resources Control Board, Notice of Opportunity for Public Comments and Board Consideration of a Proposed Order Reconsidering Water Quality Certifications, March 11, 2024)

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Valley Ag Water Coalition

The mission of the Valley Ag Water Coalition is to represent the collective interests of its San Joaquin Valley member agricultural water companies and agencies in California legislative and regulatory matters by providing leadership and advocacy on issues relating to the development and delivery of a reliable farm water supply.

**Valley Ag Water Coalition
2023-24 Regular Session, Second Year**

AB 460 (Bauer-Kahan D) State Water Resources Control Board: water rights and usage: interim relief: procedures.

Current Text: Amended: 5/18/2023 [html](#) [pdf](#)

Introduced: 2/6/2023

Last Amend: 5/18/2023

Status: 7/14/2023-Failed Deadline pursuant to Rule 61(a)(10). (Last location was N.R. & W. on 6/7/2023)(May be acted upon Jan 2024)

Is Urgency: N

Is Fiscal: Y

Location: 7/14/2023-S. 2 YEAR

Summary: Current law authorizes the State Water Resources Control Board to investigate all streams, stream systems, lakes, or other bodies of water, take testimony relating to the rights to water or the use of water, and ascertain whether water filed upon or attempted to be appropriated is appropriated under the laws of the state. Current law requires the board to take appropriate actions to prevent waste or the unreasonable use of water. This bill would authorize the board, in conducting specified investigations or proceedings to inspect the property or facilities of a person or entity, as specified. The bill would authorize the board, if consent is denied for an inspection, to obtain an inspection warrant, as specified, or in the event of an emergency affecting public health and safety, to conduct an inspection without consent or a warrant.

Organization	Position
VAWC	Oppose

AB 828 (Connolly D) Sustainable groundwater management: managed wetlands.

Current Text: Amended: 1/11/2024 [html](#) [pdf](#)

Introduced: 2/13/2023

Last Amend: 1/11/2024

Status: 1/29/2024-Read third time. Passed. Ordered to the Senate. (Ayes 47. Noes 15.) In Senate. Read first time. To Com. on RLS. for assignment.

Is Urgency: N

Is Fiscal: Y

Location: 1/29/2024-S. RLS.

Summary: The Sustainable Groundwater Management Act requires all groundwater basins designated as high- or medium-priority basins by the Department of Water Resources to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans, except as specified. Current law defines various terms for purposes of the act. This bill would add various defined terms for purposes of the act, including the terms "managed wetland" and "small community water system."

Organization	Position
VAWC	Oppose

AB 1205 (Bauer-Kahan D) Water rights: sale, transfer, or lease: agricultural lands.

Current Text: Amended: 7/13/2023 [html](#) [pdf](#)

Introduced: 2/16/2023

Last Amend: 7/13/2023

Status: 9/14/2023-Failed Deadline pursuant to Rule 61(a)(14). (Last location was INACTIVE FILE on 9/11/2023)(May be acted upon Jan 2024)

Is Urgency: N

Is Fiscal: Y

Location: 9/14/2023-S. 2 YEAR

Summary: Current law declares that, because of the conditions prevailing in this state, the general welfare requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable, that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of the water is to be exercised with a view to the reasonable and beneficial use of the water in the interest of the people and for the public welfare. This bill would require the State Water Resources Control Board to, on or before January 1, 2027, conduct a study and report to the Legislature and appropriate policy committees on the existence of speculation or profiteering by an investment fund in the sale, transfer, or lease of an interest in any surface water right or groundwater right previously put to beneficial use on agricultural lands, as specified. The bill would repeal this provision on January 1, 2031.

Organization	Position
VAWC	Oppose

[AB 1337](#)

(Wicks D) State Water Resources Control Board: water diversion curtailment.

Current Text: Amended: 5/18/2023 [html](#) [pdf](#)

Introduced: 2/16/2023

Last Amend: 5/18/2023

Status: 7/14/2023-Failed Deadline pursuant to Rule 61(a)(10). (Last location was N.R. & W. on 6/7/2023)(May be acted upon Jan 2024)

Is Urgency: N

Is Fiscal: Y

Location: 7/14/2023-S. 2 YEAR

Summary: Under existing law, the diversion or use of water other than as authorized by specified provisions of law is a trespass, subject to specified civil liability. This bill would expand the instances when the diversion or use of water is considered a trespass. This bill contains other related provisions and other existing laws.

Organization Position

VAWC Oppose

[AB 1563](#)

(Bennett D) Groundwater sustainability agency: groundwater extraction permit: verification.

Current Text: Amended: 6/28/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Last Amend: 6/28/2023

Status: 7/14/2023-Failed Deadline pursuant to Rule 61(a)(10). (Last location was GOV. & F. on 6/22/2023)(May be acted upon Jan 2024)

Is Urgency: N

Is Fiscal: Y

Location: 7/14/2023-S. 2 YEAR

Summary: Current law authorizes any local agency or combination of local agencies overlying a groundwater basin to decide to become a groundwater sustainability agency for that basin and imposes specified duties upon that agency or combination of agencies, as provided. Current law authorizes a groundwater sustainability agency to request of the county, and requires a county to consider, that the county forward permit requests for the construction of new groundwater wells, the enlarging of existing groundwater wells, and the reactivation of abandoned groundwater wells to the agency before permit approval. This bill would instead require a county to forward permit requests for the construction of new groundwater wells, the enlarging of existing groundwater wells, and the reactivation of abandoned groundwater wells to the groundwater sustainability agency before permit approval.

Organization Position

VAWC Oppose

[AB 1567](#)

(Garcia D) Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, Clean Energy, and Workforce Development Bond Act of 2024.

Current Text: Amended: 5/26/2023 [html](#) [pdf](#)

Introduced: 2/17/2023

Last Amend: 5/26/2023

Status: 6/14/2023-Referred to Coms. on N.R. & W. and GOV. & F.

Is Urgency: N

Is Fiscal: Y

Location: 6/14/2023-S. N.R. & W.

Summary: Would enact the Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, Clean Energy, and Workforce Development Bond Act of 2024, which, if approved by the voters, would authorize the issuance of bonds in the amount of \$15,995,000,000 pursuant to the State General Obligation Bond Law to finance projects for safe drinking water, wildfire prevention, drought preparation, flood protection, extreme heat mitigation, clean energy, and workforce development programs.

Organization Position

VAWC Support/Amend

[AB 2060](#)

(Soria D) Lake and streambed alteration agreements: exemptions.

Current Text: Introduced: 2/1/2024 [html](#) [pdf](#)

Introduced: 2/1/2024

Status: 2/12/2024-Referred to Com. on W., P., & W.

Is Urgency: N

Is Fiscal: Y

Location: 2/12/2024-A. W., P. & W.

Calendar: 4/9/2024 9 a.m. - State Capitol, Room 444 ASSEMBLY WATER, PARKS AND

WILDLIFE, PAPAN, DIANE, Chair

Summary: Current law prohibits a person, a state or local governmental agency, or a public utility from substantially diverting or obstructing the natural flow of, or substantially changing or using any material from the bed, channel, or bank of, any river, stream, or lake, or depositing or disposing of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless prescribed requirements are met, including written notification to the Department of Fish and Wildlife regarding the activity. Current law prescribes various requirements for lake and streambed alteration agreements. Current law also establishes various exemptions from these provisions, including, until January 1, 2029, the diversion of floodflows for groundwater recharge, as provided. This bill would indefinitely exempt from these provisions the temporary operation of existing infrastructure or temporary pumps being used to divert flood stage flows, as identified by the California Nevada River Forecast Center or the State Water Resources Control Board, or near-flood stage flows, as defined, to groundwater recharge as long as certain conditions are met.

Organization	Position
VAWC	Support

AB 2079 (Bennett D) Groundwater extraction: large-diameter, high-capacity wells: permits.

Current Text: Amended: 3/21/2024 [html](#) [pdf](#)

Introduced: 2/5/2024

Last Amend: 3/21/2024

Status: 3/21/2024-Referred to Com. on W., P., & W. From committee chair, with author's amendments: Amend, and re-refer to Com. on W., P., & W. Read second time and amended.

Is Urgency: N

Is Fiscal: Y

Location: 3/21/2024-A. W.,P. & W.

Summary: The Sustainable Groundwater Management Act requires all groundwater basins designated as high- or medium-priority basins by the Department of Water Resources to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans, except as specified. Current law authorizes any local agency or combination of local agencies overlying a groundwater basin to decide to become a groundwater sustainability agency for that basin and imposes specified duties upon that agency or combination of agencies, as provided. Current law requires the State Water Resources Control Board to adopt a model water well, cathodic protection well, and monitoring well drilling and abandonment ordinance implementing certain standards for water well construction, maintenance, and abandonment and requires each county, city, or water agency, where appropriate, not later than January 15, 1990, to adopt a water well, cathodic protection well, and monitoring well drilling and abandonment ordinance that meets or exceeds certain standards. Under current law, if a county, city, or water agency, where appropriate, fails to adopt an ordinance establishing water well, cathodic protection well, and monitoring well drilling and abandonment standards, the model ordinance adopted by the state board is required to take effect on February 15, 1990, and is required to be enforced by the county or city and have the same force and effect as if adopted as a county or city ordinance. This bill would require a local enforcement agency, as defined, to perform specified activities at least 30 days before determining whether to approve a permit for a new large-diameter, high-capacity well, as defined. By imposing additional requirements on a local enforcement agency, the bill would impose a state-mandated local program.

Organization	Position
VAWC	Oppose

ACA 2 (Alanis R) Water Resiliency Act of 2024.

Current Text: Amended: 3/6/2024 [html](#) [pdf](#)

Introduced: 12/5/2022

Last Amend: 3/6/2024

Status: 3/19/2024-In committee: Set, first hearing. Hearing canceled at the request of author.

Is Urgency:

Is Fiscal: Y

Location: 4/20/2023-A. W.,P. & W.

Summary: The California Constitution declares that the general welfare requires that the water resources of the state be put to beneficial use to the fullest extent of which they are capable, and that the right to the use of water does not extend to the waste or unreasonable use, method of use, or method of diversion of water. This measure would require the Treasurer to annually transfer an amount equal to 1.5% of all state revenues from the General Fund to the California Water Resiliency Trust Fund, which the measure would create. The measure would continuously appropriate moneys in the fund to the California Water Commission for its actual costs of implementing these provisions and for specified water infrastructure projects.

Organization	Position
VAWC	Favor

[SB 366](#)**(Caballero D) The California Water Plan: long-term supply targets.****Current Text:** Amended: 6/29/2023 [html](#) [pdf](#)**Introduced:** 2/8/2023**Last Amend:** 6/29/2023**Status:** 7/14/2023-Failed Deadline pursuant to Rule 61(a)(10). (Last location was W.,P. & W. on 6/8/2023)(May be acted upon Jan 2024)**Is Urgency:** N**Is Fiscal:** Y**Location:** 7/14/2023-A. 2 YEAR

Summary: Current law requires the Department of Water Resources to update every 5 years the plan for the orderly and coordinated control, protection, conservation, development, and use of the water resources of the state, which is known as "The California Water Plan." Current law requires the department to include a discussion of various strategies in the plan update, including, but not limited to, strategies relating to the development of new water storage facilities, water conservation, water recycling, desalination, conjunctive use, water transfers, and alternative pricing policies that may be pursued in order to meet the future needs of the state. Current law requires the department to establish an advisory committee to assist the department in updating the plan. This bill would revise and recast certain provisions regarding The California Water Plan to, among other things, require the department to instead establish a stakeholder advisory committee and to expand the membership of the committee to include tribes, labor, and environmental justice interests. The bill would require the department to coordinate with the California Water Commission, the State Water Resources Control Board, other state and federal agencies as appropriate, and the stakeholder advisory committee to develop a comprehensive plan for addressing the state's water needs and meeting specified long-term water supply targets established by the bill for purposes of The California Water Plan. The bill would require the plan to provide recommendations and strategies to ensure enough water supply for all beneficial uses.

Organization	Position
VAWC	Support

[SB 638](#)**(Eggman D) Climate Resiliency and Flood Protection Bond Act of 2024.****Current Text:** Amended: 6/28/2023 [html](#) [pdf](#)**Introduced:** 2/16/2023**Last Amend:** 6/28/2023**Status:** 7/6/2023-July 11 hearing postponed by committee.**Is Urgency:** N**Is Fiscal:** Y**Location:** 6/15/2023-A. W.,P. & W.

Summary: Would enact the Climate Resiliency and Flood Protection Bond Act of 2024 which, if approved by the voters, would authorize the issuance of bonds in the amount of \$6,000,000,000 pursuant to the State General Obligation Bond Law, for flood protection and climate resiliency projects.

Organization	Position
VAWC	Support

[SB 867](#)**(Allen D) Drought, Flood, and Water Resilience, Wildfire and Forest Resilience, Coastal Resilience, Extreme Heat Mitigation, Biodiversity and Nature-Based Climate Solutions, Climate Smart Agriculture, Park Creation and Outdoor Access, and Clean Energy Bond Act of 2024.****Current Text:** Amended: 6/22/2023 [html](#) [pdf](#)**Introduced:** 2/17/2023**Last Amend:** 6/22/2023**Status:** 7/6/2023-July 10 hearing postponed by committee.**Is Urgency:** N**Is Fiscal:** Y**Location:** 6/20/2023-A. NAT. RES.

Summary: Would enact the Drought, Flood, and Water Resilience, Wildfire and Forest Resilience, Coastal Resilience, Extreme Heat Mitigation, Biodiversity and Nature-Based Climate Solutions, Climate Smart Agriculture, Park Creation and Outdoor Access, and Clean Energy Bond Act of 2024, which, if approved by the voters, would authorize the issuance of bonds in the amount of \$15,500,000,000 pursuant to the State General Obligation Bond Law to finance projects for drought, flood, and water resilience, wildfire and forest resilience, coastal resilience, extreme heat mitigation, biodiversity and nature-based climate solutions, climate smart agriculture, park creation and outdoor access, and clean energy programs.

Organization	Position
VAWC	Watch/Amend

[SB 973](#)**(Grove R) Williamson Act: cancellation: solar energy projects.**

Current Text: Introduced: 1/29/2024 [html](#) [pdf](#)

Introduced: 1/29/2024

Status: 2/21/2024-Referred to Coms. on L. GOV. and E.Q.

Is Urgency: N

Is Fiscal: N

Location: 2/21/2024-S. L. GOV.

Summary: Current law, known as the Williamson Act, authorizes a city or county to contract with a landowner to limit the use of agricultural land located in an agricultural preserve designated by the city or county to preserve the land, subject to conditions of the contract, that may include an agreement to a specified valuation of the land for purposes of property taxation. The act authorizes a landowner to petition the city council or board of supervisors, as applicable, for cancellation of the contract under specified circumstances and imposes a cancellation fee equal to 12.5% of the fair market value of the land without the restriction of the contract. This bill would authorize a board or council to grant a petition for cancellation where the land subject to the contract is located in a basin under the jurisdiction of an adjudicated watermaster or the groundwater sustainability agency. The bill would require the landowner to commit to limiting the amount of water rights to a specific solar energy project, as defined, that uses less water than the agricultural use. The bill would also require the board or council to make specified findings, including that the solar energy project use is being permitted that will use less water than the agricultural use.

Organization	Position
VAWC	Watch

[SB 1390](#) (Caballero D) Groundwater recharge: floodflows: diversion.

Current Text: Introduced: 2/16/2024 [html](#) [pdf](#)

Introduced: 2/16/2024

Status: 2/29/2024-Referred to Com. on N.R. & W.

Is Urgency: N

Is Fiscal: Y

Location: 2/29/2024-S. N.R. & W.

Summary: Current law declares that all water within the state is the property of the people of the state, but the right to the use of the water may be acquired by appropriation in the manner provided by law. Current law requires the appropriation to be for some useful or beneficial purpose. Current law provides, however, that the diversion of flood flows for groundwater recharge does not require an appropriative water right if certain conditions are met, including that a local or regional agency has adopted a local plan of flood control or has considered flood risks part of its most recently adopted general plan. Current law also requires the person or entity making the diversion to file with the State Water Resources Control Board a final report after the diversions cease, as provided. These requirements apply to diversions commenced before January 1, 2029. This bill would extend the operation of these requirements to diversions commenced before January 1, 2034. The bill would revise, recast, and expand the conditions that are required to be met to include a requirement that a local or regional agency make a declaration that its proposed diversion is in accordance with one of certain enumerated plans relating to flood control or flood risk, as specified, or a county emergency operations plan.

Organization	Position
VAWC	Support

Total Measures: 14

Total Tracking Forms: 14

**Minutes of the Regular Board Meeting
of the Board of Directors of the
Wheeler Ridge-Maricopa Water Storage District and
Wheeler Ridge-Maricopa Groundwater Sustainability Agency
Convened at 8:00 A.M., March 13, 2024**

The meeting of the Board of Directors of the Wheeler Ridge-Maricopa Water Storage District and Wheeler Ridge-Maricopa Groundwater Sustainability Agency was held at the District's office, with optional public participation made available through teleconference via GoToMeeting on Wednesday March 13, 2024, at the hour of 8:00 A.M. President Atkinson declared a quorum was present and called the meeting to order.

Directors Present in Person. Atkinson, Blaine, Fry, Marin, Mettler, Reiter, Richardson, Valpredo.

Directors Absent. Lyda.

Others Present at 8:00 A.M. Engineer-Manager Sheridan Nicholas, Director of Water Resource Eric McDaris, and Attorney for the District Steve Torigiani.

Others Present at 9:03 A.M. Engineer-Manager Sheridan Nicholas, Attorney for the District Steve Torigiani, Director of Water Resource Eric McDaris, Staff Engineer Tom Suggs, Contract Administrator Flower Duenas, Staff Accountant Kelly Mielke, Retired Annuitant Rob Kunde, Executive Assistant Danyel Ruth, Trey Irwin with Tejon Ranch, Angelica Martin with TCWD and Gary Romoff with Sun Pacific.

8:00 A.M. Closed Session. The Board convened in Closed Session to consider the following matters:

Conference with Legal Counsel Re: Existing Litigation (Govt. Code § 54956.9(a)):

1. *DWR v. All Persons Interested, etc. "Complaint for Validation" Re: SWP Contract Extension Amendment (Sacramento County Sup. Ct., Case No. 34-2018-00246183)*
2. *Sierra Club v. DWR v. All Persons Interested, etc., consolidated CEQA Case and "Complaint for Validation" Re: Delta Program Revenue Bonds (Sacramento County Sup. Ct., Case No. 34-2020-80003517)*
3. *CDWR Environmental Impact [WaterFix] Cases, Sacramento County Sup. Ct., Case No. JCCP No. 4942*
4. *Rosedale-Rio Bravo Water Storage District v. Kern County Water Agency, et al., Kern County Superior Court, Case No. BCV-21-100418*
5. *KWBA, et al. v. Kern LAFCo, et al., Kern County Sup. Ct., Case No. BCV-21-101310-GP*
6. *Friends of the River, et al., v. Sites Project Authority, Yolo County Sup. Ct., Case No. CV2023-2626*
7. *Sierra Club, et al., v. DWR, Sacramento County Sup. Ct., and related cases, challenging DCP EIR*
8. *State Water Resources Control Bd. Administrative Hearing Office (AHO) Proceeding Re Sites Project Authority Water Rights Applications*
9. *MFC Kern I LLC, et al. v. Wheeler Ridge-Maricopa WSD, Kern County Sup. Ct.*

Conference with Legal Counsel - Anticipated Litigation: Initiation of Litigation (Govt. Code § 54956.9(d)(4)):

7. *Two Potential Cases*

Conference with Legal Counsel - Anticipated Litigation: Significant Exposure to Litigation (Govt. Code § 54956.9(d)(2)):

8. *Two Potential Cases*

9:31 A.M. Open Session. Mr. Torigiani stated there was no reportable action taken in closed session.

Legislative Matters. Mr. Torigiani noted the ACWA State Legislative Committee continues to meet to discuss and determine ACWA positions on various submitted bills. He discussed two specific bills - AB2735, which would allow public utilities to join Joint Power Authorities; and SB1218 which would declare that it is the established policy of the state to encourage and incentivize, but not mandate, the

development of emergency water supplies, and to support their use during times of water shortage.

Minutes. Upon motion from Director Fry, seconded by Director Blaine and unanimously carried with no abstentions, *The Minutes of the Regular Board Meeting of Directors ... Convened February 14, 2024* were approved and filed.

Filing of the Treasurer's Report. Treasurer Mettler presented and reviewed the *Treasurer's Report for the Month of February 2024*. Upon motion from Director Mettler, seconded by Director Richardson and unanimously carried with no abstentions, the *Treasurer's Report for the month of February 2024* was approved and filed.

Approve Payment of Accounts Payable. Treasurer Mettler presented and reviewed the *Accounts Payable for the month of February 2024*, and the *Reimbursements and Transfers for the month of February 2024*. Permanent motion from Director Mettler, seconded by Director Richardson and unanimously carried with no abstentions, the *Accounts Payable for the Month of February 2024* - and the *Reimbursements and Transfers for the Month of February 2024* was approved and filed.

Controller's Report. Mr. Smith reported that the District's annual audit field work would begin Monday.

Delinquent Accounts Report for March 2024. Mr. Smith reported that there were no delinquent accounts for the month of March.

Budget Expenditures Report for December 2023. Ms. Mielke reviewed the Budget Expenditure Report for December 2023.

President's Report. Nothing to report.

Engineer-Manager's Report. Mr. Nicholas noted the Engineer-Manager's Report was included in the Board packet for their review. He further noted the status report for the Wheeler #2 solar project was included, and discussed employing a consultant to perform audits on the District's solar facilities. Mr. Suggs also reported on the drop in water deliveries the District saw in 2023, noting the significant drop in planted acres due to permanent crop removals.

2024 Water/Supply Demand Estimate. Mr. McDaris reviewed the 2024 Water/Supply Demand Estimate.

Other Purchases and Exchanges. Mr. McDaris reviewed his March 11, 2024 memorandum to the Board entitled *Other Purchases and Exchanges*. Mr. McDaris stated this was for informational purposes only and no action was needed at this time.

District Landowner Well Meter Standards Discussion. Mr. Suggs reviewed his PowerPoint presentation with the Board entitled *Landowner Well Meters Discussion*. After some discussion, the Board advised staff to prepare a draft Landowner Well Meter Standards policy for review at a future Board meeting combining a well standardization and a well grandfathering methodology.

Proposed Add/Exclude for Materra Farming. Mr. McDaris reviewed his March 11, 2024 memorandum to the Board entitled *Materra Farming - Request for Water Service Contract Amendments Exclusions From the SWSA Affecting Contract 12102; Additions to the SWSA Affecting Turnouts 5G97, 7G57, 7G48, 7G47* and attachments. Upon motion from Director Marin, seconded by Director Valpredo and unanimously carried with no abstentions the Board adopted Resolution 2024-04 in the matter of :

**AUTHORIZING AMENDMENTS TO WATER SERVICE CONTRACTS NO. 12102
TO ENABLE CHANGES IN SURFACE WATER SERVICE AREA**

Consider Participation in WRM 13 Turnout Planning and Construction. Mr. Nicholas reviewed his March 11, 2024 memorandum to the Board entitled *Consider Participation in WRM 13 Turnout Planning and Construction*. After some discussion the Board elected to table this matter for future discussion.

2023 WWGSA Annual Report. Mr. Nicholas reviewed the White Wolf GSA's annual report prepared by EKI with the Board.

Consider Provost and Pritchard Proposal for Consulting and Engineering Services for the White Wolf Subbasin In-Lieu Banking Program. Mr. McDaris reviewed his March 11, 2024 memorandum to the Board entitled *Consider Provost and Pritchard Proposal for Consulting and Engineering Services for the White Wolf Subbasin In-Lieu Banking Program* and attachments. Upon motion from Director Richardson, seconded by Director Mettler and unanimously carried with no abstention the Board authorized the Engineer-Manager to execute the attached Proposal and Consulting Services Agreement with Provost and Pritchard Consulting Group, subject to review by counsel as to form and final approval of the Engineer-Manager.

Consider Agreement for Recruitment Services for Assistant Controller. Mr. Nicholas reviewed his March 11, 2024 memorandum to the Board entitled *Consider Agreement for Recruitment Services for Assistant Controller* and attached agreement. Upon motion from Director Mettler, seconded by Director Fry and unanimously carried with no abstentions the Board approved the Direct-Hire Recruiting Services Agreement for CVSP, subject to final approval of the Engineer-Manager and counsel.

State Water Project/Delta Conveyance Project. Due to technical difficulties Mr. Kunde was unable to review this item and will review it at April's regular board meeting.

Sites Reservoir. Due to technical difficulties Mr. Kunde was unable to review this item and will review it at April's meeting.

WRMGSA - Projects and Management Actions Committee Report. Mr. Nicholas announced the District would be holding landowner workshops on March 18th and 20th.

WRMGSA - Preliminary & Draft Groundwater Allocation. Mr. McDaris announced that a letter was sent out at the beginning of March listing dates and time of the upcoming workshops. He also mentioned the letter was available on the District's website for those who had not received it.

WRMGSA - Discussion of WRMGSA Administration Charges. Mr. McDaris reviewed his March 11, 2024 memorandum to the Board entitled *Discussion of WRMGSA Administration Charge*.

WRMGSA - Consider Approval of Letter of Intent to Engage Self-Help Enterprises to Assist with Subbasin Well Mitigation Program. Mr. Nicholas reviewed his March 11, 2024 memorandum to the Board entitled *Consider Approval of Letter of Intent to Engage Self-Help Enterprises to Assist with Subbasin Well Mitigation Program* and attachment. Upon motion from Director Reiter, seconded by Director Richardson and unanimously carried with no abstentions the Board approved payment of the WRMGSA participation in the *Self-Help Letter of Intent* and execute the various documents, as necessary, subject final approval of the Engineer-Manager and counsel.

WRMGSA - Intera Proposal for Delta Collection and Modeling to Support Subsidence Mitigation Cost Analysis for the Friant Kern Canal. Mr. Nicholas reviewed his March 11, 2024 memorandum to the

Board entitled Discussion of *Intera Proposal for Data Collection and Modeling to Support Subsidence Mitigation Cost Analysis for the Friant Kern Canal*. Upon motion by Director Blaine, seconded by Director Marin, and unanimously carried no with abstentions the Board approved the WRMGSA share (1/22) of the \$120,000 proposal from *Intera for Data Collection and Modeling to Support Subsidence Mitigation Cost Analysis for the Friant-Kern Canal*, subject to final approval of the Engineer-Manager and counsel.

Directors Meeting Attended. Nothing to report.

Kern County Water Agency. Nothing to report.

Kern Water Bank Authority/KWBGSA. Mr. Nicholas reported the KWBA discussed new recharge and recovery fees, and that the KWBGSA approved the above-mentioned Intera proposal for Friant subsidence analysis.

South of Kern River GSP. Mr. Nicholas stated that tomorrow's meeting was cancelled, and reported on the latest efforts of the SOKR GSP group, the Technical Working Group, and the Coordination Committee in preparing a revised Kern Subbasin plan for submission to the SWRCB.

White Wolf Groundwater Sustainability Agency. Mr. Nicholas reported that the WWGSA held its monthly meeting on March 5th, and noted the 2023 Annual Report was reviewed earlier in the meeting. Mr. Nicholas also noted that the cash call was included in this month's accounts payables.

Kern River Watershed Coalition Authority. Director Blaine stated that the Authority was still working on their Administrative Service Agreement with the Kern Water Collaborative, but should have it approved at next meeting.

Committee for Delta Reliability. No meeting.

South Valley Water Resource Authority. No meeting.

Unfinished and New Business. Executive Assistant Danyel Ruth reminded the Board that Form 700's had been sent out and were due in April.

Public Comments. None.

Adjournment. With no further business the meeting was adjourned at 11:40 a.m.

Respectfully submitted:
[Seal]

Secretary of the Board

List of Abbreviations:

ACWA	Association of California Water Agencies
ADM SSC	Administrative Service Charge, for basic administrative costs, non-project in nature, benefitting both SWSA and groundwater service area
AECA	Agricultural Energy Consumers Association
Agency	Kern County Water Agency
AWMP	Agricultural Water Management Plan
BDCP	Bay Delta Conservation Plan
BDS	Bond Debt Service
CAW	Contract Amount of Water totaling 200,818 acre-feet between the District & Water Users
CEQA	California Environmental Quality Act
CFWC	California Farm Water Coalition
COBRA	Consolidated Omnibus Budget Reconciliation Act
CVC	Cross Valley Canal
CVP	Central Valley Project (operated by the U.S. Bureau of Reclamation)
CWF	California WaterFix delta conveyance program (previously DHCCP)
DCA	Delta Conveyance Authority
DCF	Delta Conveyance Facility
DCP	Delta Conveyance Project
DFW	California Department of Fish and Wildlife
DHCCP	Delta Habitat Conservation and Conveyance Program - the conveyance element of the BDCP - renamed the California
District	Wheeler Ridge-Maricopa Water Storage District
DOG	California Division of Oil & Gas
DWR	California Department of Water Resources
DYTP	Dry Year Transfer Program
EIR	Environmental Impact Report
FAA	Final Accounting Adjustment
FO	Fixed Obligation water rate
FWS	U.S. Fish and Wildlife Service
GEN	GSC General Service charge, for recovery of Bond Debt for general purposes in the District
GL	General Ledger
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWSC	Groundwater Service Charge
ILRP	Irrigated Lands Regulatory Program
IRWMP	Integrated Regional Water Management Plan
ITRC	Irrigation Training and Research Center
JPIA	Joint Powers Insurance Authority
KCWA	Kern County Water Agency or Agency
KFMC	Kern Fan Monitoring Committee
KGA	Kern Groundwater Authority
KRGSA	Kern River Groundwater Sustainability Agency
KRWCA	Kern River Watershed Coalition Authority
KWB	Kern Water Bank
KWBA	Kern Water Bank Authority
ITP	Incidental Take Permit
MOU	Memorandum of Understanding
MWD	Metropolitan Water District
NoD	North of the Delta
NonC	Non-Contract Charges
OMR	Operations, Maintenance and Repair, not to be confused with OMR of Old Middle Rivers
OMR	Old and Middle Rivers in the Sacramento-San Joaquin Delta
OSHA	Occupational Safety and Health Administration
PEF	Pastoria Energy Facility
PoE	Probability of Exceedance
PROJ	SSC Project Service Charge, for project costs related to, but not specific to a particular system
RWQCB	Regional Water Quality Control Board
SGMA	Sustainable Groundwater Management Act
SLR	San Luis Reservoir
SoD	South of the Delta
SOKR	South of Kern River
SSC	Special Service Charge, consists of ADM SSC, GEN SSC and PRO SSC
SSJVWQC	Southern San Joaquin Valley Water Quality Coalition
SVWRA	South Valley Water Resources Authority
SWC	State Water Contractors
SWP	State Water Project (operated by DWR)
SWRCB	State Water Resources Control Board
SWSA	Surface Water Service Area or contracted acreages
WAC	Water Availability Charge, consists of BDS, OMR & FO
Water User	A landowner holding a Water Service Contract with the District
WD	Water District
WRMWSA	Wheeler Ridge-Maricopa Water Storage District
WS5	Westside 5 Water Districts - Belridge, Berrenda Mesa, Dudley Ridge, Lost Hills & Wheeler Ridge
WSC	Water Service Contract
WSD	Water Storage District
WUC	Water Use Charge, consists of State Pumping/Variable and District Pumping/Variable
WWGSA	White Wolf Groundwater Sustainability Agency

**Minutes of the Special Board Meeting
of the Board of Directors of the
Wheeler Ridge-Maricopa Water Storage District and
Wheeler Ridge-Maricopa Groundwater Sustainability Agency
Convened at 12:00 P.M., March 19, 2024**

The meeting of the Board of Directors of the Wheeler Ridge-Maricopa Water Storage District and Wheeler Ridge-Maricopa Groundwater Sustainability Agency was held at the District's office, with optional public participation made available through teleconference via GoToMeeting on Tuesday March 19, 2024, at the hour of 12:00 P.M. President Atkinson declared a quorum was present and called the meeting to order.

Directors Present in Person. Atkinson, Blaine, Fry, Lyda, Marin, Mettler, Reiter, Richardson, Valpredo.

Directors Absent. None.

Others Present at 12:00 P.M. Engineer-Manager Sheridan Nicholas, Director of Water Resource Eric McDaris, Executive Assistant Danyel Ruth and Attorney for the District Steve Torigiani.

Public Comments. None.

Closed Session. The Board convened in closed session to consider the following matters:

Conference with Real Property Negotiator: (Govt. Code § 54956.8):

1. District's Designated Representative: Engineer-Manager
Under Negotiation: Price and Terms of Payment

Conference with Legal Counsel - Anticipated Litigation: Significant Exposure to Litigation (Govt. Code § 54956.9(d)(2)):

2. *One Potential Case*

Conference with Legal Counsel - Anticipated Litigation: Initiation of Litigation (Govt. Code § 54956.9(d)(4)):

3. *Two Potential Cases*

Adjournment. The Board convened to open session, it was reported that no action was taken in Closed Session, and with no further business the meeting was adjourned at 1:31 p.m.

Respectfully submitted:
[Seal]

Secretary of the Board

List of Abbreviations:

ACWA	Association of California Water Agencies
ADM SSC	Administrative Service Charge, for basic administrative costs, non-project in nature, benefitting both SWSA and groundwater service area
AECA	Agricultural Energy Consumers Association
Agency	Kern County Water Agency
AWMP	Agricultural Water Management Plan
BDCP	Bay Delta Conservation Plan
BDS	Bond Debt Service
CAW	Contract Amount of Water totaling 200,818 acre-feet between the District & Water Users
CEQA	California Environmental Quality Act
CFWC	California Farm Water Coalition
COBRA	Consolidated Omnibus Budget Reconciliation Act
CVC	Cross Valley Canal
CVP	Central Valley Project (operated by the U.S. Bureau of Reclamation)
CWF	California WaterFix delta conveyance program (previously DHCCP)
DCA	Delta Conveyance Authority
DCF	Delta Conveyance Facility
DCP	Delta Conveyance Project
DFW	California Department of Fish and Wildlife
DHCCP	Delta Habitat Conservation and Conveyance Program - the conveyance element of the BDCP - renamed the California
District	Wheeler Ridge-Maricopa Water Storage District
DOG	California Division of Oil & Gas
DWR	California Department of Water Resources
DYTP	Dry Year Transfer Program
EIR	Environmental Impact Report
FAA	Final Accounting Adjustment
FO	Fixed Obligation water rate
FWS	U.S. Fish and Wildlife Service
GEN	GSC General Service charge, for recovery of Bond Debt for general purposes in the District
GL	General Ledger
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWSC	Groundwater Service Charge
ILRP	Irrigated Lands Regulatory Program
IRWMMP	Integrated Regional Water Management Plan
ITRC	Irrigation Training and Research Center
JPIA	Joint Powers Insurance Authority
KCWA	Kern County Water Agency or Agency
KFMC	Kern Fan Monitoring Committee
KGA	Kern Groundwater Authority
KRGSA	Kern River Groundwater Sustainability Agency
KRWCA	Kern River Watershed Coalition Authority
KWB	Kern Water Bank
KWBA	Kern Water Bank Authority
ITP	Incidental Take Permit
MOU	Memorandum of Understanding
MWD	Metropolitan Water District
NoD	North of the Delta
NonC	Non-Contract Charges
OMR	Operations, Maintenance and Repair, not to be confused with OMR of Old Middle Rivers
OMR	Old and Middle Rivers in the Sacramento-San Joaquin Delta
OSHA	Occupational Safety and Health Administration
PEF	Pastoria Energy Facility
PoE	Probability of Exceedance
PROJ	SSC Project Service Charge, for project costs related to, but not specific to a particular system
RWQCB	Regional Water Quality Control Board
SGMA	Sustainable Groundwater Management Act
SLR	San Luis Reservoir
SoD	South of the Delta
SOKR	South of Kern River
SSC	Special Service Charge, consists of ADM SSC, GEN SSC and PRO SSC
SSJVWQC	Southern San Joaquin Valley Water Quality Coalition
SVWRA	South Valley Water Resources Authority
SWC	State Water Contractors
SWP	State Water Project (operated by DWR)
SWRCB	State Water Resources Control Board
SWSA	Surface Water Service Area or contracted acreages
WAC	Water Availability Charge, consists of BDS, OMR & FO
Water User	A landowner holding a Water Service Contract with the District
WD	Water District
WRMWSA	Wheeler Ridge-Maricopa Water Storage District
WSS	Westside 5 Water Districts - Belridge, Berrenda Mesa, Dudley Ridge, Lost Hills & Wheeler Ridge
WSC	Water Service Contract
WSD	Water Storage District
WUC	Water Use Charge, consists of State Pumping/Variable and District Pumping/Variable
WWGSA	White Wolf Groundwater Sustainability Agency

**WHEELER RIDGE - MARICOPA WATER STORAGE DISTRICT
TREASURER'S REPORT FOR THE MONTH OF MARCH 2024**

04/10/2024 - packet
GENERAL FUND

FUNDS ON DEPOSIT:

BALANCE AS OF:	02/29/2024	<u>49,775,050.87</u>
PLUS CASH RECEIVED FOR: (cash receipts/laif/camp interest)	03/2024	8,671,217.14
LESS CASH EXPENDED DURING MONTH FOR:	03/2024	(1,544,096.41)
(feb, pr, ap, cdr, mnl, fees - mar pr burdens, ee net, taxes, inv)		

FUNDS ON RECONCILED DEPOSIT AT END OF MONTH: 56,902,171.60

THE ABOVE FUNDS ARE ON DEPOSIT AS FOLLOWS:

WELLS FARGO BANK NA - (GL) CASH BALANCE	596,751.26
KCT-POOLED INVESTMENTS - (G/L) CASH BALANCE	20,491,282.80
LAIF-POOLED INVESTMENTS - (GL) CASH BALANCE	1,990.28
CAMP-POOLED INVESTMENTS - (GL) CASH BALANCE	<u>35,812,147.26</u>

56,902,171.60

INTEREST APPORTIONMENT PERCENTAGE (ANNUALIZED)

MONTH ENDING MARCH 31, 2024	-----	CAMP	5.480%
MONTH ENDING FEBRUARY 29, 2024	-----		5.500%
MONTH ENDING JANUARY 31, 2024	-----		5.540%
MONTH ENDING DECEMBER 31, 2023	-----		5.550%

INTEREST APPORTIONMENT PERCENTAGE (ANNUALIZED)

QUARTER ENDING DEC 31,2023	-----	KCT	3.146%
QUARTER ENDING SEP 30,2023	-----		2.909%
QUARTER ENDING JUN 30,2023	-----		2.650%
QUARTER ENDING MAR 31,2023	-----		2.417%

ALL FUNDS ARE PLACED IN ACCORDANCE WITH THE DISTRICT'S INVESTMENT POLICY AND GUIDELINES. SUFFICIENT CASH FLOW EXISTS TO MEET BUDGETED OBLIGATIONS FOR THE NEXT SIX MONTHS.

CASH RECEIVED (KERN COUNTY TREASURER/LAIF/WELLS FARGO/CAMP) DURING MONTH AS FOLLOWS:

MANUAL INVOICES	69,823.54
CONTRACT WATER PAYMENTS	8,111,615.38
NON CONTRACT OM&R PAYMENTS	100,702.41
SPECIAL SERVICE CHARGES ADMINISTRATION - kc auditor/controller	16,340.89
SPECIAL SERVICE CHARGES GENERAL - kc auditor/controller	903.52
INTEREST 4TH QUARTER 2ND APPORTIONMENT - kc auditor/controller	160,092.05
RECYCLE/COPPER & ALUMINUM - sierra recycling & demolition inc	1,255.25
RPA FUND REFUND - acwa jpia	45,036.39

CAMP - interest month ending 03/31/2024 165,447.71

Cash Receipts Summary for KCT & CAMP 8,671,217.14

OPERATING RESERVE FUND BALANCE: audited 12/31/2022 23,391,974.00

**WHEELER RIDGE - MARICOPA WATER STORAGE DISTRICT
AUDITED RESERVE FUND BALANCES AS OF DECEMBER 31, 2022 PLUS ESTIMATED ADJUSTMENTS**

4/10/2024 Board Packet

INTERNALLY CONSTRAINED RESERVES	DRAFT AUDIT <u>12/31/2022</u>	2023/2024 Adjustments		Adjusted <u>4/8/2024</u>
OPERATING RESERVE FUND	23,391,974	(8,958,801)	(1)	14,433,173
EQUIPMENT REPLACEMENT RESERVE FUND	3,430,967			3,430,967
GROUND WATER REPLENISHMENT RESERVE FUND	38,576,115	(22,848,954)	(2)	15,727,161
CONTINGENCY RESERVE FUND		(914,191)	(3)	9,791,205
		(197,088)	(4)	
		(3,203)	(5)	
		(5,723)	(6)	
		(13,949)	(7)	
		(27,836)	(8)	
WATER BANKING CAPITAL RESERVE FUND	4,280,676	843,400	(9)	5,292,756
		168,680	(10)	
WATER BANKING REPLACEMENT RESERVE FUND	10,597	46,708	(11)	255,023
		50,645	(12)	
		147,073	(13)	
WELL REPAIR RESERVE	548,286	(1,182,870)	(14)	(634,584)

TOTAL RESERVE FUNDS INTERNALLY CONSTRAINED	81,191,810	(32,896,109)		48,295,701
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THIS AMOUNT IS SHOWN AS AN UNCONSTRAINED RESERVE. THIS IS MISLEADING AS THE BOARD HAS NOT DESIGNATED SUCH A RESERVE, AND IT IS NOT A CASH ASSET (COMPARE THE \$92.9 MILLION OF TOTAL RESERVES TO THE \$49.5 MILLION OF CASH EQUIVALENTS ON PAGE 11 OF THE 2022 AUDIT.

	11,740,258	32,896,109		44,636,367
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UNRESTRICTED NET ASSETS	92,932,068	0		92,932,068
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- (1) Kern County Water Agency - January & April 2024 payments, less Water User 2024 installments received
- (2) Estimated Groundwater Replenishment expense in 2023
- (3) CalPERS - UAL (refund in 2024 with OM&R/SSC charges)
- (4) CDR 2023 Assessment
- (5) Water Quality Litigation (123-TCP)
- (6) CVC Litigation
- (7) Legal Expenses - Health & Human Safety
- (8) Legal Expenses - Bond Validation
- (9) Pastoria Energy Facility wheeling charges
- (10) Granite Construction Co. wheeling charges
- (11) KWBA 2021 Capital Fee Reconciliation
- (12) KWBA 2021 Operations Distribution
- (13) KWBA 2019 4% Water
- (14) 2023 Well repairs to date

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

ACCOUNTS PAYABLE

MARCH 2024

						5.2
ID	NAME	DATE	INVOICE	AMOUNT	DESCRIPTION	5,000+
B125	ROBERT CLAFFY	3/31/2024	03312024-1	50.00	OPERATOR CERT. - 1ST QTR 2024	
B125	ROBERT CLAFFY	3/31/2024	03312024-2	25.00	MARCH WATER TREATMENT	
B131	DAVID A. COLVIN	2/14/2024	02142024	23.94	REIMBURSEMENT-SUPP.INS.	
B135	NEIL DURHAM	3/31/2024	03312024	50.00	WATER TREATMENT - 1ST QTR 2024	
B136	MARK DELEON	3/31/2024	03312024	442.20	TRANSPORTATION	
B137	KEVIN EATON	2/14/2024	02142024	23.67	REIMBURSEMENT-SUPP.INS.	
B137	KEVIN EATON	3/31/2024	03312024	140.70	TRANSPORTATION	
B169	ALEXANDRA H ZAVALA	3/13/2024	03132024	900.00	REIMBURSEMENT - 2 CLASSES	
B211	ADRIAN MARTINEZ	3/31/2024	03312024	462.30	TRANSPORTATION	
B214	KELLY MIELKE	3/31/2024	03312024	422.10	TRANSPORTATION	
B219	SHERIDAN NICHOLAS	4/5/2024	04052024	123.09	INTERVIEW LUNCH - REIMBURSEMEN	
B222	ANGIE MONTES	3/13/2024	03132024	95.00	FOOD - BOARD MEETING	
B259	JUAN RAMIREZ	3/31/2024	03312024	100.50	TRANSPORTATION	
B261	RICHARD RICE	2/14/2024	02142024	14.80	REIMBURSEMENT-SUPP.INS.	
B301	COREY WILKERSON	3/31/2024	03312024-1	50.00	SAFETY DIRECTOR - 1ST QTR 2024	
B301	COREY WILKERSON	3/31/2024	03312024-2	25.00	SAFETY MEETING - MAR 2024	
C0930	661 COMMUNICATIONS	3/19/2024	1857	168.02	RADIO INSTALL #391	
C0930	661 COMMUNICATIONS	3/19/2024	1858	1,236.45	REPROGRAM DISTRICT RADIOS	
C0930	661 COMMUNICATIONS	3/27/2024	1863	1,720.85	REPEATER ANTENNA	
C1050	ACWA JPIA	3/31/2024	03312024	32,338.87	WORKERS COMP INS. 1ST QTR	32,338.87
C1058	ADVANCED COMPLIANCE	3/25/2024	13974	1,024.10	REPLACE GAUGES/FUEL STATION	
C1064	AFTW HOLDINGS, LLC	4/2/2024	"AFTW"02-2024	50,665.91	WHEELER #1 SOLAR CHARGES	50,665.91
C1116	APEX INDUSTRIAL SUPPLY INC.	3/18/2024	5213	106.91	SAFETY GLASSES/TIPS	
C1116	APEX INDUSTRIAL SUPPLY INC.	3/14/2024	5207	359.79	NOZZLES/SIGNS/DECALS	
C1116	APEX INDUSTRIAL SUPPLY INC.	3/22/2024	5223	351.99	SUPPLIES	
C1116	APEX INDUSTRIAL SUPPLY INC.	3/28/2024	5225	116.13	12 AEROSOL PAINT CANS	
C1116	APEX INDUSTRIAL SUPPLY INC.	4/3/2024	5242	581.74	FLAP DISCS/GRINDING WHEELS	
C1130	APPLIED TECHNOLOGY GROUP, INC	3/28/2024	INV0000029224	99.57	FLANGE ARRESTOR	
C1183	ARVIN EDISON WATER STORAGE DISTRICT	3/18/2024	24-05	2,232.17	SOKR GSP	
C1210	B.S.& E. CO., INC.	3/21/2024	03212024	265.95	CONCRETE	
C1247	BAKERSFIELD ICE	3/31/2024	12268	504.65	RENTAL/ICE	
C1250	BAKERSFIELD PAINT AND WALLPAPER	3/13/2024	L0021057	81.95	PAINT GUN REPAIR	
C1250	BAKERSFIELD PAINT AND WALLPAPER	4/3/2024	L0022037	85.94	5 GAL. ACETONE	
C1250	BAKERSFIELD PAINT AND WALLPAPER	4/1/2024	L0021961	200.57	PAINT / DURETHANE	
C1263	BAKERSFIELD TRUCK CENTER	3/11/2024	FA004333405:01	119.05	NUT COVERS	
C1272	B & B SURPLUS INC	3/21/2024	1132480	132.61	8 NIPPLES	
C1272	B & B SURPLUS INC	3/21/2024	1132321	529.02	6 - 12" FLANGES	
C1272	B & B SURPLUS INC	3/15/2024	1130981	1,055.44	5 - 12" ELBOWS	
C1272	B & B SURPLUS INC	3/31/2024	1134843	720.30	2" PIPES/GRATING	
C1272	B & B SURPLUS INC	4/5/2024	1135940	417.63	4' x 8' PLATE	
C1286	BARBICH HOOPER KING DILL HOFFMAN	2/29/2024	151172	2,025.00	RECRUITING ASST.CONTROLLER	
C1338	BERCHTOLD EQUIPMENT COMPANY	3/29/2024	P30511	80.13	2 - CAB AIR FILTERS	
C1358	BOOT BARN INC.	2/15/2024	INV00355277	194.84	BOOTS-PEARSON	
C1358	BOOT BARN INC.	3/13/2024	CM 086503	(194.84)	BOOTS-PEARSON (RETURN)	
C1358	BOOT BARN INC.	3/13/2024	086503	135.30	BOOTS-PEARSON	
C1358	BOOT BARN INC.	3/16/2024	089670	126.64	BOOTS-AGUIRRE	
C1358	BOOT BARN INC.	4/2/2024	092217	170.48	BOOTS - SANDOVAL	
C1385	BSK ANALYTICAL LABS	4/2/2024	AH07970	1,570.00	WATER QUALITY TESTING	
C1390	JIM BURKE FORD	3/13/2024	1566110	366.32	6 - AIR FILTERS	
C1390	JIM BURKE FORD	3/22/2024	254203	478.21	TRANSMISSION SERVICE #151	
C1390	JIM BURKE FORD	4/2/2024	1568566	46.50	WIPER BLADES	
C1439	CALI COATINGS LLC	3/12/2024	3935	1,082.50	SPRAY BEDLINER #391	
C1442	CA. DEPT OF TAX AND FEE ADMINISTRATION	3/31/2024	03312024	182.00	JAN-MAR 24 DIESEL REPORT	
C1456	CANON	4/10/2024	unknown	820.57	LEASE - 2 CANON COPIERS	
C1463	CAPITOL ENVIRONMENTAL SERVICES, INC.	3/13/2024	42494	3,630.00	REMOVE ASBESTOS PIPE	
C1607	COUNTY OF KERN	4/6/2024	04062024	220.00	KERN COUNTY ASSESSMENT ROLL	
C1692	EKI ENVIRONMENT & WATER, INC.	3/12/2024	C20055.05-02	31,093.40	SOKR GSP DEFICIENCY RESPONSE	
C1692	EKI ENVIRONMENT & WATER, INC.	3/12/2024	C20055.04-02	14,665.82	SOKR GSP	
C1692	EKI ENVIRONMENT & WATER, INC.	3/28/2024	B70103.02-36	7,951.84	CONSULTING / SGMA	
C1692	EKI ENVIRONMENT & WATER, INC.	4/5/2024	C20055.05-03	42,835.52	SOKR GSP DEFICIENCY RESPONSE	
C1692	EKI ENVIRONMENT & WATER, INC.	4/5/2024	C2055.04-03	15,636.40	SOKR GSP	112,182.98
C1716	EQUIPMENT SHARE	2/26/2024	BFL-3616829-0000	680.13	DRUM ROLLER RENTAL	
C1740	FARM PUMP & IRRIGATION CO	1/30/2024	023771	5,233.47	REPAIR PUMP 5PP2 #6	5,233.47

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

ACCOUNTS PAYABLE

MARCH 2024

C1755	FASTENAL	3/5/2024	CABGV1410	327.07	GRADE 5 BOLTS	
C1765	FAST UNDERCAR	3/12/2024	08PU5872	(54.13)	CORE CREDIT	
C1765	FAST UNDERCAR	3/12/2024	08PU4880	355.57	2 - BATTERIES	
C1775	FERGUSON ENTERPRISES, INC.	3/12/2024	1844381	3,630.49	2 - 14" COUPLERS	
C1775	FERGUSON ENTERPRISES, INC.	3/19/2024	1844743	4,974.15	2 - COUPLERS	
C1775	FERGUSON ENTERPRISES, INC.	3/29/2024	1849498	47.14	PIPE WRAP TAPE	
C1775	FERGUSON ENTERPRISES, INC.	3/20/2024	1847372	846.40	12" COUPLER	
C1775	FERGUSON ENTERPRISES, INC.	4/1/2024	1849722	921.92	12" COUPLER	
C1775	FERGUSON ENTERPRISES, INC.	3/19/2024	1847395	2,457.99	3-12" COUPLERS	
C1775	FERGUSON ENTERPRISES, INC.	3/22/2024	1848235	1,638.66	2 - 12" COUPLERS	
C1775	FERGUSON ENTERPRISES, INC.	3/29/2024	1844749	5,204.73	4 - 17" COUPLERS	
C1775	FERGUSON ENTERPRISES, INC.	3/29/2024	1844747	3,278.15	2 - 23" COUPLERS	
C1775	FERGUSON ENTERPRISES, INC.	4/4/2024	1849698	921.92	1 - 13" COUPLER	23,921.55
C1905	GEI CONSULTANTS INC	3/22/2024	3150145	1,918.00	WELL DESIGN AND CONSTRUCTION	
C1955	GOLDEN STATE PETERBILT	3/15/2024	03GSB14283	437.99	REPLACE SENSOR & BRACKET #386	
C1955	GOLDEN STATE PETERBILT	3/26/2024	03GSB14347	2,354.83	REPLACE SENSOR/GASKET #366A	
C1960	GRAINGER	3/27/2024	9067946666	1,399.28	AIR COMPRESSOR #153	
C1960	GRAINGER	4/5/2024	9077936392	25.46	LITHIUM BATTERIES	
C1961	GRANITE CONSTRUCTION COMPANY	3/13/2024	2668820	328.43	COLD MIX ASPHALT	
C1969	GRAPEVINE MSP	3/15/2024	40391	5,244.00	IT SERVICE/BACKUP/SECURITY	5,244.00
C1980	GRAYBAR ELECTRIC CO, INC	3/26/2024	9336563586	5,682.80	WIRE / ELECT. SUPPLIES	5,682.80
C1992	GREG'S PETROLEUM SERVICE, INC.	3/18/2024	444293	3,128.25	RED DIESEL FUEL	
C1992	GREG'S PETROLEUM SERVICE, INC.	4/2/2024	447485	4,842.79	315 GAL. MOTOR OIL	7,971.04
C2057	HILL THREADED PRODUCTS, INC	3/27/2024	258934	39.67	BUSHING / HITCH PIN	
C2106	IGS SOLAR	3/12/2024	240720006939835	17,804.18	850 CANAL SOLAR CHARGES	17,804.18
C2108	IMPERIAL SUPPLIES LLC	2/5/2024	I001984737	224.08	BOLTS	
C2108	IMPERIAL SUPPLIES LLC	3/8/2024	C000158042	(129.36)	RETURN BOLTS	
C2168	JORGENSEN & CO	4/1/2024	6123830	219.90	CALIBRATION / REPAIR	
C2260	KERN ELECTRIC DISTRIBUTORS	1/1/2024	598788	146.91	RUBBERS FOR HOT GLOVES	
C2260	KERN ELECTRIC DISTRIBUTORS	3/13/2024	600548	111.31	LEATHER/BAG FOR HOT GLOVES	
C2312	KIMBALL MIDWEST	3/7/2024	101993161	217.04	ELECTRICAL SUPPLIES	
C2330	KNIGHTS PUMPING SERVICE	3/8/2024	193589	252.46	PORTABLE TOILET SERVICES	
C2330	KNIGHTS PUMPING SERVICE	3/15/2024	194128	252.46	PORTABLE TOILET SERVICES	
C2330	KNIGHTS PUMPING SERVICE	3/1/2024	193072	712.50	PUMP SEPTIC TANK	
C2330	KNIGHTS PUMPING SERVICE	3/22/2024	194715	229.66	PORTABLE TOILET SERVICES	
C2371	LAWSON PRODUCTS	3/15/2024	9311382119	254.64	ELECTRICAL TERMINALS/SCREWS	
C2412	LOWE'S BUSINESS ACCOUNT	4/2/2024	04022024	1,129.80	SUPPLIES	
C2449	THE MARCOM GROUP	3/15/2024	63377	95.00	WORDPRESS SECURITY MONITORING	
C2450	MC CALL'S METER SALES AND SERVICE	3/18/2024	36536	1,670.82	METERS / BATTERIES	
C2500	MOTOR CITY AUTO CENTER	3/11/2024	DEAL #437845	46,967.87	2024 GMC 2500 #391	
C2500	MOTOR CITY AUTO CENTER	3/15/2024	GCCS256237	1,173.94	REAR ROTORS/PADS #159	48,141.81
C2552	NAPA AUTO PARTS-GENUINE PARTS CO.	3/15/2024	687745	45.75	AUTO SUPPLIES	
C2552	NAPA AUTO PARTS-GENUINE PARTS CO.	3/27/2024	688273	307.28	AIR FILTERS	
C2657	ONSET COMPUTER CORPORATION	3/22/2024	275697	4,280.18	RECEIVERS-WELL MONITORING	
C2690	P G & E #1	3/31/2024	03312024	173,280.09	MARCH POWER	
C2691	P G & E #2	3/31/2024	03312024	64,820.12	MARCH POWER	
C2692	P G & E #3	3/31/2024	03312024	4,842.26	MARCH POWER	
C2693	P G & E #4	3/31/2024	03312024	1,568.61	MARCH POWER	
C2694	P G & E #5	3/31/2024	03312024	2,648.70	MARCH POWER	247,159.78
C2790	POWERSTRIDE BATTERY	3/27/2024	B 387766	428.98	2 - BATTERIES	
C2800	LINDE GAS & EQUIPMENT INC.	3/22/2024	41833662	1,023.19	DEMURRAGE	
C2800	LINDE GAS & EQUIPMENT INC.	3/9/2024	41629454	116.24	NITROGEN / HAMMERS	
C2808	PRICE DISPOSAL INC	3/11/2024	741741	1,054.41	2-40 YD ROLL OFFS	
C2812	PROVOST & PRITCHARD	3/19/2024	108258	266.00	MONITORING WELL WORK	
C2812	PROVOST & PRITCHARD	3/7/2024	107987	94.50	WS5 WATER SUPPLY	
C2829	QUALITY POWDER COATING	3/21/2024	9473	3,164.50	COAT 3 PIPES/LADDER PLATFORM	
C2840	QUINN COMPANY	3/29/2024	PC080537102	201.93	HOSE / O-RINGS #699B	
C2840	QUINN COMPANY	3/29/2024	WO080088259	2,168.62	SERVICE BACKHOE #802	
C2893	RINGCENTRAL INC.	3/31/2024	CD_000787567	1,291.14	SUBSCRIPTION - PHONES	
C2898	READY REFRESH by NESTLE	3/28/2024	14C0028964179	454.09	DRINKING WATER	
C3030	SAN JOAQUIN TRACTOR	3/26/2024	98674B	407.03	DISC SCRAPPERS #751	
C3030	SAN JOAQUIN TRACTOR	3/19/2024	98575B	198.91	TONGUE / PIN #751	
C3082	SPARKLE UNIFORM & LINEN SERVICE	3/14/2024	965097	619.26	UNIFORMS	
C3082	SPARKLE UNIFORM & LINEN SERVICE	3/21/2024	966109	619.26	UNIFORMS	
C3082	SPARKLE UNIFORM & LINEN SERVICE	3/28/2024	0967136	619.26	UNIFORMS	
C3082	SPARKLE UNIFORM & LINEN SERVICE	4/4/2024	968146	609.30	UNIFORMS	

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

ACCOUNTS PAYABLE

MARCH 2024

C3100	SMART & FINAL	3/13/2024	409455	25.96	SUPPLIES	
C3100	SMART & FINAL	3/13/2024	371499	4.79	SUPPLIES	
C3100	SMART & FINAL	3/19/2024	821266	47.60	SUPPLIES	
C3100	SMART & FINAL	3/27/2024	749066	66.11	SUPPLIES	
C3100	SMART & FINAL	4/3/2024	945811	74.74	SUPPLIES	
C3170	SOUTHERN CALIFORNIA GAS COMPANY	3/25/2024	03252024	539.69	NATURAL GAS	
C3200	STINSON'S	3/11/2024	269079-2	208.50	PRINTER - WILKERSON	
C3200	STINSON'S	3/13/2024	275219-0	1,016.63	SUPPLIES	
C3250	TARGET SPECIALTY PRODUCTS, INC	4/3/2024	INVP501445398	1,614.64	HERBICIDE	
C3252	TECHNICAL SMOKE TESTING	3/18/2024	819992	500.00	SMOKE TEST 367/386/385/366/380	
C3266	THE HARTFORD	2/23/2024	13971983	750.00	TRAVEL ACCIDENT INSURANCE	
C3267	THE HOME DEPOT PRO	3/7/2024	793307950	837.16	SUPPLIES	
C3280	THREE WAY CHEVROLET	4/1/2024	DEAL #34270	29,609.55	2024 CHEVY COLORADO #164	29,609.55
C3393	UNITED PHOSPHORUS, INC	3/18/2024	2206334023	59,752.93	TETON AQUATIC ALGAECIDE	59,752.93
C3458	VANGUARD CLEANING SYSTEMS OF THE SOUTHE	4/1/2024	75073	1,565.00	WEEKLY CLEANING SERVICE	
C3459	VAST NETWORKS	4/1/2024	53393	1,450.00	FIBER OPTIC INTERNET	
C3461	VERIZON WIRELESS	4/1/2024	9960505375	162.67	CELL PHONE / SIM CARDS	
C3461	VERIZON WIRELESS	4/1/2024	9960505374	276.28	IPAD DATA	
C3470	VULCAN MATERIALS	2/29/2024	73928852	376.23	3/4" CR	
C3547	WELLS FARGO - MCDARIS	4/3/2024	04032024	100.00	ESRI SUBSCRIPTION	
C3549	WELLS FARGO - LOVELESS	4/3/2024	04032024	811.76	TRAVEL	
C3552	WELLS FARGO - OFFICE	4/3/2024	04032024	1,326.11	SUBSCRIPTIONS / TRAVEL	
C3555	WELLS FARGO - T SUGGS	4/3/2024	04032024	1,005.39	MEMBERSHIPS / ADOBE	
C3558	WELLS FARGO - OFFICE #2	4/3/2024	04032024	3,005.58	SUPPLIES / CONCRETE	
C3559	WELLS FARGO - NICHOLAS	4/3/2024	04032024	1,592.43	RECRUITMENT/STARLINK/MISC	7,841.27
C3588	WESTERN EXTERMINATOR COMPANY	3/12/2024	58410096	225.65	PEST CONTROL	
C3670	YOUNG WOOLDRIDGE	3/31/2024	03312024-1	30,707.39	LEGAL SERVICES	
C3670	YOUNG WOOLDRIDGE	3/31/2024	03312024-2	617.50	LEGAL SERVICES	31,324.89
				751,778.81		
			MANUAL CHECKS ATTACHED	646.87	MANUAL CHECKS ATTACHED	
			VOUCHER TOTAL	752,425.68		

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
 ACH AND MANUAL CHECKS PAYMENTS
 MARCH 2024

						<u>5.2</u>
MAR	NAME	DATE	INVOICE #	AMOUNT	DESCRIPTION	5,000+
3/8/2024	AT&T	03/13/2024	3082024	646.87	FIRE ALARM	
			Total	646.87		

WHEELER RIDGE-MARICOPA WSD
FISCAL AGENT FOR COMMITTEE FOR DELTA RELIABILITY
CUSTODIAL FUNDS-REPORT OF EXPENDITURES AND TRANSFERS
MARCH 2024 FOR THE APRIL 10, 2024 BOARD MEETING

NAME	INVOICE NUMBER	DESCRIPTION	AMOUNT
TRANSFERS AUTHORIZED BY WRMWSO BOARD			
MARCH 13, 2024 BOARD MEETING	MARCH	VOUCHER	105,922.83
VOUCHER TOTAL REQUESTED			105,922.83

EXPENDITURES AUTHORIZED BY COMMITTEE AND PAID BY WRMWSO MANUAL CHECK

Center for CA Water Resources	297	Assn.Mgmt, Hamilton, Murphy - Jan 2024	24,654.95
Cramer Fish Sciences	SIN008489	Science Program - Feb 2024	14,918.75
Nossaman	559014	ESA/Water Quality Counseling - Jan 2024	55,013.05
Water & Land Solutions, LLC	3758	Representation - Feb 2024	6,104.64
West Coast Advisors	13907	Consulting - Mar 2024	5,000.00
West Coast Advisors	13896	Expenses - Jan 2024	231.44

TOTAL PAID 105,922.83

INVOICES AWAITING COMMITTEE APPROVAL

INVOICES APPROVED BY WRMWSO BOARD @ APRIL 10, 2024 BOARD MEETING (VOUCHER)

Center for CA Water Resources	298	Hamilton - Feb 2024	8,601.80
Cramer Fish Sciences	SIN008583	Science Program - Mar 2024	9,831.25
Nossaman	560126	ESA/Water Quality Counseling - Feb 2024	36,522.77
Water & Land Solutions, LLC	3821	Representation - March 2024	7,293.42
West Coast Advisors	13937	Consulting - Apr 2024	5,000.00
West Coast Advisors	13925	Expenses - Feb 2024	102.70

VOUCHER TOTAL REQUEST 67,351.94

Wheeler Ridge-Maricopa Water Storage District
Revolving Account Check Listing

MARCH 2024

Check	Date	Payee	Amount	Description
			BALANCE AS OF 2/29/2024	6,662.73
			Deposit (3/15/2024)	337.27
			<u>7,000.00</u>	

No Activity for March 2024

Total Checks Issued **0.00**

Ending Balance 7,000.00

Balance Limit 7,000.00

Replenish Amount **0.00**

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
 BOARD OF DIRECTORS/MANAGEMENT **BENEFITS** BREAKDOWN
 March 2024 FOR THE April 10, 2024 BOARD MEETING

5.2.1

NAME	ACWA BLUE CROSS OF CA			DENTAL-HEALTHEDGE		HARTFORD	TOTAL
	MED	VISION	LIFE/AD &D	CLAIMS	ADM	DISABILITY	
ATKINSON	1,644.92	17.21	9.77	***	18.15	0.00	***
BLAINE	2,179.52	17.21	5.50	***	18.15	0.00	***
FRY	2,179.52	17.21	4.30	***	18.15	0.00	***
LYDA	1,644.92	17.21	9.50	***	18.15	0.00	***
MARIN	1,946.00	17.21	5.50	***	18.15	0.00	***
METTLER	1,644.92	17.21	5.50	***	18.15	0.00	***
REITER	822.46	17.21	3.60	***	18.15	0.00	***
RICHARDSON	2,179.52	17.21	2.80	***	18.15	0.00	***
VALPREDO	2,179.52	17.21	4.30	***	18.15	0.00	***
LOVELESS	2,179.92	17.21	26.00	***	18.15	71.51	***
MCDARIS	1,644.92	17.21	12.50	***	18.15	71.51	***
NICHOLAS	2,179.92	17.21	26.00	***	18.15	71.51	***
SMITH	2,179.92	17.21	78.50	***	18.15	71.51	***
SUGGS	2,179.92	17.21	78.50	***	18.15	71.51	***
<div style="display: flex; justify-content: space-between;"> 26,785.90 240.94 272.27 1,988.97 254.10 357.55 </div>							
TOTAL						BENEFITS	29,899.73

*** INDIVIDUAL CLAIM AMOUNTS ARE CONFIDENTIAL PER THE HEALTH INSURANCE PORTABILITY ACCOUNTABILITY ACT (HIPAA)/ THE HEALTH INSURANCE PORTABILITY ACCOUNTABILITY ACT (HIPAA)

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
 BOARD OF DIRECTORS/MANAGEMENT *COMPENSATION & EXPENSE* BREAKDOWN
 MARCH 2024 for the APRIL 10, 2024 BOARD

NAME	DATE	TOTAL	PAYEE	MEMO
Atkinson	03/13/2024	129.00	Atkinson	Regular Board Meeting
Atkinson	03/06/2024	125.00	Atkinson	Grower Meeting
Atkinson	03/07/2024	125.00	Atkinson	Water Summit
Atkinson	03/18/2024	129.00	Atkinson	Landowner WorkShop #1
Atkinson	03/19/2024	129.00	Atkinson	Special
Blaine	03/13/2024	128.00	Blaine	Regular Board Meeting
Blaine	03/04/2024	125.00	Blaine	Kern SGMA CC Meeting
Blaine	03/18/2024	125.00	Blaine	Kern SGMA CC Meeting
Blaine	03/19/2024	128.00	Blaine	Special
Fry	03/13/2024	125.00	Fry	Regular Board Meeting
Fry	03/18/2024	125.00	Fry	Landowner WorkShop #1
Fry	03/19/2024	125.00	Fry	Special
Fry	03/20/2024	125.00	Fry	Landowner WorkShop #2
Lyda	03/19/2024	129.00	Lyda	Special
Marin	03/13/2024	125.00	Marin	Regular Board Meeting
Marin	03/19/2024	125.00	Marin	Special
Mettler	03/13/2024	128.00	Mettler	Regular Board Meeting
Mettler	03/19/2024	128.00	Mettler	Special
Reiter	03/13/2024	139.00	Reiter	Regular Board Meeting
Reiter	03/05/2024	125.00	Reiter	WWGSA Board Meeting
Reiter	03/14/2024	125.00	Reiter	KCWA Member Unti Call
Reiter	03/19/2024	139.00	Reiter	Special
Reiter	03/20/2024	125.00	Reiter	Landowner WorkShop #2 - virtually
Richardson	03/13/2024	128.00	Richardson	Regular Board Meeting
Richardson	03/19/2024	128.00	Richardson	Special
Valpredo	03/13/2024	129.00	Valpredo	Regular Board Meeting
Valpredo	03/19/2024	129.00	Valpredo	Special
DIRECTORS		3,445.00		

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
 BOARD OF DIRECTORS/MANAGEMENT *COMPENSATION & EXPENSE* BREAKDOWN
 MARCH 2024 for the APRIL 10, 2024 BOARD

NAME	DATE	TOTAL	PAYEE	MEMO
Loveless	03/15/2024	12.07	Wells Fargo	Supervisor Meeting - meal
McDaris	02/08/2024	31.19	Wells Fargo	Fuel
McDaris	02/26-27/2024	44.54	Wells Fargo	Interview for Assistant. Controller Candidate (2) - meal
Nicholas	02/23/2024	121.93	Wells Fargo	WAKC Kern County Water Summit
Nicholas	03/01/2024	77.23	Verizon	Communication - cell
Nicholas	01/08/2024	12.74	Wells Fargo	District Business Meeting - meal
Nicholas	1/29, 02/28/2024	53.45	Wells Fargo	Engineer - Manager Meeting (2) - meal
Nicholas	02/01/2024	373.87	Wells Fargo	ACWA Board - travel expenses
Nicholas	02/16/2024	25.50	Wells Fargo	Fuel
Nicholas	02/23/2024	121.93	Wells Fargo	WAKC Kern County Water Summit
Nicholas	02/26-27/2024	44.54	Wells Fargo	Interview for Assistant. Controller Candidate (2) - meal
Nicholas	02/29/2024	22.28	Wells Fargo	KCWA District Business - meal
Smith	01/09/2024	349.00	Wells Fargo	CPA - renewal
Smith	12/05/2023	458.00	Wells Fargo	CPA - classes
Suggs	12/31/2023	125.00	Wells Fargo	Groundwater Resources Association of California - membership
Suggs	02/23/2024	121.93	Wells Fargo	WAKC Kern County Water Summit
MANAGEMENT		1,995.20		

Kunde				
*** note: retired annuitant costs are expense reimbursements not compensation				
RETIRE ANNUITANT		0.00		
Board	12/23/2024	62.84	Wells Fargo	December 13, 2023 Board Meeting - refreshments
Board	1/10/2024	50.92	Wells Fargo	January 10, 2024 Board Meeting - refreshments
Board	2/14/2024	53.49	Wells Fargo	February 14, 2024 Board Meeting - refreshments
Board	3/13/2024	95.00	Montes	February 14, 2024 Board Meeting - burritos
BOARD		262.25		
TOTAL EXPENSE		5,702.45		

WHEELER RIDGE - MARICOPA WSD
 PAYROLL FUND
 MARCH 2024
 APRIL 10, 2024 BOARD MEETING

	EMPLOYEES	DIRECTORS	RETIREES	COBRA	SUPPLEMENTAL	TOTALS
SALARIES Pay Period Ended: (Mar 02, 2024/ee)-(Feb 29, 2024/dir)	102,273.50	1,745.61				104,019.11
SALARIES Pay Period Ended:	0.00					0.00
SALARIES Pay Period Ended: (March 16, 2024)	101,858.52					101,858.52
PAYROLL PEOPLE Federal, SSI, Medicare Taxes	73,184.30	292.68				73,476.98
PAYROLL PEOPLE State Tax / SDI / SUI	14,228.37	51.72				14,280.09
PERS (EMPLOYEE PORTION) RETIREMENT	23,065.85					23,065.85
PERS (EMPLOYER PORTION) RETIREMENT	37,043.07					37,043.07
PERS (UAL,GASB 68 reports, SSSA fees) RETIREMENT	0.00					0.00
NATIONWIDE DEFERRED COMPENSATION Deferred Compensation #1 Deductions	20.00					20.00
LINCOLN LIFE Deferred Compensation #2 Deductions	3,940.00					3,940.00
WRM WSD EMPLOYEES' FUND Employees' Fund Deductions	420.00					420.00
ACWA-HEALTH BENEFITS Medical/Vision Insurance Premium (+cobra)	82,633.16	16,275.11	20,958.45	0.00		119,866.72
ACWA-LIFE/AD&D Life/supplemental Insurance Premium	1,415.14	52.67			101.40	1,569.21
HEALTH EDGE ADMINISTRATORS INC Dental Insurance Administrative Fees (+cobra)	798.60	163.35	490.05	0.00		1,452.00
HEALTH EDGE ADMINISTRATORS INC Dental Insurance Claims	3,620.66	2,562.13	3,650.04	0.00		9,832.83
THE HARTFORD GROUP Long Term Disability Insurance	3,139.83					3,139.83
IWO (income withholding orders)	2,856.12					2,856.12
PAYROLL PEOPLE P/R Processing Fees, monthly and w-2 fees	1,905.60	134.50				2,040.10
TOTAL PAYROLL FUND:	452,402.72	21,277.77	25,098.54	0.00	101.40	498,880.43

**WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
REIMBURSEMENTS AND TRANSFERS
APRIL 10, 2024 BOARD MEETING
MARCH/APRIL/MAY 2024**

GENERAL/REVOLVING ACCOUNT:

FUND #				
60710	WRM-WSD WELLS FARGO BANK GENERAL ACCOUNT TRANSFER TO PROVIDE FUNDS FOR: March 2024 Accounts Payable	1	\$	752,425.68
60710	WRM-WSD WELLS FARGO BANK GENERAL ACCOUNT TRANSFER TO PROVIDE FUNDS FOR: Accounts Payable	1.1	\$	0.00
60710	WRM-WSD WELLS FARGO BANK GENERAL ACCOUNT TRANSFER TO PROVIDE FUNDS FOR: March 2024 Accounts Payable		752,425.68	\$
60710	WRM-WSD WELLS FARGO BANK GENERAL ACCOUNT TRANSFER TO PROVIDE FUNDS FOR: Committee for Delta Reliability	2	\$	67,351.94
60710	WRM-WSD WELLS FARGO BANK REVOLVING ACCOUNT TRANSFER TO PROVIDE FUNDS FOR: March 2024 Revolving Account	3	\$	0.00
TOTAL GENERAL/REVOLVING ACCOUNT:			\$	819,777.62

PAYROLL ACCOUNT:

FUND #				
60710	WRM-WSD WELLS FARGO BANK PAYROLL ACCOUNT TRANSFER TO PROVIDE FUNDS FOR PPE: Apr 27, 2024	4		314,000.00
60710	WRM-WSD WELLS FARGO BANK PAYROLL ACCOUNT TRANSFER TO PROVIDE FUNDS FOR PPE: May 11, 2024	5		200,000.00
60710	WRM-WSD WELLS FARGO BANK PAYROLL ACCOUNT TRANSFER TO PROVIDE FUNDS FOR PPE: May 25, 2024	6		0.00
TOTAL PAYROLL ACCOUNT:			\$	514,000.00

KCWA COUNTY TRANSFERS: **0.00**

TOTAL REIMBURSEMENTS AND TRANSFERS: **\$ 1,333,777.62**

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
 BUDGET EXPENDITURES REPORT
 PERIOD ENDING FEBRUARY 2024
 (UNAUDITED)

BUDGET CLASS	ANNUAL BUDGET	ANTICIPATED TO DATE	ACTUAL SPENT TO DATE	UNDER/(OVER) BUDGET TO ACTUAL DIFFERENCE	% OF ANTICIPATED TO DATE
PAYROLL SALARIES	4,163,452	640,531	621,977	18,554	97.10%
PAYROLL TAX	313,368	48,210	53,187	(4,976)	110.32%
PAYROLL PERS	514,862	79,210	77,081	2,129	97.31%
PAYROLL HEALTH	1,113,269	185,545	180,950 (a)	4,595	97.52%
TOTAL PAYROLL & BENEFITS	6,104,951	953,496	933,194	20,302	97.87%
FUEL & OIL	494,792	82,465	27,903	54,562	33.84%
MATERIALS & SUPPLIES	1,244,220	207,370	225,986	(18,616)	108.98%
SMALL TOOLS & INSTRUMENTS	50,100	8,350	161	8,189	1.93%
WELL MAINTENANCE STANDBY POWER	30,000	5,000	781	4,219	15.62%
COMMUNICATIONS	65,034	10,839	8,430	2,409	77.77%
DIRECTORS FEES & EXPENSES	36,000	6,000	4,220	1,780	70.33%
DIRECTORS HEALTH	190,000	31,667	34,236 (a)	(2,570)	108.11%
INSURANCE & BONDS	286,400	47,733	44,296	3,437	92.80%
RETIREEES-OPEB	308,000	51,333	46,081 (a)	5,252	89.77%
MEMBERSHIPS	102,480	26,195	26,195	0	100.00%
MISC SERVICES & SUPPLIES	206,700	34,450	8,231	26,219	23.89%
OFFICE SERVICES & SUPPLIES	54,625	9,104	6,406	2,698	70.36%
COMPUTER SUPPLIES	53,865	35,372	35,372	0	100.00%
MAINT. & REPAIR BY OTHERS	215,614	35,936	37,838	(1,902)	105.29%
PROFESSIONAL & SPECIALIZED-LEGAL	125,000	20,833	15,270	5,563	73.30%
PROFESSIONAL & SPECIALIZED-ACCT:					
AUDIT	50,900	8,483	1,800	6,683	21.22%
WELLS FARGO FEES	1,200	200	0	200	0.00%
PROFESSIONAL & SPECIALIZED-OTHER	176,550	29,425	36,643	(7,218)	124.53%
SGMA - SOKR/KERN GW AUTHORITY	230,000	38,333	61,947	(23,613)	161.60%
SGMA - WHITE WOLF GSA	150,000	25,000	159	24,841	0.64%
LEGAL NOTICES & PUBLICATIONS	17,200	2,867	0	2,867	0.00%
RENTED EQUIPMENT	66,900	11,150	5,364	5,786	48.11%
SPECIAL DEPARTMENT EXPENSE	19,100	3,183	1,829	1,354	57.46%
TRANSP & TRAVEL EXPENSE	62,320	10,387	5,345	5,042	51.46%
UTILITIES	103,000	17,167	16,678	489	97.15%
JUDGEMENTS & CLAIMS EXPENSE	6,600		0	0	0.00%
CALPERS UNFUNDED LIABILITY	914,191	914,191	914,191	0	100.00%
CURRENTLY FUNDED ASSETS	1,381,000	140,569	140,569	0	100.00%
RESERVE FUNDED ASSETS	5,710,000	46,004	46,004	0	100.00%
TOTAL SERVICES AND SUPPLIES	12,351,791	1,859,607	1,751,935	107,672	94.21%
KCWA F.O.	41,392,439	41,392,439	41,392,439	0	100.00%
KCWA VARIABLE	10,512,990	10,512,990	10,512,990	0	100.00%
DISTRICT POWER-PUMPS	17,060,404	17,060,404	17,060,404	0	100.00%
TOTAL WATER COSTS	68,965,833	68,965,833	68,965,833	0	100.00%
GRAND TOTAL	87,422,575	71,778,936	71,650,962	127,974	99.82%
(a) Health Insurance combined	1,611,269	268,545	261,267	7,278	97.29%

CAPITAL EXPENDITURES BUDGET - PERIOD ENDING FEBRUARY 2024										
		BUDGET				ACTUAL			# of ITEMS	
QTY	DESCRIPTION	BGT COST PER ITEM	TOTAL BUDGET	CURRENT FUNDED	RESERVE FUNDED	(net of trade or sale)	CURRENT FUNDED	RESERVE FUNDED	% OF BGT.	PURCH OF BUDGET
ADMINISTRATION:										
1	Screen and Projector for Board Room	25,000	25,000	25,000		3,137	3,137		13%	
	SUBTOTAL		25,000	25,000	-	3,137	3,137	-		
ENGINEERING:										
1	Capacity Improvement - 4P Lateral	50,000	50,000	50,000						
1	A5X/B5X Intertie Facilities	460,000	460,000		460,000	17,974		17,974	4%	(1)
1	Drilling Two Replacement Supply Wells	3,570,000	3,570,000		3,570,000	28,030		28,030	1%	(1) and (2)
8	WRM10 Large Pump Units, 17 & 44 CFS	210,000	1,680,000		1,680,000					
	SUBTOTAL		5,760,000	50,000	5,710,000	46,004	-	46,004		
OPERATIONS AND MAINTENANCE:										
1	4-door SUV	40,000	40,000	40,000		36,449	36,449		91%	1 of 1
1	1/2 Ton Crew Cab Pickup	40,000	40,000	40,000						
1	1/2 Ton Crew Cab 4X4 Pickup	50,000	50,000	50,000						
1	1/2 Ton Reg Cab Pickup	35,000	35,000	35,000		24,405	24,405		70%	1 of 1
1	Mid Size Crew Cab 4x4	35,000	35,000	35,000		29,610	29,610		85%	1 of 1
1	1 Ton Cab/Chassis Utility	50,000	50,000	50,000		46,968	46,968		94%	1 of 1
1	3/4 Ton Crew Cab 4X4 Pickup	50,000	50,000	50,000						
1	Portable Air Compressor	30,000	30,000	30,000						
1	Door Lock system for District Office	40,000	40,000	40,000						
1	Equipment Trailer	40,000	40,000	40,000						
1	SCADA System	866,000	866,000	866,000						
1	Security Measures	30,000	30,000	30,000		13,462	13,462		45%	
	SUBTOTAL		1,306,000	1,306,000	-	137,432	137,432	-		
TOTAL CAPITAL EXPENDITURES			7,091,000	1,381,000	5,710,000	186,573	140,569	46,004		
(1)	Work Order balance as of 12/31/2023									
(2)	Collected through water charges over multiple years									



**WHEELER RIDGE – MARICOPA
WATER STORAGE DISTRICT**

12109 Highway 166, Bakersfield, CA 93313-9630, 661-858-2281

MEMORANDUM

TO: BOARD OF DIRECTORS

FROM: SHERIDAN NICHOLAS

DATE: APRIL 4, 2024

SUBJECT: ENGINEER-MANAGER’S MONTHLY REPORT FOR MARCH 2024

During the month of March, the District delivered 4,377 acre-feet of water consisting of the water types described below. Of the total quantity delivered, 147 acre-feet was delivered for industrial use, with the remainder being delivered for agricultural use. This is considerably less than the projected deliveries of approximately 7,400 acre-feet estimated in September 2023. The total quantities of water delivered during the month as well as the year-to-date water supply by source and type of water delivery are summarized in the following tabulation:

Quantities (Acre- Feet)

Source of Supply	Jan-Feb	Mar	YTD
2024 SWP Entitlement (a)		-	-
2023 Carryover (estimate) (b)	2,134	4,176	6,310
Pastoria/TRC	382	133	515
Granite/TRC	3	9	12
Kern Water Bank Recovery (c)		-	-
Kern Water Bank - 2nd Priority Recovery		-	-
Pioneer Project Recovery (c)		-	-
Berrenda Mesa Recovery (c)		-	-
Landowner Water Transfer		-	-
User Input-District Wells		-	-
User Input-Private		58	58
Type of Delivery			
Irrigation	2,132	4,230	6,362
Industrial Contract	385	142	527
Other Industrial	3	5	8
Deliveries Total	2,520	4,377	6,897

- (a) Assumes a 2024 allocation of 200,818 acre-feet (100%)
- (b) At 01/01/2024, an estimated 16,000 acre-feet of 2023-2024 Carryover was available; 8,041 acre-feet represents Water User Carryover. These figures are subject to further reconciliation as additional information becomes available.
- (c) Estimates based on KCWA daily Summary of Deliveries

ENGINEER-MANAGER'S REPORT – S. NICHOLAS

March 2024

Solar Update. The construction report for Wheeler #2 is attached.

White Wolf GSA. Board meeting on April 2. Items of note include:

- Financial Report
- 2023 Annual Report submitted to DWR
- Update on DWR Grant implementation
- Monitoring Network update
- Monitoring well siting
- Approval of EKI Task Order of \$337,000 (\$307,000 from DWR grant, \$30,000 from GSA, \$10,000 from District)

South of Kern River GSP. Items of note include:

- **Coordination between SOKR districts**
No SOKR Executive Committee Meeting in March
- **Basin Coordination** - Coordination Committee meeting every Monday and Managers meeting every Friday. Met with SWRCB Staff on April 3 to present subbasin remedies to DWR deficiencies and SWRCB water quality concerns.

Meetings in addition to weekly Member Unit and Westside 5 calls, (held either in person or via teleconference):

Mar 01 Kern Subbasin Managers Meeting	Mar 14 Member Unit Managers Meeting
Mar 01 Kern Water Collaborative	Mar 15 Muhar and Teglia
Mar 04 Landowner Meeting	Mar 15 Kern Subbasin Managers Meeting
Mar 04 Kern County Coordination Committee	Mar 15 A-E Staff
Mar 05 White Wolf GSA Board Meeting	Mar 18 WRMGSA Landowner Workshop
Mar 05 ACWA-Finance Committee	Mar 18 Pump-In Discussions w/KCWA Staff
Mar 06 SWRCB Meeting w/Kern Subbasin	Mar 18 Kern Subbasin Managers Meeting
Mar 07 WAKC Water Summit	Mar 19 Special WRMWSD Board Meeting
Mar 07 CVC Budget Correspondence	Mar 20 WRMGSA Landowner Workshop
Mar 08 Kern Subbasin Managers Meeting	Mar 20 SOKR Managers Meeting
Mar 08 Landowner Meeting	Mar 22 Kern Subbasin Managers Meeting
Mar 11 Kern Coordination Committee	Mar 22 Eric Averett
Mar 12 Kern Water Bank Board Meeting	Mar 22 Gilkey, Gianquinto
Mar 13 WRMWSD Board Meeting	Mar 26 HHS Discussion
Mar 13 SOKR Managers Meeting	Mar 27 SOKR Managers
Mar 14 White Wolf GSA - P/MA Committee	Mar 27 CVC Advisory Committee
Mar 14 Pioneer Meeting	

RETIRED ANNUITANT REPORT (R. KUNDE)

March 2024

Delta Conveyance Project - Change in Point of Diversion Petition. *(No change from the February Report.)* On February 22, DWR submitted said Petition to the State Water Resources Control Board. On February 29, the SWRCB issued a public notice that acknowledged receipt of the change petition and detailed the process to submit a protest against the petition. Protests against the change petition must be filed by April 29th, 2024.

Approval of the SWRCB is required in order to divert water under the existing SWP water right at the new locations proposed for the DCP. DWR anticipates SWRCB action on the petition in 2026.

Delta Conveyance Project (DCP) - CEQA Litigation - Update to January Report. As of March 6, there was no new substantive information on the nine filed cases. Case Management Conferences were scheduled. *(Source: Metropolitan Water District Office of the General Counsel Monthly Activity Report dated March 6, 2024).*

Delta Conveyance Project (DCP) - Revenue Bond Validation Action. The Final Judgment and Final Statement of Decision was issued January 16, 2024 from the Sacramento County Superior Court. The Judgment was in DWR's favor on CEQA, Delta Reform Act, Public Trust Doctrine and jurisdictional causes of action or defenses. However, the bonds were ruled not valid based on the broad definition of "Delta Program facilities" in the General Bond Resolution.

DWR, Metropolitan and other supporting public water agencies filed Notices of Appeal on or before the February 16, 2024 appeal deadline. *(Source: Metropolitan Water District Office of the General Counsel Monthly Activity Report dated March 6, 2024).*

Delta Conveyance Project - Schedule. *(No change from the February Report.)* The schedule for DCP activities includes:

- 2024 Q2: preparation of a Class 4 cost estimate,
- 2024 Q2: a call for funds (not bond debt) from the State Water Contractors and Member Units,
- mid 2024: issuance of the final federal Environmental Impact Statement,
- 2024: issuance of federal Biological Opinions and the state Incidental Take Permit,
- 2024-26: continuing engineering design,
- 2026: obtain approval of the Change in Point of Diversion, and
- 2026-27: obtain a Consistency Determination with the Delta Plan.

The construction period is estimated at 13 years from start of construction. Start of construction is to be determined based on progress on the activities described above including litigation.

Delta Conveyance Project - Short-Term Funding. Member Unit and Kern County Water Agency discussion occurred in March. The DWR decision on the funding amount and timeline is expected in the second half of 2024; additional funding is needed in 2024 to continue DCP permit activities, engineering, water right activities and other matters.

Sites Reservoir - Litigation re: Final Environmental Impact Report. The schedule for this case in Yolo County Superior Court, Case No. CV2023-2626, Honorable David Rosenberg

presiding, was issued January 22 and conforms to the requirements of SB149 requiring expedited consideration of CEQA litigation for certified projects such as Sites Reservoir.

- 2/28/24 Petitioner (6 environmental groups) timely filed their opening brief.
- 4/5/24 Respondent (Sites Project) opposition brief to be filed and served. Not to exceed 40 pages.
- 4/15/24 Petitioner's Reply Brief due. Not to exceed 20 pages.
- 5/3/24 Pre-Disposition Hearing on the Merits.
- 6/3/24 Trial Court Decision.

Sites Reservoir - Closing the Water Right Application Protest Resolution Period. (New information is underlined.) At the Sites Project’s February 16 meeting, the Reservoir Committee and Authority Board authorized “*the Executive Director to submit the protest resolution status report immediately following the end of the protest resolution period on February 28, 2024, requesting the State Water Resources Control Board (SWRCB) close the Sites Project water right application’s protest resolution period and implement their hearing process to achieve a Sites Water Right Permit and associated Order/Decision no later than February 1, 2025.*”

However, as of the March 22 Sites Project meeting, the protest resolution status report had not been submitted pending ongoing discussions with some of the Protestants. Some, but not all, of the 15 Protests are expected to be resolved prior to the formal evidentiary hearing later this year.

Sites Reservoir - Water Right Hearing Schedule. On March 1, State Water Resources Control Board Presiding Hearing Officer Nicole Kuenzi issued the 42 page “*Notice of Public Hearing and Pre-Hearing Conference*” schedule and instructions. This was a favorable development as the *Notice* had not been expected until April or May. However, the overall schedule was not significantly altered from that shown in the February Engineer-Manager’s Report. Some future adjustments to this schedule are expected.

HEARING SCHEDULE AND DEADLINES

Deadlines / Schedule	Date and Time
Deadline for all parties to file initial Notices of Intent to Appear (NOI) at the hearing and deadline for any interested person who intends to give a policy statement to file an NOI.	April 2, 2024.
Pre-Hearing Conference.	April 10, 2024, at 9:00 a.m.
Deadline for parties to file case-in-chief witness lists.	April 29, 2024.
Deadline for parties to file case-in-chief exhibits, exhibit identification indices, and proposed permit terms.	May 24, 2024.
Hearing begins with policy statements.	June 17 or 21, 2024, at 9:00 a.m.
Deadline for all parties to file rebuttal witness lists.	June 28, 2024.
Evidentiary portion of hearing begins.	July 9, 2024, at 9:00 a.m.
Additional case-in-chief hearing days (as necessary).	July 10-12, 15, and 17, 2024, starting at 9:00 a.m.
Deadline for all parties to file rebuttal exhibits and rebuttal exhibit identification indices.	August 2, 2024.
Additional case-in-chief hearing days (if necessary).	August 12-15, 19, 21, 22, and 27-29, 2024, starting at 9:00 a.m.
Rebuttal hearing days (as necessary).	September 16 & 18, 23, 24, 30, 2024, and October 2, and 8-10, 2024, starting at 9:00 a.m.
Deadline for parties to submit closing briefs.	November 12, 2024.

Per the February Engineer-Manager’s Report:

- January/February 2025 – Presiding Hearing Officer issues Order/Decision for SWRCB Board Consideration

- SWRCB has 90 days to act on Hearing Officer proposed Order, but practice is to consider Order at next SWRCB meeting.

Sites Reservoir - Joint Meeting of Sites Project Authority (SPA) and Reservoir Project Committee (RPC). At its March 22, 2024 meeting, the SPA and/or RPC took actions as follows:

1. approved the Consent Agenda (5 items);
2. as recommended by the Construction Legal Services Interview Panel (appointed by the Retired Annuitant as Chair of the Operations and Engineering Work Group), approved Construction Legal Services contracts with:
 - a. Best, Best, & Krieger, LLP to develop contracts for the Construction Manager At Risk for the Reservoir Package (\$136,600 budget through EOY 2024 and total budget of \$228,000 through EOY 2025); and
 - b. Cox, Castle & Nicholson, LLP to develop contracts for Environmental Mitigation services (\$200,000 budget through EOY 2024 and total budget of \$400,000 through EOY 2025);
3. authorized the Executive Director to execute Operations Agreements with Maxwell Irrigation District and Colusa Drain Mutual Water Company to ensure no harm to their senior water rights; and
4. authorized the Executive Director to act on the request of newly formed Zone 3 of the Colusa County Flood Control and Water Conservation District to become an Associate Member of the Sites Project Authority.

Discussion items were as follows:

5. an update on the Sites application status with the California Independent System Operator for electrical transmission grid interconnection with the Sites Project;
6. preliminary results from the CalSIM3 modeling update on Sites diversions and releases; complete results are a few months away; and
7. an update to the “Conditions Precedent” table identifying permits and project elements necessary for completion prior to execution of the Benefits and Obligations contracts and implementation of Project financing.

The Executive Director reported the Bureau of Reclamation was authorized to provide \$205.6 million in funding to Sites. This funding will complete Reclamation’s 9% Project Share. There is support within Reclamation for another \$300 million in appropriations to increase their share to 16% which the Project EIR/EIS allows. The Project is fully subscribed with Reclamation at 9%. Whether this additional funding can be timely made available and the willingness of existing Participants to reduce their Project share to 7% to accommodate Reclamation remains to be seen.

A closed session was held regarding the water right application, property acquisition and CEQA litigation.

The next regular joint Sites Project Authority/Reservoir Project Committee Meeting will be held on April 19, 2024.

Sites Reservoir - Other Matters. The RPC Chair (Mike Azevedo of Colusa County) and the Vice Chair (Robert Kunde) worked to (a) provide oversight on water right matters, and (b) develop Committee and Work Group appointments for 2024. Mr. Kunde will continue his role as Chair of the Reservoir Operations and Engineering Work Group as well as on other Committees and Work Groups identified in Meetings below.

The Retired Annuitant provided the following information by email to District Water Users participating in the Project:

- the periodic “*InSITES*” newsletter issued March 1 including the 2023 Year in Review, and
- the March 11, 2024 memorandum to the District Board entitled “*Sites Reservoir Project - Benefits and Obligations Contract Update*” including the Sites Project’s “*Draft Benefits & Obligations Contract and Governance Development - Frequently Asked Questions (FAQ) Related to these Subjects*”.

Other District Matters. The Retired Annuitant provided District staff with historical information on the WRM-13 turnout. He also completed Form 700s for the Sites Project, Joint Powers Insurance Authority Workers Compensation Committee, and the District.

Meetings. The Retired Annuitant attended the following meetings during the month including 10 meetings for the Sites Project.

03/14 Delta Conveyance Project - Policy Briefing
03/26 Kern County Water Agency - State Water Contractors Update
03/14 Member Unit Managers - California Aqueduct Subsidence
03/14 Member Unit Managers - SWC Science Program Update
03/07 Sites Reservoir - Ad Hoc Governance Committee
03/05 Sites Reservoir - Benefits and Obligations Contract Payment Annex
03/15 Sites Reservoir - Budget and Finance Committee
03/13 Sites Reservoir - Coordination Committee
03/22 Sites Reservoir - Joint Sites Authority/Reservoir Committee Board of Directors
03/06 Sites Reservoir - Reservoir Operations and Engineering Work Group - Agenda Planning
03/13 Sites Reservoir - Reservoir Operations and Engineering Work Group
03/19 Sites Reservoir - Sites/DWR/Reclamation Operations Agreement Drafting Committee
03/21 Sites Reservoir - Sites/DWR/Reclamation Operations Agreement Technical Team
03/26 Sites Reservoir - Sites/DWR/Reclamation Operations Agreement Drafting Committee
03/21 State Water Contractors - Board of Directors
03/13 WRMWSD Board of Directors

DIRECTOR OF WATER RESOURCES REPORT (E. MCDARIS)

2024 State Water Project Allocation

DWR announced the initial 2024 State Water Project allocation of 10% on December 1, 2023; this allocation was subsequently increased to 15% on January 21st, 2024. On March 22nd, 2024, DWR announced an additional increase to the 2024 allocation, raising it to 30%, where it remains at this time. DWR’s allocation analysis considered several factors including existing storage in SWP conservation reservoirs, SWP operational constraints such as the conditions of the Biological Opinions for Delta Smelt and Salmonids, and the Longfin Smelt Incidental Take Permit, and the 2023 contractor demands. DWR may revise the initial and subsequent allocations if warranted by the year’s developing hydrologic and water supply conditions.

The 30% allocation is consistent with the 90% probability of exceedance study with moderate Old and Middle River (OMR) restrictions in DWR’s most recent “*Allocation Analysis for 2024*” (Analysis). The *Analysis* includes different ranges of impacts from the Delta Smelt and Salmon Biological Opinions as well as the Longfin Incidental Take Permit (the *Analysis* uses existing Delta Smelt Biological Opinion standards). Key points of the *Analysis* include:

The March 22nd DWR analysis results for 2024 are as follows (values in acre-feet).

Source/SVI	Below Normal	Below Normal	Above Normal	Wet
SWP Allocation	30%	34%	38%	43%
OMR Restriction [a]	Moderate	Moderate	Moderate	Moderate
Prob. Of Exceedance [b]	90%	75%	50%	25%
District Supply	59,126	67,010	74,893	84,748

[a] Average Old and Middle River reverse flow restrictions (cfs) from December 2023 to July 2024.

[b] Example: a 90% Probability of Exceedance means there is a 9 in 10 chance conditions will be wetter than assumed, and 1 in 10 chance conditions will be conditions will be drier than assumed.

Note that precipitation is not runoff, and runoff is not Delta export pumping for the District. Under normal conditions, an average precipitation year equates to a 65% to 75% SWP allocation depending on timing and proportions of snow and rain.

Water and Snowpack Conditions.

The “*Northern Sierra 8-Station Precipitation Tabulation*” index of rain and snow water content for the Sacramento, Feather, Yuba and American River Basins in February was 10.1 inches of the monthly average of 8.1 inches. *Accumulation* for the season is as follows:

Current Amount – October 1, 2023 – September 30, 2024,	42.9”
Seasonal Average to Date	44.3”
Seasonal Percent of Average to Date	96%
Average (historic) for the entire Water Year (Oct. 1 through Sep. 30)	53.2”

The “*San Joaquin 5-Station Precipitation Tabulation*” index for the month of February was 8.6 inches, which is 136% of historical average (6.3 inches). *Accumulation* for the season is 28.4 inches, which is 86% of the seasonal average of 33 inches.

Carryover and Spill Conditions.

The District continually reviews current San Luis Reservoir (SLR) storage levels (March 31st, -73% capacity, 84% of average) to determine optimum carryover amounts. End of month San Luis Reservoir conditions were as follows:

<u>Description</u>	<u>Million Acre-feet (MAF)</u>
SLR Capacity	
SWP Share	1.062
CVP Share	<u>0.966</u>
SWP + CVP subtotal	2.028
Actual December 31, 2014 storage	0.820
Actual December 31, 2015 storage	0.436
Actual December 31, 2016 storage	1.259
Actual December 31, 2017 storage	1.638
Actual December 31, 2018 storage	1.503
Actual December 31, 2019 storage	1.286
Actual December 31, 2020 storage	0.955
Actual December 31, 2021 storage	0.616
Actual December 31, 2022 storage	0.688
Actual December 31, 2023 storage	1.147
March 31, 2024, storage	
SWP Share	0.522
CVP Share	<u>0.963</u>
SWP + CVP subtotal	1.485

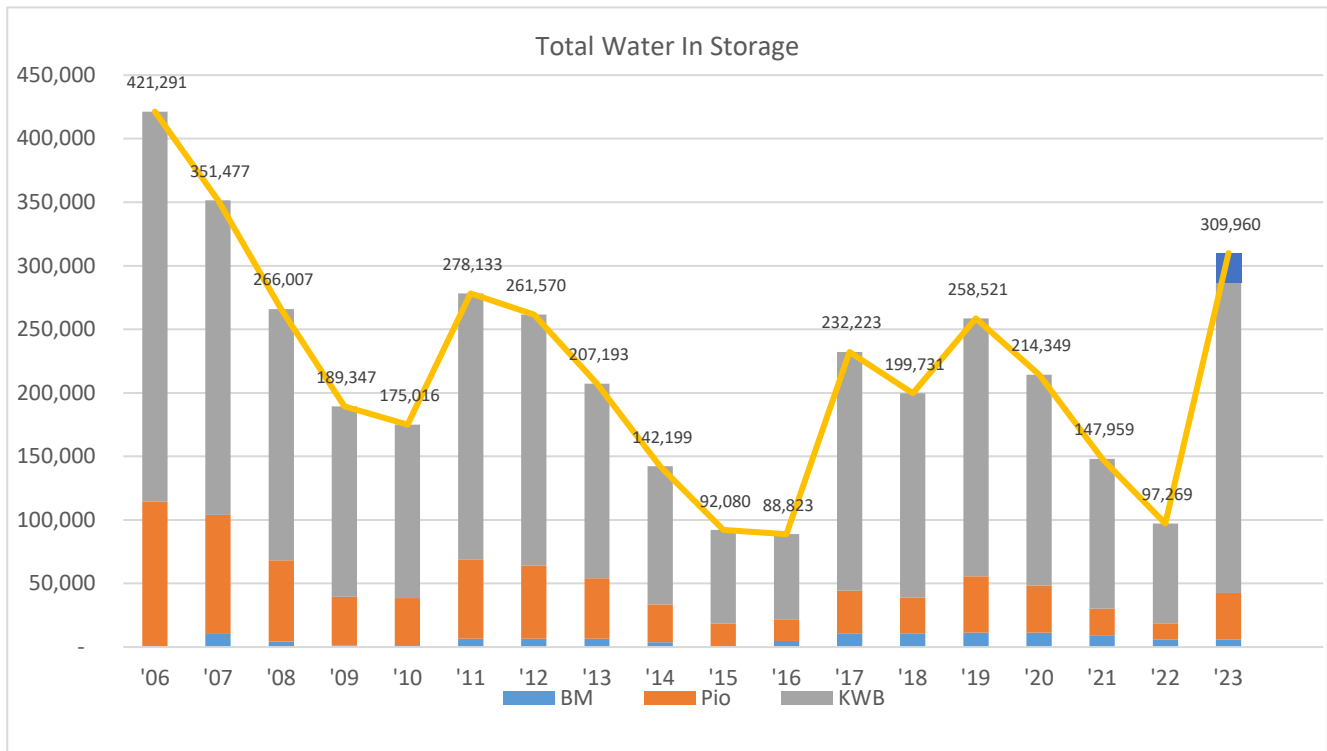
The amount of State Water Project water stored during the month of March increased approximately 48,032 acre-feet going from 474,449 acre-feet at the end of February to 522,481 acre-feet at the end of March. On March 31st, 2024, SLR overall storage is approximately 542,500 acre-feet from full.

Carryover. At present, staff estimates total District carryover to be approximately 16,000 acre-feet. Approximately 8,000 acre-feet of which is Water User carryover, with the remainder being District carryover. These numbers are subject to reconciliation as more information is received.

Meetings. The Water Resources Manager attended the following meetings in-person or remotely during the month:

- 3/5, 3/12, 3/19, 3/26 – KCWA Ops Call
- 3/5, 3/12, 3/19 – District supervisor meeting
- 3/6, 3/13, 3/20, 3/27 – Westside Weekly Call
- 2/6, 2/26 – White Wolf GSA / Tech. Comm. Meeting
- 3/14 – White Wolf PMA, Pioneer Participants, Member Unit Mgr.
- 3/15, 3/22 – SGMA Coordination Committee Meeting

3/11, 3/22– SWC Operations Call/Mid-month Check-in
 3/15 – Overlap Discussion w/ AEWS
 3/18, 3/20 – Landowner Workshop; WRM GSA



CONTRACT ADMINISTRATOR’S WORK INCLUDED:

Contract/ Water Allocation Work.

- Contract 12102 & 140
 - Board Approved Add/Exclude Request (Resolution 2024-04)
 - Began drafting Amendment/Assumption Agreements
- Contract 22B & 124A13
 - Completed and Mailed Assumption Agreement to Landowner
 - Pending Landowner’s Notarized signatures
- Contract 62 & 160
 - Received notarized Assumption Agreements back from Landowner
 - Received notarized Board Signatures
 - Pending recording at the Kern County Recorder’s Office
- Contract 2.01B & 86G
 - Received Agreements back from the Kern County Recorder’s Office
 - Pending Post-Recording Procedures
- Contract 51 & 51C.
 - Completed/Mailed Assumption Agreement and Combined Turnout Agreement to Landowner(s)
 - Pending Landowner’s Notarized signatures
- Other Contract work
 - Review Farming Unit Operation Agreements Template List

- Review User Input Program Agreement Template List

Landowner Assistance.

- Assisted Water Users with information regarding water ledger—YTD use, acre-feet remaining, carryover, user input agreement questions/balances, water allocations/costs, water returns, etc.
 - Assisted 08 Water User (s) with 2024 SWP Allocation/Pool/Return Water questions.
 - Assisted 07 Water User (s) with Carryover/Water/Usage
 - Assisted 08 Water User (s) with 2024 Water Costs/Allocation/Other questions.
 - Assisted 03 Water User (s) with APN District verification (Appraiser Requests)
 - Assisted 02 Non-contract User (s) with general allocation/cost associated with The District.
 - Assisted 04 Water User (s) with Farming Unit Operation Agreement questions.
 - Assisted 10 Water User (s) with Second Priority Sub-Account Program
 - Assisted 08 Water User (s) with GWSC Questions/Information
 - Assisted 02 Water User (s) with Current Contract Transfer Updates
 - Assisted 05 Potential Water User (s) with Water District Information/Water Allocations/Costs
 - Assisted 01 Water User with a Water For Sale Announcement via email
 - Provided 14 Water Users w/Sellers Contact information
- Processed 02 Title Demand Request
- Processed 03 Water Transfer Agreement(s)
- Processed 01 Water Return(s)
- Processed 03 Second Priority KWB Sub-Account Recover Requests

Other Tasks.

- Important Notices via email to Landowners/Water Users
 - 3/5/24 Authorization 2024 User Input Program Authorization
 - 3/5/24 SGMA Stakeholder Engagement Survey Flyer
 - 3/13/24 Draft Groundwater Allocation Policy Development Workshops
 - 3/25/24 2024 SWP Allocation Increase
- Completed weekly water schedule updates, reconciling variances with Dispatch and Controller.
 - Worked with Controller & Operations on End of Month Water Reports & Non-Contract Accounts.
- Reviewed the monthly Accounts Payable and distributed Board and Annuitant payables.
- Managed Petty Cash Fund and EC stamp cash fund
- 3/13/24 Attended Board Meeting
- 3/20/24 Attended Landowner GSA Workshop (online) & Employee Committee Meeting
- 3/01/24, 3/04/24, 3/13/24, 3/14/24, 3/20/24 Landowner In-person or By Phone Meetings
- Prepared monthly report for Board Meeting packet.

ACCOUNTING ACTIVITIES – J. SMITH

March 2024

Controller's Report:

2024 Water Allocations, Deliveries, and Billings. The March water reports were mailed on April 2. On December 1, 2023, DWR announced an initial SWP allocation of 10% of CAW. The DWR announced a revised allocation of 15% on February 21 and again on March 22 to 30%. The District's current allocation is 100%. If as expected, the State and Supplemental allocation does not reach 100%, a lower revised water supply will be allotted later this year. Current allocations are:

	<u>Acre-Feet</u>
• SWP	200,818.00
• Supplemental	0.00
• User Input (Jan-Mar)	57.66
• Carry Over	8,041.07
• Transfers	-10.00
• Pooling net of pool purchase	<u>-1,620.00</u>
• Total Supply	207,286.73
• Deliveries (Jan-Mar)	<u>-6,361.78</u>
• Unused	<u>200,924.95</u>

- The third contract billing statements and the second non-contract billing statements were mailed on March 26.

Controller Report-Smith:

- Continued job search for assistant controller.
- Assisted auditors with audit fieldwork March 19-21.
- **Meetings:**
- March 18- Meeting with executive recruiter regarding assistant controller opening
- March 20-Attended ACWA-JPIA Finance Committee Meeting
- April 1-Second interview for assistant controller opening

The Staff Accountant's activities included:

- Completed the audit requests and schedules for the audit fieldwork.
- Before the audit fieldwork, responded to the auditor's request for specific items selected from the trial balance
- Responded to requests from staff for trial balance reports
- Responded to requests from auditors during fieldwork
- Continued to process Accounts Payable while the Jr. Accountant is on medical leave
- Updated the documentation for making online payments to vendors
- Provided training to Accountant for entering online payments to accounting software
- Communicated with the County Auditor/Controller staff re: tax apportionment issues with SSC receipts
- Set up an online account with the Employment Development Department
- Followed up on outstanding miscellaneous A/R invoices
- Entered transactions needed to reconcile bank accounts
- Processed incoming checks and wire transfer cash receipts

- Printed payroll burden checks and entered transactions into bank positive pay fraud software
- Recapped YTD work order expenses and compiled backup invoices
- Entered journal entries in the general ledger
- Reconciled general ledger accounts
- Completed the Budget, Capital Expenditure, and Reserve Reports
- Invoiced South of Kern River participants for shared expenses
- Prepared financial reports and accounts payable checks for Committee for Delta Reliability
- Continued training to back up Controller with water billing in Access and Latis
- Attended the WRMWSO Board meeting and assisted with recording minutes
- Participated in weekly accounting department meetings

The Accountant's activities included:

- Accounting/Payroll:
 - Prepared Monthly Miscellaneous Invoices for Cattle, Short Run, and Industrial.
 - Prepared and submitted Audit Schedule Requests.
 - Prepared and Posted Monthly Journal Entries.
 - Prepared/filed governmental compliance reports.
 - Assisted with office duties: Cash Receipts, Deposits, Mail
 - Trained with Jr. Accountant/Controller to backup payroll.
 - Prepared Monthly Bank Reconciliations Balance to General Ledger.
 - Attended Monthly Board Meeting Remotely.
 - Assisted employees with their travel expenses.
 - Maintained District's Accounts Payable Fraud Protection Software.
 - Attended Weekly Accounting Meetings.
 - Reviewed Banking Client Analysis Statement for validity of charges.
 - Prepared Bi-Weekly Burden Rate/Register Fund Worksheet.
 - Prepared KCWA Deferral Transfer.
 - Assisted with March Payrolls, Burdens, Calculations, Submissions.
 - Started preparations for the 1st quarter Worker's Compensation Invoice.
- Board Preparations:
 - Assisted Operations Superintendent with Safety Incentives.
 - Prepared Board Bank Balances for Kern County, LAIF, CAMP, and Wells Fargo.
 - Prepared & Sent Board Vouchers for AP, CDR, and Payroll.
 - Prepared Monthly Board Certification.
 - Prepared Treasurer's Report and Supporting schedules and Documents.
 - Prepared Board A/P Reconciliation worksheet.
 - Prepared Monthly Expenditure Report.
 - Assisted with Board preparations and setup.
 - Prepared Estimated payroll voucher worksheet for Board.
 - Prepared Monthly Cell Tax Worksheet.
 - Prepared Board Payroll Reconciliation worksheet.
 - Prepared Monthly Payroll Fund Report.
 - Maintained Burden Distribution by employee for Budget Expenditure Report.
- CalPERS/Benefits/Miscellaneous:
 - Reviewed CalPERS correspondence.
 - Prepared CalPERS payroll data transmitted along with payments.

- Maintained Life Insurance Supplemental Worksheet.

The Junior Accountant's activities included:

- Prepared and submitted the biweekly payroll
- Trained Accountant on the payroll system
- Prepared burden checks
- Made online burden payments
- Trained Accountant on procedures for burden checks
- Trained Accountant on procedures for online burden payments
- Prepared monthly payroll
- Trained Accountant on procedure for the monthly payroll
- Attended Accounting Department meetings
- Attended call regarding Employee Committee business
- Attended bank appointment for Employee Committee

ENGINEERING ACTIVITIES (T. SUGGS)

March 2024

South of Kern River (SOKR) GSP:

- During March, water levels were recorded in 14 out of 14 monitoring wells and uploaded to a common SharePoint site accessible to EKI and AEWSD.
- The Assistant Engineer began to pursue new 5-year access agreements at 14 monitoring well sites.
- District staff drafted and uploaded a brief narrative of recent progress made toward implementation of Projects and Management Actions. The narrative and tables were forwarded to Todd Groundwater for inclusion in a consolidated 2023 Water Year Annual Report for the entire Kern Subbasin.

White Wolf Basin GSA:

- Water levels were observed in nine out of 12 SGMA monitoring wells and uploaded to a common SharePoint site as a routine matter. Of the three wells not sounded, one was found to be running and two were known to be collapsed.
- Engineering Department staff reviewed the narrative portion of the 2023 Water Year Report to the DWR that was prepared by EKI.

850A-850B System Interconnection:

- A draft easement document was sent to the landowner representative for one parcel in the path of the future interconnection pipeline.
- Discussions continued with PG&E's consultant with a view toward validating the District's estimate of the amount of kilowatt hours that can be avoided by connecting the 850A and 850B systems.

Annual Well Performance Testing: Field performance tests were conducted at eight remaining District wells during March, concluding the District's annual well testing program for the year. Eleven out of 12 District wells were found to be ready to run with acceptable efficiency, drawdown, and reliability, while the #C3 Well remains down for missing power supply cables. A decision was made to not replace the cables in #C3 at this time, because wires were stolen twice in 2023 and can be restored on short notice if needed.

2024 Spring Crop Survey: Field checks began in March as part of the 2024 crop survey, requiring about three man-days of effort.

2024 User Input Program:

- All District wells remained off except for testing during March.
- Late in the month, Kern Fan recovery began at a very low rate on behalf of Berrenda Mesa Water District and Semitropic Water Storage District, but local pump-in to the California Aqueduct remained off.
- Water samples were collected at four potential private User Input wells and conveyed to a laboratory for irrigation water analysis at the Water User's request.

Spring 2024 Groundwater Level Survey: The Spring Water Level Survey was begun in March, requiring about 10 man-days of effort. By the month's end, 142 wells were visited and 133 were successfully sounded. Nine wells were not sounded because they were either pumping or were inaccessible. Those wells that were found to be pumping in March will be revisited in April.

10P Lateral Repair Kit: Engineering Department staff toured of the Northwest Pipe Company production facility in Adelanto, California on March 20th, finding that the manufacturer was well prepared to begin fabricating a 78-inch-diameter pipe repair kit for the 10P Main Lateral.

Direct Landowner Services: The following assistance was provided to landowners or members of the general public:

- A Water User was provided with the name of an irrigation scheduling consultant.
- A Water User was provided with a shapefile showing GSA boundaries.

Underground Facilities and Turnouts: The following field activities and/or research were conducted related to underground facilities:

- Engineering Department staff responded to 129 underground services alerts (USAs) during the month, eventually marking a total of 5.0 miles of District pipelines.
- As-built record drawings were updated after the 4G16 turnout was removed and the 4G17, 7P21, and AG25 turnouts were blind flanged.
- Field inspections were made and as-built notes and photos were collected while:
 - An irrigation contractor crossed the 13B-1 Lateral in three different places with 3-12-inch-diameter PVC pipelines.
 - An irrigation contractor constructed a filter station flush line in parallel with the District's 14G-1 Lateral for about 0.3 miles.

Maps, Records, and Easements: A new shapefile showing all 215 air valves in the District's distribution system was drafted in support of the O&M Department's ongoing air valve inspection program.

Kern County Planning Documents Received and Reviewed: The Engineering Department routinely reviews all planning documents forwarded by the Kern County Planning and Community Development Department to determine whether comments are needed to defend the interests of the District. The following correspondence was received during the month:

- Notice of preparation of a second supplemental Environmental Impact Report covering certain revisions to Kern County zoning ordinances on oil and gas permitting. It is believed that no response is needed.
- A request from David Evans and Associates for a statement that a proposed lot line adjustment will not unreasonably interfere with the District's exercise of its easement rights within the subject parcels. The requested letter was provided with appropriate language reasserting all existing easement rights.

Corrosion Protection: The Corrosion Technician began working with corrosion services vendors as part of an effort to restore the functionality of existing cathodic test stations on the 7P Main Lateral. Test station readings together with close interval surveys are useful for locating corrosion hot spots in steel and steel-reinforced concrete pipe.

Energy: The Engineer-Manager and Staff Engineer met with David Burdick of TerraVerde Energy, LLC, a provider of consulting and solar asset management services to public agencies. A proposal was subsequently received from TerraVerde for certain professional services that could help the District manage its four solar generation projects (Triangle, Spill Basin, Wheeler #1 and Wheeler #2) and additionally compare the cost of generation versus PG&E bills.










Meetings Attended:

March 1	In-lieu Turnout Discussion with Provost & Pritchard and AEWS	March 14	ACWA SGMA Implementation Subcommittee
March 5	KCWA Operations Conference Call	March 18	Landowner Workshop #1 on an Allocation Policy
March 6	ACWA Groundwater Committee	March 19	KCWA Operations Conference Call
March 6	ACWA Energy Committee	March 20	Site Inspection, Northwest Pipe Company
March 7	Kern Water Summit		
March 12	Meeting with TerraVerde Energy, LLC		
March 14	White Wolf P/MA Committee		

District Well Status Summary As of March 8, 2024

Well Name	Status / Description of the Problem	Most Recent Activity	Next Planned Activity
Not in Running Condition			
#C3 	Off line for vandalism; wires were stolen in summer 2023 and again some time during November 2023. SWL was 576' on 4/1/2024.	Electrical wires were stolen in summer 2023, replaced in October 2023, and stolen again in November 2023. Tested 11/1/2023 and found to run very smoothly, producing 840 gpm with 9' of drawdown at good (71%) pump efficiency. L.O. Lynch completed installation of Goulds-made 12CLC, 13-stage pump assembly rated at 775 gpm 10/12/2023.	It is recommended that the well remain as is until it can be determined whether it will be needed during 2024. If needed, wires can be replaced within a few days.
Currently in Running Condition			
WRM7 	Currently off. SWL was 488' on 4/1/2024.	Tested 2/27/2024 and found to produce 1060 gpm with 288' of drawdown at 71% efficiency. Redeveloped in Feb 2023. FPI completed installing a new Flowise-made pump unit rated 950 gpm at 910' TDH 3/17/2023.	
PA-1 	Currently off. SWL was 703' on 3/26/2024.	Tested 3/29/2024; found to produce 960 gpm with 23' of drawdown at good efficiency. New pump assembly rated 1007 gpm at 887' TDH was installed 6/28/2021.	
#A1 	Currently off. SWL was 667' on 4/1/2024.	Tested 2/29/2024 and found to produce 1480 gpm with 62' of drawdown at 76% efficiency. Motor was repaired and placed back in service 7/7/2021.	
#A2 	Currently off. Returned to service 11/14/2023. Known to have a dogleg in the borehole at about 760' of depth. SWL was 626' on 4/1/2024.	Tested 2/29/2024 and found to produce 420 gpm with 70' of drawdown at 72% efficiency. L.O. Lynch completed installation of a new submersible electric pump and motor unit on 10/12/2023 (Goulds 7CHC, 8-stage pump plus 150-hp, 3600-rpm electric motor).	
#A4 	Currently off. SWL was 586' on 4/1/2024.	Tested 3/12/2024; found to produce 650 gpm at 23' of drawdown but at relatively low (57%) efficiency. New bowl assembly rated 800 gpm was installed 2/22/2021. Placed back in service 4/13/2021.	
#B1 	Currently off. SWL was 735' on 4/1/2024.	Tested 3/11/2024 and found to produce 890 gpm with 25' of drawdown at 68% efficiency. New pump assembly (rated 1005 gpm at 868') installed 6/17/2021.	
#B2 	Currently off. SWL was 773' on 4/1/2023.	Tested 3/19/2024 and found to produce 1080 gpm with 95' of drawdown at 71% efficiency. Redevelopment was completed 2/2/2023. On 3/2/2023 FPI completed installing a new Simflo-made pump unit rated at 950 gpm at 900' TDH.	

District Well Status Summary As of March 8, 2024

Well Name	Status / Description of the Problem	Most Recent Activity	Next Planned Activity
Currently in Running Condition			
 #C1	Currently off. SWL was 640' on 4/1/2024.	Tested 3/5/2024 and found to produce 1480 gpm with 26' of drawdown at 63% efficiency. Shock treated with chlorine 7/25/2022.	
 #C2	Currently off. SWL was 587' on 4/1/2024.	Tested 3/5/2024 and found to run at 800 gpm with 18' of drawdown at 65% efficiency.	
 #C5	Currently off. SWL was 575' on 4/1/2024.	Tested 3/22/2024; found to produce 1,540 gpm with 43' of drawdown at excellent (74%) overall plant efficiency. PG&E energized the transformer 9/2/2022.	
 #C6	Currently off. SWL was 724' on 4/1/2024.	Tested 3/14/2024; found to produce 1504 gpm with 167' of drawdown at excellent (75%) efficiency. A long-standing phase imbalance issue (i.e., low amperage on one leg) was partly resolved by PG&E in late July 2021.	
Out of Service			
 6P-P2	Off line for excessive drawdown. Appears to be even more clogged than it was in 2018. Has a new Simflo SR10C-20-stage pump ass'bly, but found to draw down to 1000' at 100-200 gpm 3/15/2021. SWL was 490' on 10/9/2023.	Listed in the SOKR GSP as a SGMA water level monitoring well.	Should probably remain unequipped until a substitute monitoring well can be found. It is likely that any viable option to improve the well will involve significant expense for little water.
 7P-P2	Currently unequipped. Shut down 7/9/2018 for vibration and low PWL (926') and a sudden loss of flow rate. Pump removed 8/13/2018. Upon inspection, impellers showed clear signs of cavitation. SWL was 609' on 10/12/2023.	Listed in the SOKR GSP as a SGMA water level monitoring well.	Should probably remain unequipped until a substitute monitoring well can be found.
 PB-1	All of the old column pipe was removed 3/23/2022. Part of the old pump assembly was also removed, but the bottom eight pump stages broke off and the hole remains full of sand fill below 785' of depth. SWL was 687' on 4/27/22.	Kaweah Pump air lifted approx. 2-3 feet of sand on 10/22/2022 before encountering a hard obstruction at 785'. Video logged 10/26/2022, revealing only a sandy bottom; nothing could be seen sticking up.	The chances of removing the stuck bowls are very small. Nevertheless, the site location is very favorable and it is recommended that the well be properly abandoned by grouting and that a replacement well be drilled in 2024.
 #A3	Began pumping sand and gravel on 4/21/2016. Video logged on 7/27/2016 and again 11/2/2016. A large casing split measuring up to 5" wide x 20' long was seen at 613' of depth together with 240' of sand fill.	Per advice of the GW Committee, staff began pursuing replacement of this well in June 2021. GEI Consultants was retained to assist in August 2021. So far, GEI has focused work on investigating local conditions, drafting bid documents, and developing a well design.	It is recommended that this well be converted to a monitoring well and that a replacement well be drilled in 2024.
 #C4	Failed 4/17/04. Equipment stuck down hole. Suspect collapsed casing at about 120'.	Same as above.	The hole should be properly abandoned by grouting. It is believed that it may not be economic to replace this well due to the limited pumping season in C Reach of the 850 Canal. Moreover, the site is located within one half mile of two active District wells.

CLIMATOLOGICAL DATA FOR GREENLEE'S PASTURE

Parameter	March 2024	Since 10/01/2023	Days Occurred in March
Maximum Temperature	81°	101°	20th
Minimum Temperature	38°	38°	5th
No. Days at or over 100° F	0	1	N/A
No. Days at or under 32° F	0	13	N/A
Precipitation (inches)	1.59	7.25	2nd, 5th, 25th, 30th
Evaporation (inches)	3.74	17.98	----
Wind Run	1,780	10,276	----

STORAGE IN MAJOR RESERVOIRS (Acre-Feet)

Reservoir	Capacity	Storage at End of March	
		2023	2024
Shasta	4,552,000	3,770,868	4,194,200
Oroville	3,538,000	2,908,434	3,109,468
San Luis (Total)	2,028,000	1,996,029	1,485,252
San Luis (State Share)	1,062,000 (a)	1,067,604	522,481
Folsom	977,000	666,983	707,516
Isabella	361,250 (b)	343,620	263,964
Millerton	520,000	336,097	418,124
TOTALS	11,976,250	10,022,031	10,178,524

(a) The San Luis (State Share) is included in San Luis (Total) but not included in total capacity or storage.

(b) US Army Corps Of Engineers' authorized capacity = 568,075 AF on May 1, 170,000 AF November 1 - January 1

NR Not reported as of this publication

OPERATIONS AND MAINTENANCE ACTIVITIES – G. LOVELESS

MARCH 2024

Safety/Administrative Training

- Safety meeting on Code of Safe Practices *Forklift Safety*.
- 2 Pump / Electrical Technicians attended SCADA training at Opto 22 in Temecula, Ca.
- 2 Operations staff members attended training at the Cla-Val Institute in Costa Mesa, Ca.
- All Qualified Applicators attended a Spray Safe course in Bakersfield, Ca.

Field/System Maintenance

- Applied pre-emergent herbicide in pumping plant yards and 850 Canal banks.
- Repaired potholes on 850 Canal road.
- Disced pasture at Engineering weather station.
- Disced spill basin.
- Cleaned and box-scraped District equipment yard.
- Fabricated and installed new catwalk at End of Canal travelling water screen.
- Repaired numerous IV pads across the District.
- Fabricated enclosures and poured concrete for communication towers at WRM-7, WRM-8.

Pipeline Repair

- 3/1/24, 0800 hours - 4-G-B lateral returned to service from previous repair.
- 3/6/24, 1430 hours - 3-G-A-A lateral returned to service from previous repair.
- 3/19/24, 1715 hours - Leak reported on BR-C5 lateral. Repair was completed and service resumed 3/21/24, 1030 hours.

Power Outage

- 3/17/24, 1230hours - Power outage WRM-3. Service restored 3/18/24, 0700 hours.
- 3/17/24, 2000 hours - Power outage WRM-6. Service restored 2230 hours.
- 3/29/24, 0430 hours - Power outage WRM-3. Service restored 0600 hours.
- 3/31/24, 2015 hours - Power outage 8PP-2, District office. Service resumed 4/1/24, 0200 hours.

Other Interruptions in Service

3/19/24, 1300 hours - Notified by DWR to secure WRM-10 due to maintenance in reach 15A. Service resumed 3/21/24, 1530 hours.

SCADA Communication Failure

- 3/1/24, 1100 hours - Radio reset WRM-7, 7P-P2.
- 3/6/24, 1430 hours - SCADA comm fail WRM-8, 8PP-2, PB-2. Restored 3/7/24, 0300 hours.
- 3/7/24, 0700 hours - SCADA comm fail WRM-8, 8PP-2, PB-2. Restored 0900 hours.
- 3/10/24, 1200 hours - Radio reset WRM-3.
- 3/11/24, 0615 hours - Radio reset WRM-6.
- 3/14/24, 0300 hours - Radio reset WRM-2.
- 3/15/24, 0800 hours - Radio reset WRM-3, 3P-P2.
- 3/16/24, 0900 hours - Radio reset WRM-6.
- 3/21/24, 0730 hours - Radio reset WRM-3, 3P-P2.
- 3/27/24, 0500 hours - Radio reset PB-1, PB-2.

Pump/Electrical

- 3P-P2 unit #2 pump fail. Inspected pump, checked amperage, and returned unit to service.
- 5P-P3 unit #1 - Replaced hour meter.
- 5P-P3 unit #5 pump fail. Replaced panel breaker and underground service and returned unit to service.

- WRM-6, 6P-P2 MC cabinets were cleaned and all excess wiring removed for installation of new PLC.
- WRM-6 - Replaced compressor relay and programmed PLC logic to display compressor run time.
- 7P-P3 - Cleared debris from transducer bourdon tube and returned to service.
- 8P-P2 unit #3 - Cleared debris from air valve and returned to service.
- WRM-15 travelling water screen pump screen and check valve replaced and conveyor belt adjusted.
- Installed new receptacle for cameras and installed additional receptacle in warehouse.

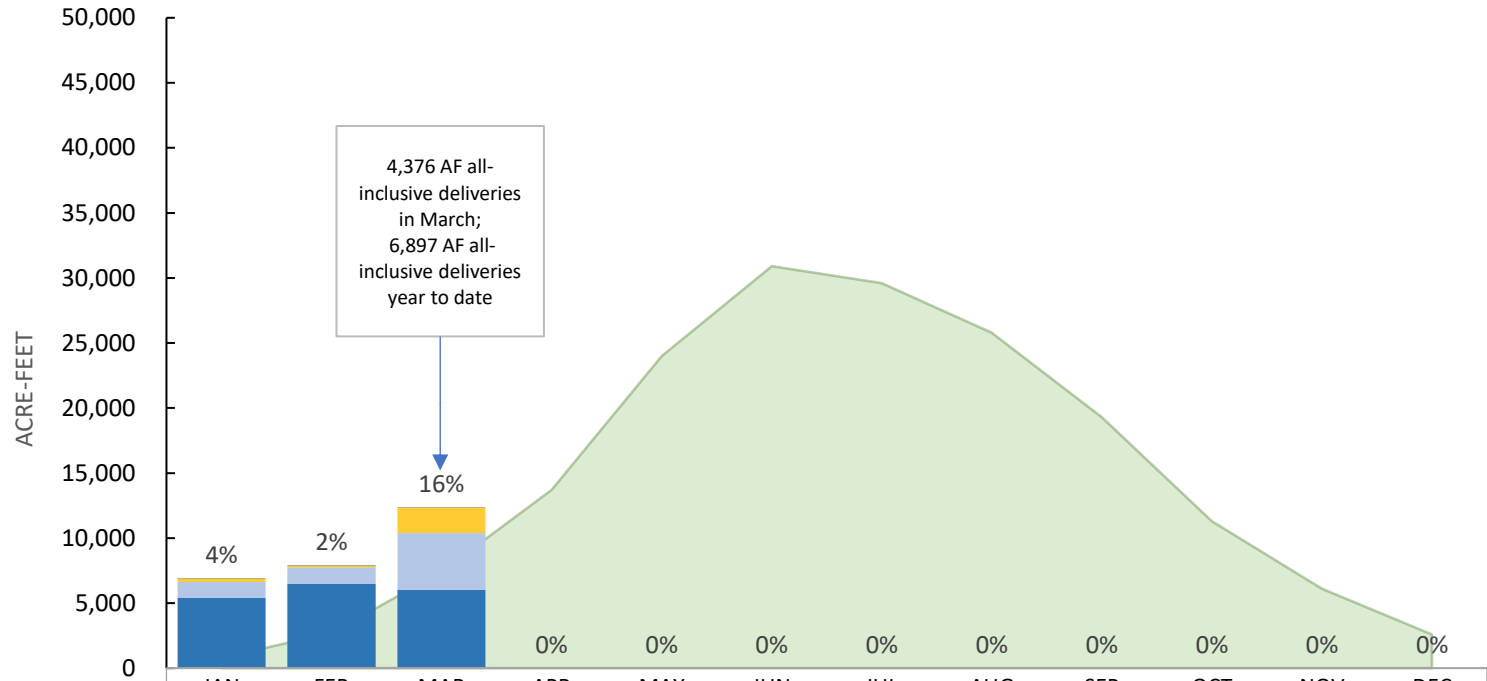
Equipment Maintenance

9 regular vehicle services.

- Unit #384 had front brakes and one rotor replaced.
- Unit #159 had rear brakes and rotors replaced.
- Unit #366A had DEF sensor and oil pan gasket replaced.
- Unit #802 Backhoe was serviced.
- Unit #151 had transmission serviced.
- Units #366A, #367, #380, #385 and 386 passed bi-annual smoke test.
- Units #148, #157, and #158 had batteries replaced.

Current gasoline bulk purchase prices for the District are \$4.21 per gallon for gasoline and \$3.90 per gallon for diesel.

IN-DISTRICT WATER DEMANDS AND SURFACE WATER DELIVERIES THROUGH March 2024



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Typical average SW demand (AF)	800	2,700	7,400	13,700	24,000	30,900	29,600	25,800	19,300	11,300	6,100	2,600
Est. % of crop water dem. from GW	4%	2%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Est. add'l landowner GW pumping (AF)	257	161	1,970					0				
User Input GW Incl. District Wells (AF)	0	0	0	0	0	0	0	0	0	0	0	0
District Non-GW Deliveries (AF)	1,227	1,243	4,376	0	0	0	0	0	0	0	0	0
Effective Precipitation (AF)	5,400	6,500	6,000									

Notes and Assumptions:

- a. Jan-Mar crop water use estimated by analogy to 2023, because Land IQ shapefiles were not available
- b. Jan-Mar precipitation calculated from District weather stations average (Jan 1.38 in., Feb 2.48 in., Mar 1.70)
- c. Jan-Mar effective precipitation estimated from total precipitation assuming that much rainfall went to evaporation and soil storage (Jan 4000 AF, Feb 9500 AF, Mar 5000 AF the balance went to plant uptake)

Wheeler Ridge-Maricopa Water Storage District

(Includes water from the State Water Project, banking projects, District wells, and User input.)

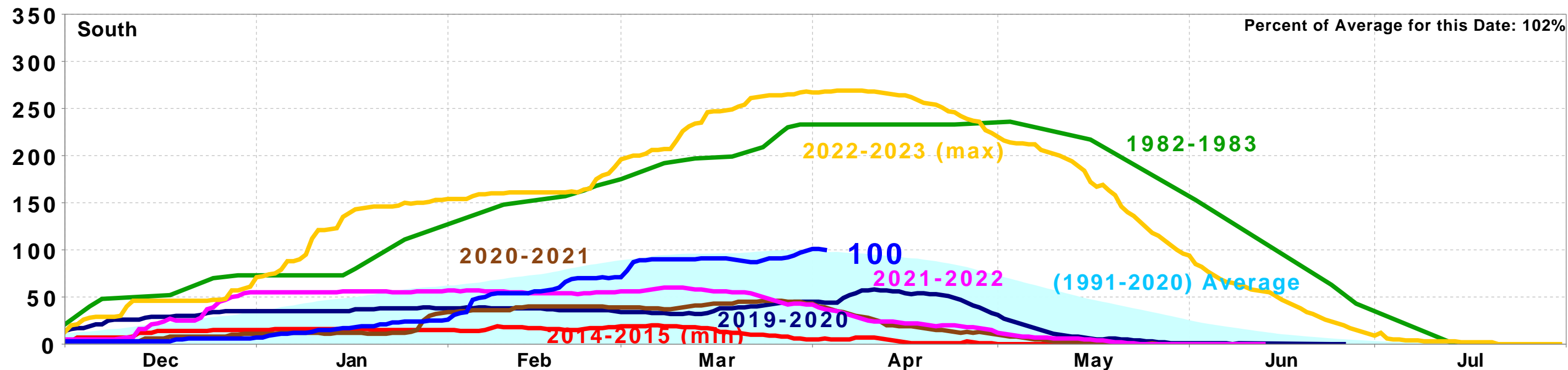
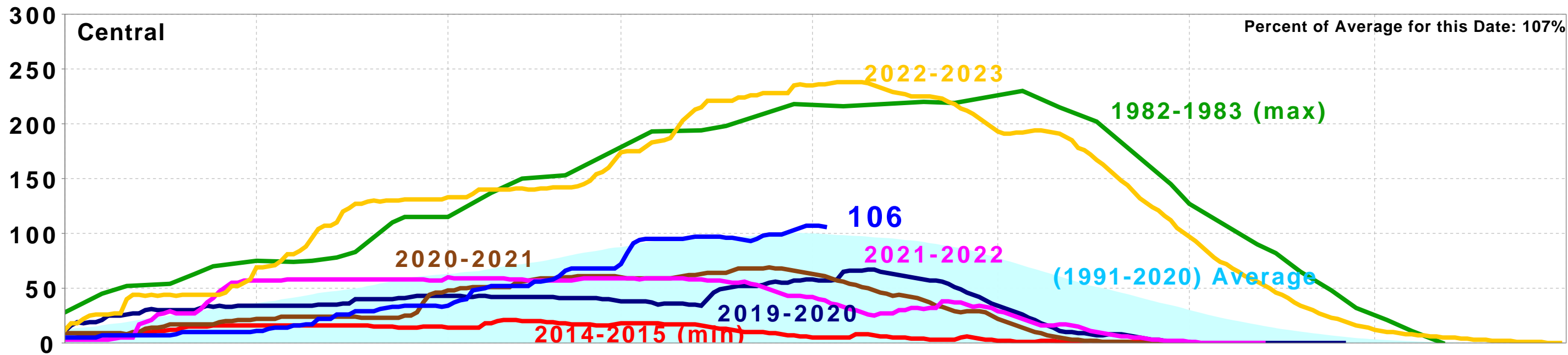
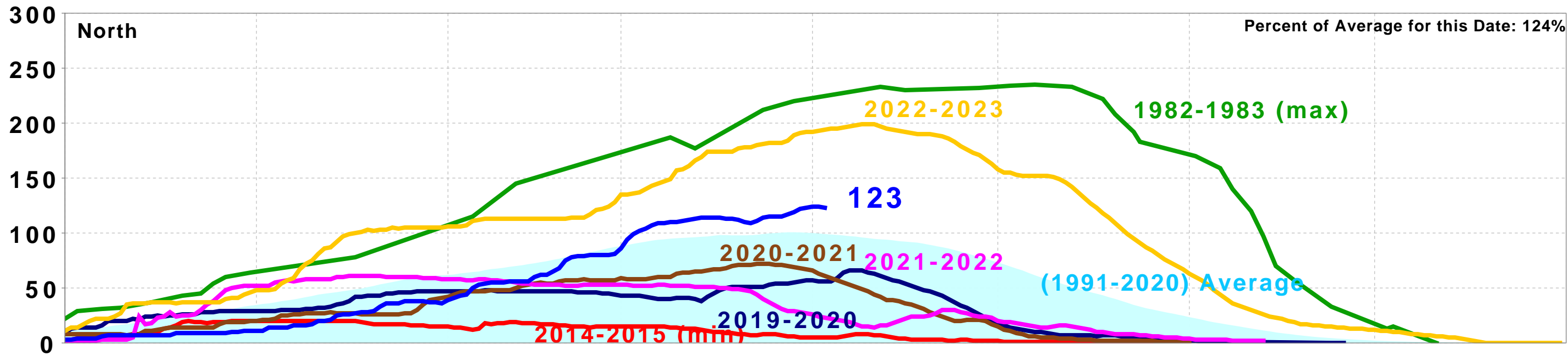
Monthly Deliveries in Acre-Feet

Month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017*	2018	2019	2020	2021	2022	2023	2024
January	1,962	5,258	1,615	1,265	894	1,613	6,108	2,213	3,367	2,210	1,223	2,425	1,785	3,055	1,386	1,785	1,094	1,357	1,277
February	7,588	7,269	6,933	2,952	3,440	5,333	8,128	6,387	6,380	4,666	3,077	1,454	7,704	1,667	4,641	4,188	4,131	2,204	1,243
March	9,315	12,557	12,392	10,151	8,440	7,938	10,696	10,695	9,627	10,157	10,218	8,184	3,174	5,494	5,170	6,838	6,387	2,572	4,377
April	10,572	15,665	17,770	17,717	12,966	13,935	10,521	16,999	13,994	17,102	13,133	14,731	13,500	14,824	7,084	13,797	11,546	8,606	
May	20,700	25,488	24,384	24,151	20,664	21,545	23,320	25,754	23,317	20,936	21,496	25,759	21,858	16,441	20,278	19,202	17,606	21,338	
June	26,542	29,940	27,348	26,379	29,411	27,534	29,261	29,894	25,128	24,540	29,390	32,629	28,802	27,146	24,279	26,995	23,445	25,453	
July	29,107	28,394	29,661	30,156	32,124	29,719	28,259	28,599	23,476	21,401	29,546	33,290	28,233	30,633	26,042	26,560	23,709	32,167	
August	25,078	21,817	22,680	22,153	23,873	24,461	25,027	24,554	17,490	18,220	26,948	26,639	26,029	27,793	22,464	18,539	17,855	23,440	
September	16,897	13,924	16,050	17,453	18,335	17,923	16,678	17,090	15,244	14,908	15,452	17,376	17,705	18,343	15,043	13,169	12,837	16,813	
October	9,033	9,385	10,797	11,953	8,156	12,343	13,075	13,440	13,394	10,715	11,135	14,974	13,896	12,444	10,551	7,351	7,179	11,992	
November	5,438	5,609	6,093	5,669	5,872	4,699	4,895	6,485	5,412	4,862	4,957	5,351	5,867	6,300	5,171	2,689	3,190	6,035	
December	4,788	7,424	3,245	2,739	2,515	6,315	3,354	6,615	4,231	3,055	2,520	4,449	4,626	5,266	3,796	1,569	1,557	5,155	

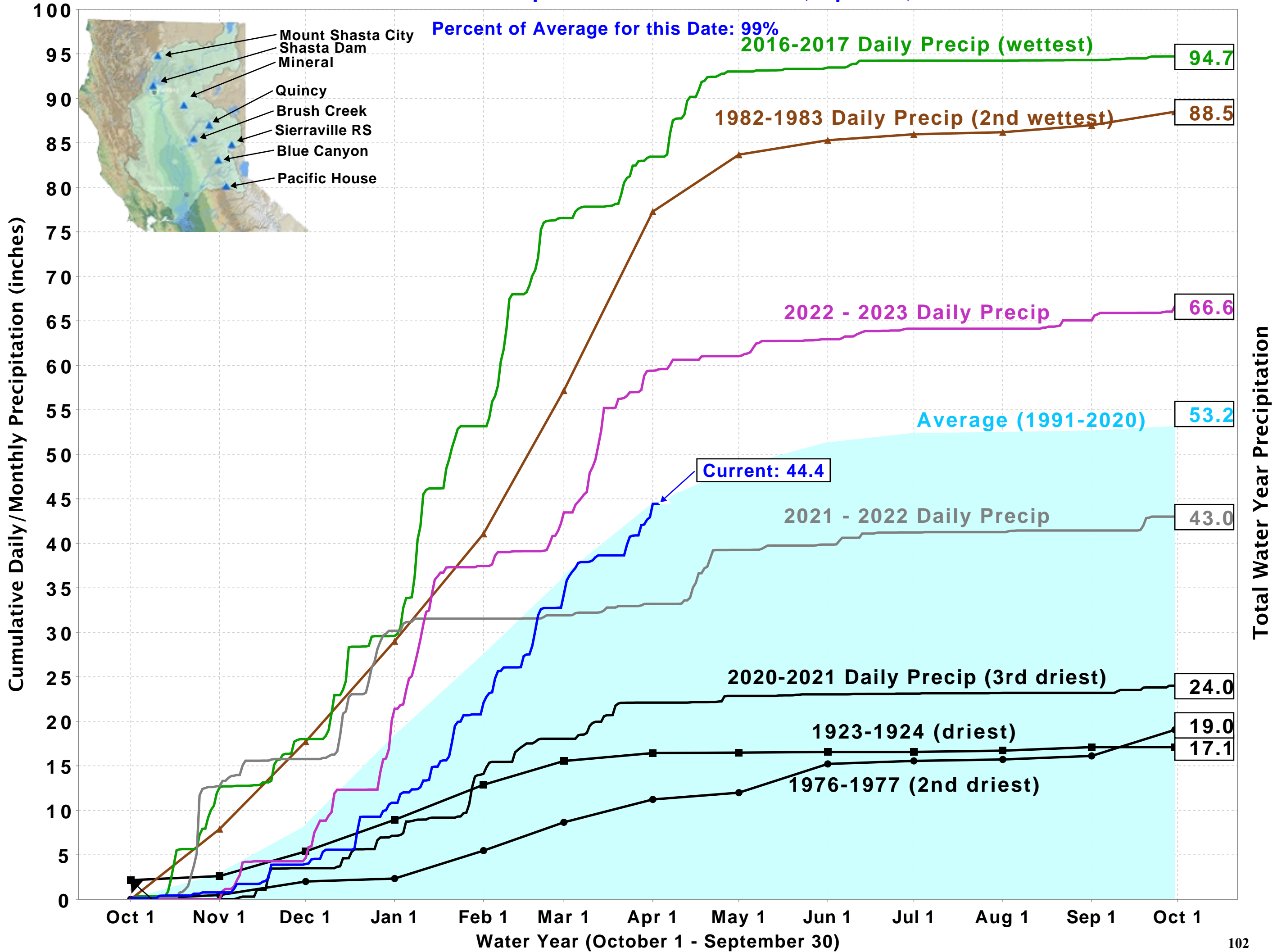
Accumulated Monthly Deliveries in Acre-Feet

Month	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
January	1,962	5,258	1,615	1,265	894	1,613	6,108	2,213	3,367	2,210	1,223	2,534	1,785	3,055	1,386	1,785	1,094	1,357	1,277
February	9,550	12,527	8,548	4,217	4,334	6,946	14,236	8,600	9,747	6,876	4,300	3,879	9,489	4,722	6,027	5,973	5,225	3,561	2,520
March	18,865	25,084	20,940	14,368	12,774	14,884	24,932	19,295	19,373	18,191	14,518	12,063	12,663	10,216	11,197	12,811	11,612	6,132	6,897
April	29,437	40,749	38,710	32,085	25,740	28,819	35,453	36,294	33,367	35,293	27,651	26,794	26,163	25,040	18,281	26,608	23,158	14,738	
May	50,137	66,237	63,094	56,236	46,404	50,364	58,773	62,048	56,684	55,071	49,147	52,553	48,021	41,481	38,559	45,810	40,764	36,076	
June	76,679	96,177	90,442	82,615	75,815	63,014	88,034	91,942	81,812	79,611	78,537	85,182	76,823	68,627	62,838	72,805	64,209	61,529	
July	105,786	124,571	120,103	112,771	107,939	107,617	116,293	120,541	105,288	101,012	108,082	118,472	105,056	99,260	88,880	99,365	87,918	93,696	
August	130,864	146,388	142,783	134,924	131,812	132,078	141,320	145,096	122,778	119,232	135,030	145,111	131,085	127,053	111,344	117,904	105,773	117,136	
September	147,761	160,312	158,833	152,377	150,147	150,001	157,998	162,186	138,022	134,140	150,482	162,487	148,790	145,396	126,387	131,073	118,610	133,950	
October	156,794	169,697	169,630	164,330	158,303	162,344	171,073	175,626	151,416	144,855	161,617	177,461	162,686	157,840	136,938	138,424	125,789	145,941	
November	162,232	175,306	175,723	169,999	164,175	167,043	175,968	182,111	156,828	149,717	166,574	182,812	168,553	164,140	142,109	141,113	128,979	151,976	
December	167,020	182,730	178,968	172,738	166,690	173,358	179,322	188,726	161,059	152,772	169,094	187,261	173,179	169,406	145,905	142,682	130,536	157,131	
SWP Allocation%	100%	60%	35%	40%	50%	80%	65%	35%	5%	20%	60%	85%	35%	75%	20%	5%	5%	100%	30%
SWP Allocation (AF)	197,088	118,253	68,981	78,835	98,544	157,670	128,107	68,981	9,854	39,418	118,253	167,525	68,981	147,816	39,418	9,854	9,854	197,088	59,126

California Snow Water Content, April 3, 2024, Percent of April 1 Average



Northern Sierra Precipitation: 8-Station Index, April 03, 2024



WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
2024 WATER SUPPLY/DEMAND ESTIMATE
 As of Apr 01, 2024

	Capacity Values in acre-feet	30% SWP ALLOCATION		30% SWP ALLOCATION		34% SWP ALLOCATION		38% SWP ALLOCATION	
		Supply	Shortage or (Excess)	Supply	Shortage or (Excess)	Supply	Shortage or (Excess)	Supply	Shortage or (Excess)
[1] Sacramento Valley Water Year Index (40-30-30)		Below Normal		Below Normal		Below Normal		Above Normal	
[2] <i>Probability of Exceedance</i>		90%	P.O.E.	90%	P.O.E.	75%	P.O.E.	50%	P.O.E.
[3] Assumptions		30% Allocation		30% Allocation		34% Allocation		38% Allocation	
[4] Estimated Demand									
[5] -- WRMWSD in-District deliveries (b)			181,200		181,200		181,200		181,200
[6] -- less demands over the CAW			-		-		-		-
[7] Total Estimated Demand			181,200		181,200		181,200		181,200
[8] Surface Supplies									
[9] SWP Table A Entitlement	197,088	59,126	122,074	59,126	122,074	67,010	114,190	74,893	106,307
[10] SWP Supply		59,126	30%	59,126	30%	67,010	34%	74,893	38%
[11] Lyndal Water	-	-	122,074	-	122,074	-	114,190	-	106,307
[12] Supplemental 1 Supplies - District									
[13] District Carryover (estimate)	8,002	8,002	114,072	8,002	114,072	8,002	106,188	8,002	98,305
[14] Long Term- Butte County **	4,261	345	113,727	345	113,727	391	105,797	11,655	86,649
[15] Long Term- Western Hills Water District**	2,973	892	112,835	892	112,835	1,011	104,787	1,130	85,519
[16] Long Term- Mojave Water Agency**	8,091	-	112,835	-	112,835	-	104,787	4,046	81,474
[17] Long Term- Palmdale Water District **	2,158	-	112,835	-	112,835	-	104,787	-	81,474
[18] Two Year- Exchange Contractors**	1,888	1,888	110,947	1,888	110,947	1,888	102,899	1,888	79,586
[19] Kern Water Bank - estimate to date (c)	-	-	110,947	-	110,947	-	102,899	-	79,586
[20] Kern Water Bank - estimated through end of year	41,000	41,000	69,947	20,761	90,186	20,596	82,302	5,167	74,419
[21] Pioneer Project - estimate to date (c)	-	-	69,947	-	90,186	-	82,302	-	74,419
[22] Pioneer Project - estimated through end of year	8,387	8,387	61,560	-	90,186	-	82,302	-	74,419
[23] District & BRID Wells - actual	-	-	61,560	-	90,186	-	82,302	-	74,419
[24] District & BRID Wells - estimated through EOY	5,000	5,000	56,560	5,000	85,186	5,000	77,302	5,000	69,419
[25] Supplemental 1 Water Capacity	84,260								
[26] DISTRICT ALLOCATION		124,640	62.07%	96,014	47.81%	103,898	51.74%	111,781	55.66%
[27]		1.76	AF/Ac	1.35	AF/Ac	1.46	AF/Ac	1.57	AF/Ac
[28] <i>Single Year- XXXX**</i>	5,448	5,448	51,112	5,448	79,738	5,448	71,854	5,448	63,971
[29] Potential Supplemental Supplies	5,448	130,088	64.78%	101,462	50.52%	109,346	54.45%	117,229	58.38%
[30]		1.83	AF/Ac	1.43	AF/Ac	1.54	AF/Ac	1.65	AF/Ac
[31] Supplemental Supplies - Water User									
[32] Water User - Carryover from 2023 (estimate)	8,041	8,041	46,019	8,041	74,645	8,041	66,761	8,041	58,878
[33] Kern Water Bank Second Priority - estimate to date (Recharge)/Recov	-	-	46,019	-	74,645	-	66,761	-	58,878
[34] Kern Water Bank Second Priority - estimated through EOY	4,465	4,465	41,555	4,465	70,180	4,465	62,297	4,465	54,413
[35] User Input - actual	58	58	41,497	58	70,122	58	62,239	58	54,355
[36] User Input - estimated through EOY	10,000	9,942	31,555	9,942	60,180	9,942	52,297	9,942	44,413
[37] Landowner Transfer	-	-	31,555	-	60,180	-	52,297	-	44,413
[38]									
[39] Available Supply		147,145		118,520		126,403		134,287	
[40] Estimated Demand		181,200		181,200		181,200		181,200	
[41] Shortage (Excess)		34,055		62,680		54,797		46,913	

** WS5 Deal

*** Assume 35% carriage losses across Delta.

(b) Based upon estimated average deliveries. Lyndal Water not yet calculated.

(c) Based on KCWA daily Summary of Water Supply Rights


WATER IN STORAGE @ 8-Apr-24	
LOCATION	AF
Kern Water Bank	
District	212,281
Water User 2nd Priority	31,636
KWB Tot	243,917
KCWA	42,556
In-District	23,487
SemiTropic	7,500
TOTAL KERN FAN	317,460
PRELIMINARY	

State of California

DEPARTMENT OF WATER RESOURCES
CALIFORNIA STATE WATER PROJECT

California Natural Resources Agency

NOTICE TO STATE WATER PROJECT CONTRACTORS**Date: March 22, 2024****Number: 24-03****Subject: Increase of State Water Project 2024 Allocation to 30 Percent**

From: 

Ted Craddock
Deputy Director, State Water Project
Department of Water Resources

After a very dry start to the water year, above average precipitation in February has improved water supply conditions throughout California, moving them toward historic averages. At the same time, Delta exports have been reduced to meet requirements in place to protect several critical fish species. After considering the updated water supply forecast along with a forecast of export capabilities, the Department of Water Resources (DWR) is increasing the State Water Project (SWP) allocation from 15 to 30 percent of SWP contractors' requested Table A amounts for 2024 for most contractors, as shown in Attachment A – 2024 SWP Allocation Table, Updated, March 22, 2024.

To determine the available SWP water supplies, DWR considers several factors including SWP contractors' 2023 carryover supplies into 2024, projected 2024 demands, existing storage in SWP conservation facilities, estimates of future runoff, SWP operational and regulatory requirements under the Federal Endangered Species Act and California Endangered Species Act, and water rights obligations under the State Water Resources Control Board's authority. This allocation increase takes into account snow survey measurements and data through March 1 as reflected in the runoff forecasts outlined in Bulletin 120. DWR may revise the SWP allocation if hydrologic conditions change.

To schedule SWP water deliveries under this allocation, DWR will utilize the 30-percent water delivery schedules submitted by SWP contractors in October 2023 (as part of initial requests) or as revised with any subsequent updates. If a contractor foresees any changes to their water delivery schedule, please communicate such changes to DWR in a timely manner.

If you have any questions or need additional information, please contact John Leahigh, Assistant Division Manager, Water Management, SWP Division of Operations and Maintenance, at (916) 902-9876.

Attachment A: 2024 SWP Allocation Table, Updated, March 22, 2024

Attachment A
2024 STATE WATER PROJECT ALLOCATION
Updated
March 22, 2024

SWP Contractors	Maximum Table A Amount (Acre-Feet)	Initial Table A Request Amount (Acre-Feet)	Approved Table A Allocation (Acre-Feet)	Approved Allocation as a Percentage of Initial Request
	(1)	(2)	(3)	(4) = (3)/(2)
<u>FEATHER RIVER</u>				
County of Butte	27,500	27,500	16,500	60%
Plumas County FC&WCD	2,700	2,700	810	30%
City of Yuba City	9,600	9,600	4,800	50%
Subtotal	39,800	39,800	22,110	
<u>NORTH BAY</u>				
Napa County FC&WCD	29,025	29,025	14,513	50%
Solano County WA	47,756	47,756	23,878	50%
Subtotal	76,781	76,781	38,391	
<u>SOUTH BAY</u>				
Alameda County FC&WCD, Zone 7	80,619	80,619	24,186	30%
Alameda County WD	42,000	42,000	12,600	30%
Santa Clara Valley WD	100,000	100,000	30,000	30%
Subtotal	222,619	222,619	66,786	
<u>SAN JOAQUIN VALLEY</u>				
Oak Flat WD	5,700	5,700	1,710	30%
County of Kings	9,305	9,305	2,792	30%
Dudley Ridge WD	41,350	41,350	12,405	30%
Empire West Side ID	3,000	3,000	900	30%
Kern County WA	982,730	982,730	294,819	30%
Tulare Lake Basin WSD	87,471	87,471	26,242	30%
Subtotal	1,129,556	1,129,556	338,868	
<u>CENTRAL COASTAL</u>				
San Luis Obispo County FC&WCD	25,000	25,000	7,500	30%
Santa Barbara County FC&WCD	45,486	45,486	13,646	30%
Subtotal	70,486	70,486	21,146	
<u>SOUTHERN CALIFORNIA</u>				
Antelope Valley-East Kern WA	144,844	144,844	43,454	30%
Santa Clarita Valley WA	95,200	95,200	28,560	30%
Coachella Valley WD	138,350	138,350	41,505	30%
Crestline-Lake Arrowhead WA	5,800	5,800	1,740	30%
Desert WA	55,750	55,750	16,725	30%
Little Rock Creek ID	2,300	2,300	690	30%
Metropolitan WDSC	1,911,500	1,911,500	573,450	30%
Mojave WA	89,800	89,800	26,940	30%
Palmdale WD	21,300	21,300	6,390	30%
San Bernardino Valley MWD	102,600	102,600	30,780	30%
San Gabriel Valley MWD	28,800	28,800	8,640	30%
San Geronio Pass WA	17,300	17,300	5,190	30%
Ventura County WPD	20,000	20,000	6,000	30%
Subtotal	2,633,544	2,633,544	790,064	
TOTAL	4,172,786	4,172,786	1,277,365	~30%

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

MEMORANDUM

TO: Board of Directors

FROM: Eric McDaris

DATE: April 8, 2024

SUBJECT: Other Purchases and Exchanges

Dry Year Transfer Program- Update. Staff continue to pursue Dry Year supplies following KCWA's announcement not to participate in the SWC DYTP. Conversations with various sellers are ongoing. Staff anticipates finalizing various Dry Year sales later this month following the final DWR allocation announcement and analysis of Delta transfer capacity.

Yuba Program. On March 15th KCWA notified Member Units that DWR had initiated the 2024 Yuba Program. On March 19th District staff submitted demands for the maximum amount of supplies available; these demand requests can be revised up to May 9th, 2024. Initial estimates place the C1/C3 supplies at \$191 per acre foot; C2 supplies, if available are currently estimated at \$153 per acre-foot (80% of the C1 price). Pursuant to the Member Unit Yuba agreements, the Agency will make C1-3 water available as a single block at a melded price. The C4 price is negotiated annually and is yet to be determined for 2024. All volumes and costs are north of delta with an assumed 35% for Delta carriage losses. At this time, KCWA has not indicated how much water may be available to Member Units.

Recommendation. None. This memorandum is for information purposes only.

Attachments: None
Filename: 8.2.b Other Purchases and Exchanges

WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT

MEMORANDUM

TO: Board of Directors
 FROM: Thomas Suggs
 DATE: April 5, 2024
 SUBJECT: Proposed Landowner Well Meter Standard

Background: During the development of the Groundwater Service Charge, District staff received feedback from several landowners and Board members to the effect that direct metering of groundwater pumping would be more desirable than indirect estimates based on remote sensing. In August 2023, the Board authorized an interim voluntary program that allows landowners to apply to have their existing well meters certified for the purpose of determining the amount of groundwater extraction. In March 2024, staff presented some options for a well metering standard. This memorandum builds on comments received during the March meeting and contains several draft terms around which a landowner well meter policy could be built.

Landowner Well Meter Standard – Proposed Terms: Staff have drafted the following general terms with a view toward developing a more fully articulated standard for consideration in June or July 2024.

General

- Each groundwater well, with the exception of small domestic wells, shall be equipped with a suitable totalizing flow meter.
- For at least the first two years (calendar 2024 and 2025), there shall be no penalty for failure to comply with the Meter Standard, except that the District may estimate the pumped amount in lieu of a metered amount.
- Each pumper will bear the cost of purchasing, maintaining, testing, and calibrating his own well meter together with the cost of any modifications to the discharge manifold, air valves, and flow control valves that may be required to enable the meter to operate accurately.

Reading and Reporting

- Each pumper will read his own meter each 30 days and shall report the results to the District using a standard form and on a schedule that is yet to be determined.
- The District will periodically compare landowner-provided meter readings (i.e., total acre-feet) with its own estimation of crop water use.
- If the groundwater pumper does not timely report a meter reading, the District at its discretion may either substitute its own meter reading or estimate the pumped amount. The pumped amount may be estimated by remote sensing, by historical water use, by generally accepted values of water use for the crop type, or by some other way.
- Each groundwater pumper shall enable the District, its employees and consultants to have access to the meter for the purposes of reading, inspecting, and testing the meter.

Required Meter Accuracy

- Each meter must be capable of at least 98% accuracy as evidenced by either 1) field testing and validation against a test instrument of known accuracy, or 2) recent factory calibration.

Agenda Item 8.3

- The District or a consultant designated by the District will inspect each new or existing meter and will determine whether 1) the discharge manifold is in general conformance with the design principles contained in the Meter Standard, and 2) the meter's accuracy is within the limits set forth in the Meter Standard.

Approved Meter Types and Approved Designs

- The District will develop an approved list of suitable meter products by approximately June 2024. The list of approved meters may change from time to time as new products come on the market or as existing products are found to be problematic.
- Each well that is not currently equipped with a meter must be equipped with a meter from the approved list together with a primary flow rate datalogger and a secondary datalogger for either current, manifold pressure, or manifold temperature.
- Each existing meter that cannot be verified or recalibrated to operate with the degree of accuracy required in the Meter Standard must be replaced with a meter from the approved list.
- The District will develop a recommended discharge manifold design by June 2024.
- Each existing discharge manifold that does not generally conform to the design principles contained in the Meter Standard must be modified to so conform.
- New meters should be factory calibrated prior to first use. Existing meters must be either 1) tested and validated in the field every year, or 2) recalibrated by the factory every three years.
- Meters must be installed in accordance with the manufacturer's guidelines and with a sufficient straight run of pipe upstream and downstream of the meter to produce a regular and predictable velocity profile. The length of required straight run varies by meter type and manufacturer. There shall be no tees, bends, valves, or reducers in the straight run.
- Meter installations that are likely to produce partially filled pipes must be avoided, including placing meters 1) on oversized discharge piping, 2) on downhill pipe runs, and 3) downstream from control valves.

Required Information. Each groundwater pumper shall provide the following information to the District:

- Name, address, email and phone number of the well operator
- Latitude and longitude of the well
- Assessor's Parcel Numbers (APNs) of the lands on which well water is applied and approximate acres of land served by the well
- Make, model, and serial number of the installed meter
- Proof of the most recent meter calibration
- Manufacturer's requirements or recommendations for installation of the meter. At a minimum, this shall include the specifications for flow conditions leading to and from the meter.
- At least one photograph showing the installed meter and associated discharge piping
- At least one photograph showing the meter's totalizer face

Recommendation: The foregoing terms are proposed subject to comment and revision. There is no particular recommendation for this item. It is anticipated that a more fully articulated standard could be ready for consideration in June or July 2024.

**BEFORE THE BOARD OF DIRECTORS OF
THE WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT
AND WHEELER RIDGE-MARCOPA GROUNDWATER SUSTAINABILITY AGENCY**

IN THE MATTER OF:

RESOLUTION NO. 2024 -XX

RESCHEDULING THE MAY 2024 REGULAR BOARD MEETING

WHEREAS, Government Code, section 54954(a) provides that the Board of Directors may by resolution set the time and place for holding regular meetings; and

WHEREAS, the District’s regular Board of Director’s meetings are ordinarily held on the second Wednesday of each of the month at 8:00 a.m.; and

WHEREAS, in light of District staff’s need to participate in the Association of California Water Agency’s semi-annual conference being held in Sacramento, California, during the week of the regularly scheduled meeting in May, the Board of Directors has determined that the regular board meeting set to be held on the second Wednesday in May (May 8, 2024) should instead be held on an alternative date and time as set forth below.

NOW, THEREFORE, IT IS RESOLVED by the Board of Directors that:

1. The May regular meeting shall instead by held on Wednesday, **May 15th at 8:00 a.m.**
2. The rescheduled May 2024 meeting shall be, for all purposes, a regular meeting of the Board of Directors.

All the foregoing, being on motion of Director _____, seconded by Director _____, is authorized by the following vote, to wit:

AYES:

NOES:

ABSTAIN:

ABSENT:

I HEREBY CERTIFY that the foregoing resolution is the resolution of said District as duly passed and adopted by said Board of Directors on the 10th day of April, 2024.

WITNESS my hand and seal of the Board of Directors this 10th day of April, 2024.

(District Seal)

Secretary of the Board of Directors

◀ WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT ▶

MEMORANDUM

TO: Board of Directors
 FROM: Thomas Suggs
 DATE: April 8, 2024

SUBJECT: Consider TerraVerde Energy Proposal for Solar Management Services

Background: In 2022 the District consumed about 47,500,000 KWH of electrical energy for pumping at an annual cost of \$10.8 million, or roughly 12 percent of annual operating expenses.^(a) When both the Wheeler #1 and Wheeler #2 facilities are on line, solar generation will represent about 58 percent of the District’s total energy usage, leaving a 42-percent cushion for any future demand reductions associated with land fallowing. At this level of production, it is believed performance monitoring and management by the District would be prudent.^{(b),(c)}

TerraVerde Energy, LLC Proposal: After searching for available analytical tools, and after trying out the free *Also Energy* mini dashboard (provided by IGS Solar) as well as the no-cost *PowerTrack* dashboard (provided by AFTW Solar), and finding them unable to do a “with and without project” analysis, the Engineer-Manager and Staff Engineer met with TerraVerde Energy, LLC, a provider of consulting and asset management services to public agencies and other large energy users. TerraVerde has provided a proposal (a portion of which is attached) for certain professional services that could help the District better manage its four solar generation projects (Triangle, Spill Basin, Wheeler #1 and Wheeler #2) and additionally compare the cost of generation versus PG&E bills. Deliverables would include the following:

- quarterly and annual performance analyses showing expected versus actual generation
- quarterly and annual financial analyses showing simulated (without solar) utility bills on each benefitting account versus actual bills
- a log of maintenance issues during the quarter plus actions taken by TerraVerde to help correct

Charges would be on a subscription basis in the amount of \$5,000/quarter initially and \$7,500/quarter after Wheeler #2 comes on line. The contract term would be three years. Financial and performance monitoring of future batteries at pumping plants was not included in this proposal.

Recommendation: It is recommended that the Board authorize the Engineer-Manager to execute a contract with TerraVerde Energy, LLC, subject to approval by Counsel as to form, for solar asset management services as outlined above and on the attached sheets.

Endnotes:

- (a) A back of the envelope computation suggests that a 1 percent increase in solar KWHs purchased would save \$36,400 in power costs at current PG&E and contracted solar power rates.
- (b) While facility owners do have a financial incentive to keep production up, I believe they tend to see our projects as a small part of a large portfolio of solar projects. Moreover, it appears that they tend to do a calculus of maintenance costs versus marginal output, whereas the District only sees the downside of foregone output.
- (c) Engineering Department staff currently spend about one day per month attempting to compute how much PG&E would have charged on four benefitting PG&E accounts in the absence of billing credits from the smaller Triangle and Spill Basin projects. It will be a significant challenge for staff to compute avoided charges on up to seven benefitting PG&E accounts that will eventually receive billing credits from the Wheeler #1 and Wheeler #2 facilities under a more complicated RES-BCT billing tariff.

Proposal Solar Performance Analysis & Reporting Services

Systems

System	System Size	Tariff	Owner	Status
Triangle Facility	1 MW	NEM 2.0	IGS Solar	Operational
Spill Basin Facility	980 kW	NEM 2.0	IGS Solar	Operational
Wheeler #1	6 MW	RES-BCT	AFTW Holdings	Operational
Wheeler #2	5 MW	RES-BCT	Tadashi Solar	Under Construction

Services

Task 1. Detailed Solar Performance Analysis & Financial Reporting

- a. **Quarterly Operational Reports:** For each of the first three fiscal quarters (see schedule below), TerraVerde will prepare and deliver a detailed, transparent, actionable operational report, including:
 - i. *Sites Summary:* a table summarize the location, age, size, and ownership structure of the systems
 - ii. *Executive Summary:* graphs summarizing actual vs. expected system performance and energy usage across the portfolio of sites, along with brief narrative description of the performance and any key findings
 - iii. *System Issues:* a detailed log of all cases opened over the quarter, including insights into the specific activities taken by TerraVerde to resolve the issues
 - iv. *PPA Payments:* an analysis of what PPA bills should have been at each site, each month, based on the contract terms and actual system performance
 - v. *Site Specific Performance:* a detailed comparison of actual vs. expected performance at each site along with a comparison of actual vs. expected energy usage
- b. **Annual Operational & Financial Report:** At the conclusion of each fiscal year (see scheduled below), TerraVerde will prepare and deliver a detailed, transparent, actionable operational report, including:
 - a. *Sites Summary:* a table summarize the location, age, size, and ownership structure of the systems
 - b. *Fiscal Year Performance Executive Summary:* tables summarizing actual vs. expected: bill savings, operating expenses, revenues, net savings, system performance, and electricity usage. Additionally TerraVerde will provide a brief narrative summary of operational and financial performance for the year.
 - c. *Portfolio Wide Performance & Usage:* graphs showing actual vs. expected system performance and energy usage across the portfolio of sites
 - d. *System Issues:* a detailed log of all cases opened, including insights into the specific activities taken by TerraVerde to resolve the issues
 - e. *PPA Payments:* an analysis of what your PPA bills should have been at each site, each month, based on the contract terms and actual system performance
 - f. *Performance Guarantee Accounting:* a table showing the running total of any balances accruing to you from your third-party system owner relative to performance guarantee shortfalls
 - g. *Site Specific Performance:* a detailed comparison of actual vs. expected performance at each site along with a comparison of actual vs. expected energy usage
 - h. *Site-By-Site Shadow Billing Analysis:* tables what utility bills would have been at each site during each month vs. the actual bills, showing actual savings delivered at each site
- c. **Reporting Target Schedule:** TerraVerde provide these quarterly and annual reports according to the following target schedule:

Performance Period	Report Delivered By
July – September Operational Report	End of November
October – December Operational Report	End of February
January – March Operational Report	End of May
April – June Operation Report & July – June Financial Analysis	End of September

Task 2. Quarterly Audit of RES-BCT Project & Benefitting Accounts

- a. Each quarter, TerraVerde will audit the client’s RES-BCT project and benefitting accounts:
 - i. Collect and validate updated rates for the generator and benefitting accounts
 - ii. Model credits generated
 - iii. Assess actual vs. expected usage at benefitting accounts
 - iv. Assess credits absorbed and (as applicable) unused
 - v. Confirm benefitting account allocation percentages are appropriate
 - vi. Ensure all accounts have remained on bundled rates with the utility (i.e. have not been opted in to a CCA)
 - vii. Including findings in the quarterly and annual reporting provided to the client
 - viii. Where applicable, submit an updated benefitting account list to the utility

Summary of Deliverables

Date Ranges		Analysis & Reporting Features		
Performance Period	Report Delivered By	Actual vs. Expected Solar Production	RES-BCT Financial Audit	Net Energy Metering Financial Audit
July – September	End of November	✓	✓	
October – December	End of February	✓	✓	
January – March	End of May	✓	✓	
April – June	End of September	✓	✓	✓*

* NEM Savings Audit will be included in the Annual Report as described in Task 1.b and will cover the period of July through June of the previous Fiscal Year.

Price & Terms

- Quarterly fee of \$5,000 due upon delivery of the reporting
 - Upon completion of construction of the Wheeler #2 project, this fee will increase by \$2,500 per quarter
 - This quarterly fee will increase annually by 3.5%
- Services to be provided for an initial term of three years

DEPARTMENT OF WATER RESOURCES

P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791



3/20/2024

Dear Water Managers,

The 2023 water year brought welcome relief to the severe drought conditions experienced through the prior three years and saw the first 100% allocation for the State Water Project (SWP) in 16 years. This wet year allowed us to enter the current water year with above average supplies in the State's reservoirs.

The start of water year 2024 has shown us again that in these times of climate extremes conditions can quickly change. The northern Sierra saw less than half of average precipitation from the beginning of the water year through mid-December. These dry conditions, coupled with very warm temperatures, resulted in relatively low amounts of water that was able to be exported from the Banks Pumping Plant and stored within San Luis Reservoir. The SWP share of San Luis Storage was 369,000 acre-feet by January 1, 2024. Reflecting these conditions, the initial SWP allocation was 10%. Fortunately, several significant storms have occurred since mid-December and precipitation in the northern Sierra is now about average. Based upon conditions on February 1, the SWP increased its allocation to 15% and will continue to evaluate conditions, including the February storms and recent winter storm, to inform future adjustments to the allocation. The Department of Water Resources (DWR) will continue to update the allocation through the water year as the water supply forecast changes.

DWR is focused on maximizing capture and storage of water from these storms and has increased storage by 550,000 acre-feet at Lake Oroville and by 135,000 acre-feet at San Luis Reservoir. At the same time, DWR is required to reduce take of listed fish species at the SWP pumps per state and federal permit rules.

This year, the SWP triggered export reductions at Banks Pumping Plant for longfin smelt, delta smelt, winter-run salmon and steelhead trout. In January, DWR was required to reduce SWP pumping to minimize delta smelt and winter-run salmon being drawn into the fish screens in front of the pumps. In early February, steelhead trout moved into the vicinity of the SWP and CVP pumps in relative high numbers. DWR was required to reduce exports again upon surpassing steelhead protection thresholds identified in the 2019 National Marine Fisheries Service (NMFS) Biological Opinion regulations. Since the more restrictive requirements in the 2009 Biological Opinions have been in place, Steelhead pumping restrictions had not been previously triggered.

Water Managers, et al.

3/20/2024

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On February 17, as DWR continued to observe steelhead at the fish screens, DWR proactively reduced SWP pumping from 2,500 cubic feet per second (cfs) to 1,500 cfs in an attempt to further reduce steelhead collection. DWR took this action, in close coordination with NMFS, to avoid more drastic pumping restrictions. Despite the SWP pumping reduction, steelhead continued to be collected at the fish screens. On March 11, DWR was required by NMFS to reduce pumping from 2,400 cfs to 600 cfs to keep the flows on Old and Middle Rivers at no more negative than -500 cfs. DWR continues to maximize pumping within these limits.

These export reductions are a challenge to our water supply and DWR has been working to ensure that the best science available is guiding decisions. For example, DWR has employed rapid genetic testing to verify whether juvenile salmon collected at the Skinner Fish Facility (SFF) are the listed winter-run or other non-listed runs. This year, this rapid testing has allowed the SWP to verify that the majority of juvenile salmon collected at the SFF were not the listed winter run, which, in turn, allowed the SWP to resume exports that would have otherwise been curtailed. Additionally, DWR scientists discovered that some steelhead collected at the SFF were not wild origin fish, but in fact, hatchery fish that do not require export limitations. Through careful photo documentation, DWR was able work with NMFS to avoid more severe export reductions in late February. Additionally, DWR coordinated with the California Department of Fish and Wildlife, and NMFS to quickly implement a study of acoustic-tagged fish to track real-time movements of steelhead to assess the effectiveness of the required pumping reductions in not drawing steelhead trout towards the pumps. This information is being collected to help support a relaxation of pumping restrictions if those restrictions are not resulting in the intended species protections.

We expect the conditions that are leading to export reductions to continue through the spring. DWR is closely monitoring juvenile Chinook salmon collections at the fish screens relative to our regulatory limit for winter-run salmon. DWR will continue to use the new rapid genetic testing technology to gather information needed to inform our coordination with the California Department of Fish and Wildlife should these collections continue.

DWR will continue our close engagement with the resource agencies to ensure that the best science available is guiding these decisions. DWR is also advocating for the consideration of the critical water supply needs of California as these management decisions are made.

Water Managers, et al.

3/20/2024

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DWR is currently undergoing consultation for new state and federal permits for SWP operations. While still under development, DWR is incorporating new science and modeling tools into the permit rules that we believe maximize both water supply reliability and species protections. The permits are anticipated to be in place for water year 2025.

The export challenges being experienced are a result of the shortcomings of the current arrangement of SWP facilities- a system designed for the climate of the previous century- and underscore the need for the Delta Conveyance Project. Had Delta Conveyance been operational, DWR estimates that it could have diverted an additional 649,000 acre-feet between October 1, 2023, and March 7, 2024. This modernization of the SWP will give us the reliability we need for the climate-driven precipitation patterns we see today and the greater weather extremes that are yet to come.

As we move through this pivotal time of year for water supply, heightened communication between DWR and your agencies becomes vitally important. Toward that end, to bridge the gap between monthly water operations committee, DWR has partnered with the SWC to increase the frequency of the meetings to bi-weekly. At these meetings, DWR provides updates on conditions, near-term operations outlooks, challenges, risks, and the actions being taken. The purpose of these venues is to provide contractor agencies multiple opportunities to understand what DWR is doing to protect the SWP water supply and why we are taking the actions that we are.

This letter is intended to help keep you and your agencies informed and to help develop an understanding of the challenges we are facing this year. Navigating these challenges will require close coordination between the SWP and your agencies. Together we will continue to meet the needs of the people, businesses and farmland that depend on the SWP.

Sincerely,



Karla A. Nemeth
Director

March 14, 2024



Ms. Jennifer Quan
 Regional Administrator
 NOAA Fisheries West Coast Region
 1201 Northeast Lloyd Boulevard, Suite 1100
 Portland, Oregon 97232

Re: NMFS’ preliminary determination related to the operation of the State Water Project (SWP) and Central Valley Project (CVP) and the protection of Central Valley steelhead

Dear Ms. Quan:

The State Water Contractors (SWC) are concerned about NMFS’ recent determination that water diversions at the State Water Project (SWP) and Central Valley Project (CVP) must be operated to meet a combined rate of -500 cfs Old and Middle River (OMR) flow due to loss of Central Valley steelhead. The rate of diversion to meet this OMR is very low; in fact, this is the same rate of diversion that the SWP-CVP operate to during dry conditions. However, we have above normal conditions in the Delta, as flow on the Sacramento River have been between 40,000 cfs to 60,000 cfs (Freeport) and flows on the San Joaquin River have been between 4,000 cfs to 7,000 cfs (Vernalis). These higher flows are likely more important than SWP-CVP export rate to species survival. Over the past decade, through the Collaborative Science and Adaptive Management Program (CSAMP), water users and the fisheries agencies have looked at this issue. The 2017 CSAMP Salmon Scoping Team Report notes, and Buchanan et al. 2021 confirms, that there is weak support for any relationship between species survival and SWP-CVP export rate. We are advocating that the results of these studies be considered in the near- and long-term application of adaptive management decision-making in managing fish and water supplies.

Water Supply Reliability is Critical to California

The impact of ongoing restrictions is significantly reducing the available water supply to farms and cities each day the current diversion limit is in place, yet the benefits to steelhead are uncertain. Therefore, we urge you to consider the entirety of the available information and weigh all factors to support a decision to immediately off-ramp -500 cfs OMR requirement and replace it with a -2,500 cfs OMR requirement, which will: (1) result in the SWP and CVP operating within the bounds of the analysis of the existing Biological Opinion (BiOp), and (2) mitigate the impacts on California’s most important water supply.

DIRECTORS

Robert Cheng
President
 Coachella Valley Water District

Laura Hidas
Vice President
 Alameda County Water District

Jacob Westra
 Secretary-Treasurer
 Tulare Lake Basin Water Storage District

Nina Hawk
 Metropolitan Water District of Southern California

Chris Lee
 Solano County Water Agency

Ray Stokes
 Central Coast Water Authority

Matthew Stone
 Santa Clarita Valley Water Agency

Peter Thompson, Jr.
 Antelope Valley-East Kern Water Agency

Craig Wallace
 Kern County Water Agency

General Manager
 Jennifer Pierre

The SWC represents 27 public water agencies¹ who provide SWP water to more than 27 million California residents (or 1 in 12 Americans) and 750,000 acres of farmland throughout the State. Water exported in the winter and spring (January-June) is a significant portion of the SWP water supply, and is critical to water deliveries, surface water reservoirs, groundwater management, drought planning, and meeting water quality standards throughout the SWP service area. With the variability in California's climate, it is imperative to fill south-of-Delta reservoirs when water is available during these higher flow conditions and when it is environmentally safe to do so. This allows public water agencies to better manage supplies through drought conditions and ensure reliable, affordable supplies.

As a result of storms and flood control operations at upstream reservoirs, the Delta has been in excess conditions since the beginning of this year. Excess conditions occur when all water quality standards and in-Delta uses are being met, and there is still unregulated flow that is available for diversion. However, the SWP and CVP combined diversions have been restricted to meet -3,500 cfs or more restrictive OMR flow since mid-January to comply with the 2019 Biological Opinions. The total cost of the export constraints since January has resulted in a water supply loss of over 700,000 acre-feet, valued at over \$420 million, and the current steelhead action is expected to contribute more than 40,000 acre-feet of that loss if in place through March 31, at a value of \$24 million. The consequences of these constraints cannot be overstated; not only does this loss in water represent significant economic impacts to the contractors, it also represents a lost opportunity for groundwater basins to recover from the devastating effects of recent successive 5% allocation years. The availability of this water could have also provided relief to the Colorado River Basin as two of the SWP contractors (The Metropolitan Water District of Southern California and Coachella Valley Water District), are actively participating in action to restore the health of that system.

Science, Data, and Monitoring coupled with Adaptive Management are instrumental to managing the system and the species

Despite very significant export constraints for the majority of this year, Central Valley steelhead salvage has been higher than anticipated. Since there is very limited population information related to Central Valley steelhead in our system, it is unknown what percent of the population has been impacted by species loss so far this year. The potential impact on the population has to be estimated, and available information suggests that the estimated population-level effect is low. Salvage rates resulting from hatchery releases data from 1998-2017 have ranged from 0.032% to 1.399% (0.17% mean), suggesting that Central Valley steelhead losses to SWP-CVP exports

¹ Alameda County Flood Control District Zone 7, Alameda County Water District, Antelope Valley – East Kern Water Agency, Casitas Municipal Water District, Central Coast Water Authority, City of Yuba City, Coachella Valley Water District, Crestline – Lake Arrowhead Water Agency, Desert Water Agency, Dudley Ridge Water District, Empire West Side Irrigation District, Kern County Water Agency, Kings County, Littlerock Creek Irrigation District, Metropolitan Water District of Southern California, Mojave Water Agency, Napa County Flood Control and Water Conservation District, Oak Flat Water District, Palmdale Water District, San Bernardino Valley Municipal Water District, San Gabriel Valley Municipal Water District, San Geronio Pass Water Agency, San Luis Obispo County Flood Control and Water Conservation District, Santa Clara Valley Water District, Santa Clarita Valley Water Agency, Solano County Water Agency, and Tulare Lake Basin Water Storage District.

represent a small fraction of the population. If the population is estimated based on published literature, then the population could be approximately 94,000 based on Good et al. 2005, or approximately 658,453 based on Nobriga and Cadrett 2001. Based on those population estimates, the current loss of 2,594 (as of 3/10/24) would represent approximately 0.39% to 3% of the population, a small fraction of the population. In the 2019 Biological Opinion, NMFS estimated that steelhead loss would represent between 1-8% of the population, and each of these methods of estimating the population level effect of this year's loss is well within that range.

Additionally, in determining the potential population level effect of species loss so far this year, it should also be acknowledged that hatchery steelhead contributed to the calculated loss as there were large hatchery releases this year and some salvaged steelhead were improperly marked or were unmarked hatchery releases. The inclusion of these fish results in an overestimation of the total impact of export operations on the Central Valley steelhead population.

Despite the likely low population level effect, we understand that NMFS needs to determine what rate of diversion is protective since several of the species loss thresholds contained in the 2019 Biological Opinions have been reached. We think that work by the Department of Water Resources and the Bureau of Reclamation is informative on this point, as they have modeled the relative entrainment, comparing a diversion rate of -500 cfs OMR and a rate of -2,500 cfs OMR. As shown in the figure below, there appears to be no difference in entrainment risk between -2,500 cfs or -500 cfs OMR, both of which are within the range of permissible operations per the BiOp.

Identical numbers raise a flag and were verified, particularly the percentiles.

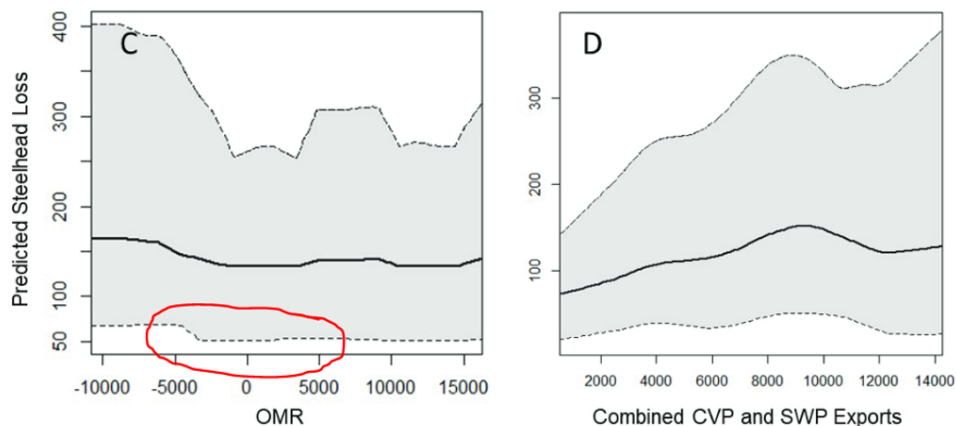


Figure 4 Partial dependence of model predictions on the two variables most responsive to management inputs for both winter run Chinook Salmon (A-B) and Central Valley Steelhead (C-D): combined water exports and OMR flow. Predictions were made with all other variables held at their mean values. Black lines show predicted medians; the shaded area captures the interquartile range (25th-75th predicted quantiles).

Figure source: Figure 4 from steelhead salvage analysis summary dated March 6th, 2024, prepared by Bureau of Reclamation for consideration by WOMT.

Consideration of the best available science and tools to better quantify the impact to the species population is paramount for the current operations and in the ongoing consultation on the long-

Ms. Jennifer Quan

March 14, 2024

Page 4

term operations of the CVP and SWP so that the water management is responsive with the changing climate conditions.

Thank you for your consideration of this information.

Sincerely,

A handwritten signature in black ink, appearing to read "Jennifer Pierre". The signature is fluid and cursive, with the first name being more prominent.

Jennifer Pierre
General Manager

CC:

Cathy Marcinkevage/NMFS

Howard Brown/NMFS

Karla Nemeth/DWR

Thomas Gibson/DWR

Ted Craddock/DWR

John Yarborough/DWR

Lenny Grimaldo/DWR

Karl Stock/USBR

Kristin White/USBR

David Mooney/USBR

Paul Souza/USFWS

Kaylee Allen/USFWS

Chuck Bonham/CDFW

Brooke Jacobs/CDFW

ELEVATE TO '28

The State Water Project's Risk-Informed Strategic Plan



JANUARY 2024

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FEATHER RIVER FISH HATCHERY

Steelhead raised at the hatchery are released into the Feather River at Boyd's Pump Boat Launch in Yuba City.

Photo taken February 2021.

MESSAGE FROM THE DEPUTY DIRECTOR



I hope this message finds you well and filled with optimism for the future. As we stand at the threshold of a new chapter in the State Water Project's journey, I am proud to share with you our new risk-informed strategic plan — **"Elevate to '28."**

Every day I am inspired by the perseverance, dedication, and commitment the DWR team has for the State Water Project (SWP). As stewards for sustainably managing the water resources of California, we are committed to *elevating* our strategic approach and honing our focus, ensuring reliable services for the people and environment of California *through 2028 and beyond* (hence the name, **"Elevate to '28"**). It is this spirit that will guide us through the challenges and triumphs that lie ahead.

Since its construction in the 1960s, the SWP has served Californians and the environment by providing water supply, flood protection, clean hydropower, environmental benefits, and recreation opportunities. These efforts not only sustain California communities and industry, but also play a vital role in supporting the future of our great state. As we look to the future, we will use **Elevate to '28** to embrace change and seize opportunities for continued growth and innovation.

The water landscape in California is changing, presenting us with new challenges, technologies, and possibilities. It is our responsibility as stewards of the SWP to adapt and lead for the future. I am confident that, together, we can overcome any obstacle and continue to be at the forefront of water management excellence. Our shared commitment to reliability, affordability, and sustainability — as outlined in this strategic plan — will not only secure a better future for California but will also leave a lasting legacy for generations to come.

Each drop of water we manage has the potential to nurture life, foster growth, and sustain prosperity. Let us approach the future with enthusiasm, innovation, and a united spirit. By working together, there is no limit to what we can achieve. I have full confidence that through **Elevate to '28**, the SWP will not only meet the challenges of tomorrow, but will also emerge stronger, more resilient, and better equipped to serve the needs of California.

It is an honor to guide the SWP, and I am proud of the individuals that collaboratively work together as one team to make the success of the SWP a reality. I enthusiastically commit to serving you, the environment, and the people of California.

Here's to a future filled with achievement, progress, and shared success!



Ted Craddock

Ted Craddock, Deputy Director of the SWP



FLOATING CLASSROOM

Elementary school students float through the Feather River while scientists provide information on conservation efforts and restoration projects.

Photo taken November 2023.

WHO WE ARE

OUR HISTORY

In 1960, Californians took a major step in funding the growth of their economy and the prosperity of the people by voting to adopt the Burns-Porter Act. The act led to the construction of the State Water Project (SWP), designed to address California's formidable water challenges. The SWP represents a monumental testament to human ingenuity and engineering prowess, fostering social, economic, and environmental well-being and prosperity throughout the Golden State.

SWP facilities enable what is now considered an everyday norm, but was groundbreaking upon its creation—conveying safe, reliable, and affordable water from Northern California watersheds to meet the municipal, agricultural, and industrial needs of the San Joaquin Valley, the San Francisco Bay Area, the Central Coast, and Southern California. Our vast service area spans over 27 million individuals and supports an economy with a Gross Domestic Product surpassing \$2.25 trillion. In other words, if our service area were its own nation, it would rank as the 8th largest economy in the world.

SWP services do not stop at water supply and delivery. We provide flood control to our communities by using reservoir storage to capture flood flows. We are the fourth largest producer of power in the state, operating hydroelectric plants to meet SWP's power demands and supply clean energy to the California grid. In addition to these essential services, we provide millions of people with world-class outdoor recreational opportunities, including boating, fishing, and camping.

California has grown rapidly over the past 60 years, and we – the SWP – have grown alongside it. With this growth came new opportunities for us to minimize water management impacts on the native ecosystem and promote the equitable distribution of water throughout the state. We have and will continue to adapt, rising to the challenge of preserving California's native ecosystems while continuing to provide the benefits that make California the great state that it is today.



THE FIRST POUR

Sand and gravel from California's 58 counties was used for the ceremonial first pour at the SWP Oroville Dam site in Butte County.

Photo taken April 1963.



LIGHTING THE WAY

Newly installed lighting illuminates Oroville Dam's main spillway at sunrise during activation testing. The lights will be used intermittently based on operational needs.

Photo taken February 2020.

OUR FUTURE

Looking ahead, we know that California's water challenges will continue to be exacerbated by long-term population growth and changing climate patterns. We are committed to facing these challenges head on as California comes to rely ever more heavily upon the benefits that the SWP provides. Elevate to '28 outlines the innovative and measurable actions that we will implement to address these challenges and seize future opportunities.

We are excited to build upon the SWP's long legacy of excellent service through the creative solutions born out of Elevate to '28. Through the goals and objectives outlined in this plan, we strive towards our vision to be the most reliable, sustainable, and resilient water provider for the people and environment of California, now and for future generations.

OUR DIVISIONS AND OFFICES

The SWP is comprised of **seven divisions and offices**



THE STATE WATER PROJECT ANALYSIS OFFICE (SWPAO)

SWPAO provides the SWP project initiation and program control support, fairly and equitably allocates SWP expenditures to all SWP beneficiaries, annually determines the SWP Contractors' charges (currently in excess of \$1.6 billion) in accordance with water supply contract provisions and applicable laws, and publishes the Bulletin 132 series, Management of the California SWP.



THE HYDROPOWER LICENSE PLANNING AND COMPLIANCE OFFICE (HLPCO)

HLPCO is responsible for planning, managing, coordinating, leading, and overseeing DWR's federal hydropower license activities in order to comply with regulatory and compliance requirements while securing cost-effective, safe, reliable, and responsive benefits for the people and environment of California.



THE DIVISION OF OPERATIONS AND MAINTENANCE (O&M)

O&M manages the daily and long-term operations and maintenance activities of the SWP facilities, including pumping and hydroelectric plants, dams, reservoirs, aqueducts, and buildings. Sacramento staff and those located in the Oroville, Delta, San Luis, San Joaquin, and Southern field divisions are responsible for the operation and maintenance of SWP, including both routine and emergency repairs.



THE DIVISION OF INTEGRATED SCIENCE AND ENGINEERING (DISE)

DISE tracks SWP compliance with federal, state, and local regulations. The information DISE gathers supports water and resource management, assists in balancing human and environmental needs, and informs management decisions, the science community, and the general public.



THE DIVISION OF ENGINEERING (DOE)

DOE performs real estate, geomatics, architectural, and engineering services. The division manages engineering and construction on a wide variety of water infrastructure systems and elements such as dams, reservoirs, canals, tunnels, and pumping and powerplants.



THE DELTA CONVEYANCE OFFICE (DCO)

DCO is responsible for planning, permitting, and engineering oversight on the Delta Conveyance Project, an effort to modernize the SWP infrastructure in the Delta to preserve water supply reliability into the future.



THE MODELING SUPPORT OFFICE (MSO)

MSO develops and applies models and other analytical tools to help water managers make informed decisions about how best to manage water for people, farms, and the environment, as well as to protect lives and properties from flooding and drought.

1) SWPAO meets to discuss key cost drivers (2023)

2) Salmon tagging at the Feather River Fish Hatchery (2022)

3) Earth and rock sampling at Castaic Dam (2021)

4) Pyramid Dam (2019)

5) Motor refurbishment at Gianelli Pumping-Generating Plan (2021)

6) Bethany Reservoir (2022)

7) MSO facilitates a public training session (2023)



CALIFORNIA AQUEDUCT

The California Aqueduct and agricultural fields in Stanislaus County. The SWP delivers clean water to 750,000 acres of irrigated farmland across the state.

Photo taken May 2023.

OUR STRATEGY TO ELEVATE TO '28

Our new strategic plan, Elevate to '28, sets the trajectory for the SWP for the next five years and beyond. The following pages detail our mission, vision, and purpose for Elevate to '28, the core values that guide our work, and the goals and objectives we will achieve over the next five years.

ELEVATE TO '28



MISSION

Explains how we will achieve our purpose and goals. SWP shares DWR's mission statement because we are all united in sustainably managing California's water resources.



VISION

The "north star" of Elevate to '28, guiding our strategy so that we can achieve SWP's ideal future.



PURPOSE

A clear description of what we are working to achieve; an inspiring reminder of *why* we do what we do.



CORE VALUES

The fundamental principles that guide the way SWP personnel work with those they serve and together as colleagues.



GOALS

Results that organize the efforts of SWP leadership, divisions, and offices.



OBJECTIVES

Key milestones and outcomes that can be measured and evaluated to achieve SWP's goals. Each goal has 3-5 objectives.

OUR MISSION, VISION, AND PURPOSE



OUR MISSION

To sustainably manage the water resources of California, in cooperation with other agencies, to benefit the state's people and protect, restore, and enhance the natural and human environments.



OUR VISION

To be the most reliable, sustainable, and resilient water provider for the people and environment of California, now and for future generations.



OUR PURPOSE

Operate the State Water Project as one team to provide safe, reliable, and affordable water for the well-being and prosperity of California.

CALIFORNIA AQUEDUCT EAST BRANCH

A windy stretch of the California Aqueduct East Branch in Palmdale. The East Branch carries water through Antelope Valley, the San Bernardino Mountains, and ends at Lake Perris near the City of Riverside.

Photo taken May 2023.

OUR CORE VALUES

SWP's core values were created through an inclusive and collaborative process. We considered core values from previous SWP strategic plans, DWR's strategic plan, industry peers, and SWP divisions and offices. We collected input throughout DWR through surveys and an interactive workshop. The resulting list of core values reflects the fundamental principles that consistently resonated with personnel throughout the development process. These values are our cultural cornerstones, reflecting how we as SWP personnel commit to working with each other and our partners. Our five core values are:

SAFETY

We commit our time and resources to ensure SWP personnel and the public are as safe as possible from risk, injury, danger, or loss.

STEWARDSHIP

SWP is a steward of California's water resources, environment, and infrastructure; we practice stewardship through our responsible planning and management of these resources.

INTEGRITY

We are honest and show consistent adherence to our commitments as well as strong moral and ethical principles.

EXCELLENCE

We individually and collectively strive to achieve organizational excellence; we aim to be the best in class and operate the SWP safely, reliably, and affordably.

RESPECT

To respect something is to value, admire, or hold it in high regard, which builds feelings of trust, acceptance, and wellbeing. As SWP personnel, we respect each individual. As an organization, we respect the importance of the work that we do and the perspectives of our partners.



SHERMAN ISLAND FISH RELEASE PROJECT (2016)



LAKE DAVIS (2020)



LOOKOUT SLOUGH (2020)



DEVIL CANYON POWERPLANT (2012)

OUR GOALS

Elevate to '28 sets out SWP's five attainable and relevant organizational goals that coordinate and focus the efforts of the SWP's divisions and offices. These goals describe the broad desired results of Elevate to '28. Our five organization goals are:

ADVANCE AN INDUSTRY-LEADING SAFETY CULTURE



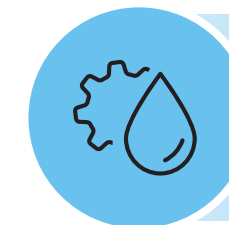
BE THE EMPLOYER OF CHOICE



ACCELERATE ADAPTATION AND STRENGTHEN RESILIENCY FOR A CHANGING CLIMATE



PROMOTE AWARENESS OF THE STATE WATER PROJECT'S SIGNIFICANCE



OPTIMIZE INFRASTRUCTURE, FINANCIAL INTEGRITY, AND OPERATIONS



TUNNEL INSPECTION

SWP personnel inside the Tehachapi tunnel performing an inspection and training tour. The tunnel conveys water from the San Joaquin Valley to Southern California.

Photo taken January 2019.

GOALS AND OBJECTIVES

GOAL ONE



Advance an industry-leading safety culture

OUR MOTIVATION

Advancing a safety driven culture not only safeguards the well-being of our personnel and facilities, but also enables the safe delivery of water and power across California. By prioritizing safety at every level of SWP's operations, we uphold our commitment to deliver reliable service.

OBJECTIVES

- 1.1** Enhance employee safety training, practices, and procedures to reduce risks to employees.
- 1.2** Equip employees and interested parties with the tools and knowledge regarding their roles and responsibilities in an emergency.
- 1.3** Prioritize security to protect human resources and assets.
- 1.4** Strengthen the safety of infrastructure to enable the performance of key operations.



CAREER FAIR

DWR employees talk with students and parents at CareerGPS, where high school students navigate their futures through an interactive and engaging career exploration fair.

Photo taken September 2015.

GOALS AND OBJECTIVES

GOAL TWO



Be the employer of choice

OUR MOTIVATION

SWP relies on a strong workforce to support internal operations and provide a multitude of benefits to Californians. Being the employer of choice means attracting and retaining highly qualified and motivated personnel. Fostering a workplace where employees thrive and feel valued empowers our team to lead the way in innovation and excellence.

OBJECTIVES

- 2.1 Improve the recruitment strategy to attract a diverse and engaged workforce.
- 2.2 Promote an employee-centric culture to meet the current and future needs of personnel.
- 2.3 Expand promotional pathways to increase employee retention.
- 2.4 Implement succession planning to improve knowledge management.
- 2.5 Foster diversity to create an inclusive work environment.



LOOKOUT SLOUGH RESTORATION

Geese swim through Lookout Slough, a tidal habitat undergoing restoration and flood improvements essential to maintaining the Sacramento-San Joaquin Delta's biodiversity. The project will restore approximately 3,000 acres of tidal wetland. Its strategic location forms a vast 16,000-acre tidal wetland complex, marking it as the Delta's largest single tidal habitat restoration project to date.

Photo taken October 2020.

GOALS AND OBJECTIVES

GOAL THREE



Accelerate adaptation and strengthen resiliency for a changing climate

OUR MOTIVATION

Accelerating adaptation and strengthening resiliency enable SWP to proactively respond to some of the greatest risks and opportunities posed by a changing climate and extreme weather. By focusing on climate adaptation, SWP will be a more resilient service provider for the people and environment of California, now and for future generations.

OBJECTIVES

- 3.1** Improve long-term project planning to anticipate and adapt to climate change.
- 3.2** Promote a culture of accountability to increase climate change resilience.
- 3.3** Be a leader in achieving California's climate goals.

MUSEUM EXHIBIT

DWR sponsors four interactive exhibits at the Sacramento Municipal Utility District Museum of Science and Curiosity to promote STEM education and teach students from the region about California's water system.

Photo taken November 2021.



GOALS AND OBJECTIVES

GOAL FOUR



Promote awareness of the State Water Project's significance

OUR MOTIVATION

Promoting awareness of SWP's significance enables our customer agencies and external interested parties to have a deeper understanding of the importance of SWP's work and their connection to that work. As the nation's largest state-owned water and power generator, SWP — and support of SWP's work — is a critical component to California's continued success.

OBJECTIVES

- 4.1 Strengthen communications and engagement with external partners to achieve our shared initiatives.
- 4.2 Increase public awareness of SWP to strengthen support for its purpose and priorities.
- 4.3 Foster internal awareness and collaboration to create a shared understanding of SWP's importance and the role of each division and office.



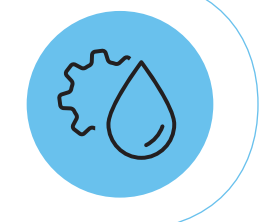
OROVILLE SPILLWAY

Crews place structural concrete on the middle chute of the Lake Oroville Dam main spillway during Phase 2 of the recovery effort at the Butte County site.

Photo taken August 2018.

GOALS AND OBJECTIVES

GOAL FIVE



Optimize infrastructure, financial integrity, and operations

OUR MOTIVATION

Optimizing infrastructure, financial integrity, and operations enables SWP to overcome the uncertainties and challenges caused by aging facilities, environmental stresses, and economic shifts. SWP strives to be “best in class” (i.e., achieve excellent performance), delivering services more efficiently and effectively thanks to critical investments in these areas.

OBJECTIVES

- 5.1 Innovate methods to proactively adapt to shifts in regulatory requirements and other external factors.
- 5.2 Increase fiscal discipline and financial transparency to responsibly manage finances.
- 5.3 Improve asset lifecycle management to streamline decision-making, increase operational efficiency, and improve future dependability.
- 5.4 Integrate environmental stewardship in all our work in order to protect, restore, and enhance our environment.
- 5.5 Implement SWP-wide organizational practices to demonstrate and achieve “best in class.”



OUR RISK-INFORMED STRATEGIC PLANNING PROCESS

The approach to developing Elevate to '28 consisted of a blend of input from a wide array of personnel across the SWP, integrating SWP's risk management perspective, and incorporating leading strategic planning practices. Next steps in this process involve developing a work plan to outline and track implementation, as well as regular processes to ensure Elevate to '28 can evolve and *adapt over time*. The following pages provide an overview of our inclusive, risk-informed strategic planning process.

THE DELTA

The Sacramento-San Joaquin River Delta is the hub of California's water supply, supplying fresh water to two-thirds of the state's population and millions of acres of farmland.

Photo taken May 2023.



PYRAMID LAKE

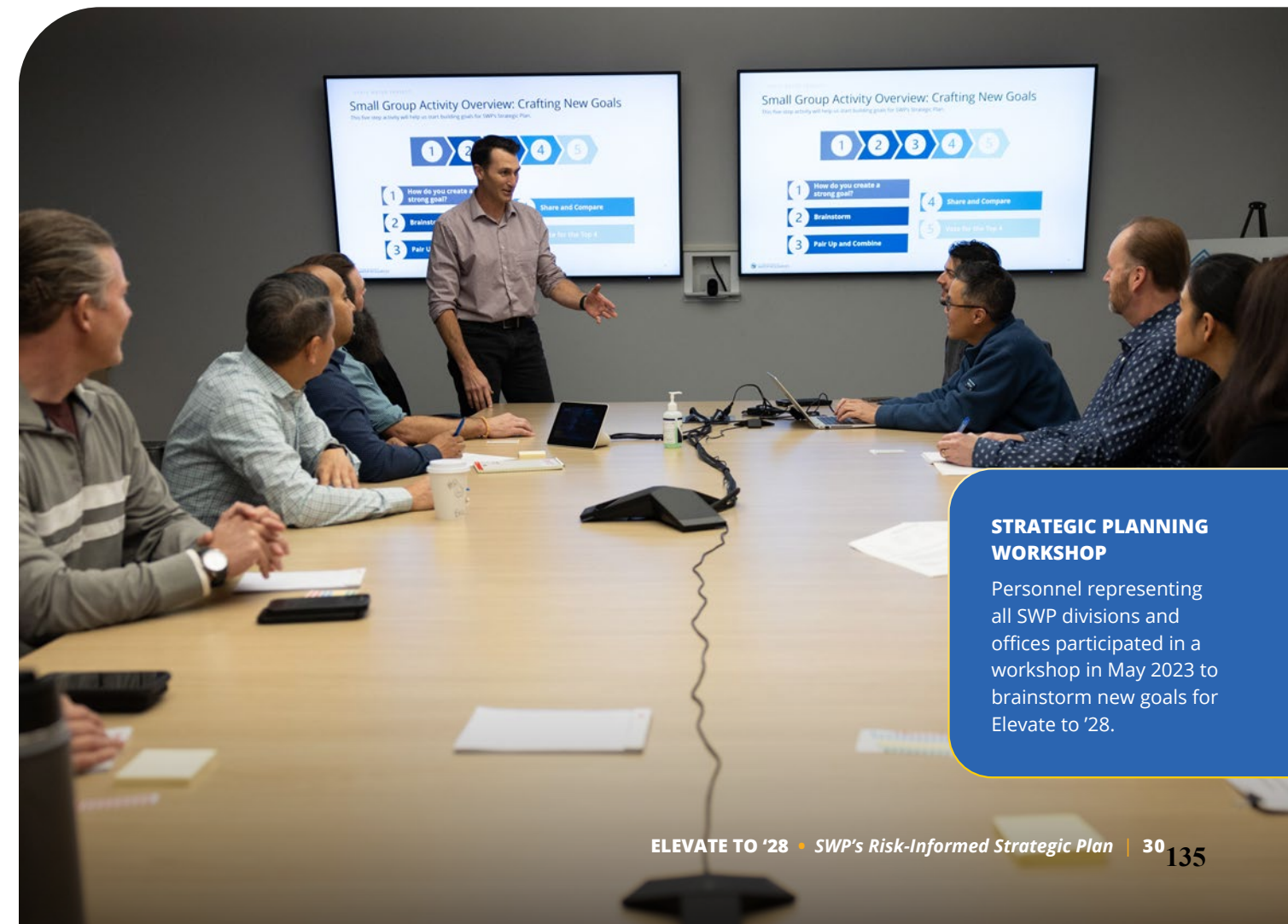
Vista Del Lago Visitor Center, located on a bluff overlooking Pyramid Lake in Los Angeles County. Pyramid Lake affords emergency storage for water deliveries and is a popular recreational spot for Californians.

Photo taken May 2023.

ENGAGING DIVERSE PERSPECTIVES

We embarked on an inclusive, iterative strategic planning process in 2022 to develop Elevate to '28. This process consisted of a core set of activities that engaged a diverse range of division and office personnel, as well as SWP and DWR leadership.

Interested party interviews helped us assess the “current state” of SWP, while workshops with SWP leadership solidified SWP’s vision, purpose, and core values. Work Group members, consisting of representatives from all the SWP divisions and offices, participated in collaborative workshops to brainstorm goals and objectives. Follow up interviews with subject matters experts solidified our collective understanding of Elevate to '28’s strategic actions. In each step of the process, we incorporated insights on external risk trends and the top risks facing SWP for consideration while drafting Elevate to '28. This collaborative approach resulted in a plan created by and for all SWP personnel.



STRATEGIC PLANNING WORKSHOP

Personnel representing all SWP divisions and offices participated in a workshop in May 2023 to brainstorm new goals for Elevate to '28.

PERSONNEL SPOTLIGHT

SWP personnel shared their thoughts on what they enjoyed most about the strategic planning process, what they hope to see for Elevate to '28's success, and how they believe Elevate to '28 can help highlight the work of their SWP colleagues.



In the words of Benjamin Franklin, 'If you fail to plan, then you are planning to fail.' We need to be extra vigilant in the next five years to address the many issues facing the SWP. To rise to this challenge and successfully accomplish our purpose we; 1) Developed a comprehensive risk informed Strategic Plan, 2) Will engage in relentless measured implementation, 3) Will utilize the talented individuals of the SWP – working together as one team, with a single vision, with improved communication and collaboration, embracing and managing change, and partnering in the work that we do – both internally and externally.

TONY MEYERS
SWP Executive Management Team



Through Elevate to '28, I hope to see the successful implementation of the SWP's many critical initiatives. Tracking the progress, using agile decision making to make adjustments as needed, and measuring success for each identified initiative is a new effort and I am excited to see the SWP achieve its goals!

ERIK REYES
SWP Modeling Support Office



I most enjoyed working as a team with my colleagues during the strategic planning process. We have diverse backgrounds and diverse goals — but working together we are finding the common ground and elevating it within the strategic plan.

KEVAN SAMSAM
SWP Division of Engineering



All divisions and offices are now represented in Elevate to '28, and staff will be able to see how the work they do adds value to the state of California.

KAREN GEHRTS
SWP Division of Science and Engineering



Elevate to '28 was developed with the help of those that will be implementing the plan itself. Buy-in and understanding started with the first meeting and has continued throughout the process. It's the epitome of teamwork!!!

JEREMIAH McNEIL
SWP Hydropower License Planning and Compliance Office



All levels of the SWP will be able to see direct linkages between their division and office and the strategic plan, resulting in greater ownership and engagement.

DAVE PAULSON
SWP Analysis Office



Elevate to '28 will provide a big-picture view of how our work is addressing the SWP-wide top risks. This big-picture view is critical to help personnel understand and see the value of what they do and how it relates to the overall SWP strategy.

JORGE QUINTERO
SWP Division of Operations and Maintenance



SWP's strategic plan is a collection of goals, objectives, and initiatives that were initiated from a personnel-centric lens. What a powerful way to do planning! Cross-divisional voices were heard, day-to-day work challenges were brought to the forefront, and the plan suddenly became more than just a plan. There's connection, there's commitment, and there's a clear roadmap to where SWP is headed. The strategic plan itself represents the heart of the One Blue Team vision that embraces and manages change though our proven open communication, collaboration, and teamwork.

ANGELICA AGUILAR
SWP Division of Engineering



I most enjoyed the collaborative spirit during the strategic planning process. Engaging with colleagues in vibrant and passionate discussions brought diverse insights, enriching the plan and enhancing my understanding of SWP. It fostered a culture of open communication; every interaction was valuable. Participating in this journey together gave me a sense of belonging and amplified my commitment to the organization's future.

MARCUS YEE
SWP Delta Conveyance Office



I look forward to the transparency in decisions on SWP priorities and the continued alignment between the SWP strategic plan and division and office goals and priorities.

VANESA HILL
SWP Division of Operations and Maintenance



I have enjoyed the collaboration and listening that has occurred during the strategic planning process. The environment in which the SWP functions is complex and ever-changing, for the organization to succeed we need to be aware of the factors affecting us externally and continually improve internally. I have seen the team work to make sense from the complexity and strategically focus a direction.

PHIL LECOCQ
SWP Division of Engineering

HYATT POWERPLANT

The SWP maintains hydroelectric power plants, like the one pictured here, to supply about two-thirds of its power requirements, depending on the hydrology of the year. The power produced by these facilities make the SWP the fourth largest zero emissions hydropower energy producer in California.

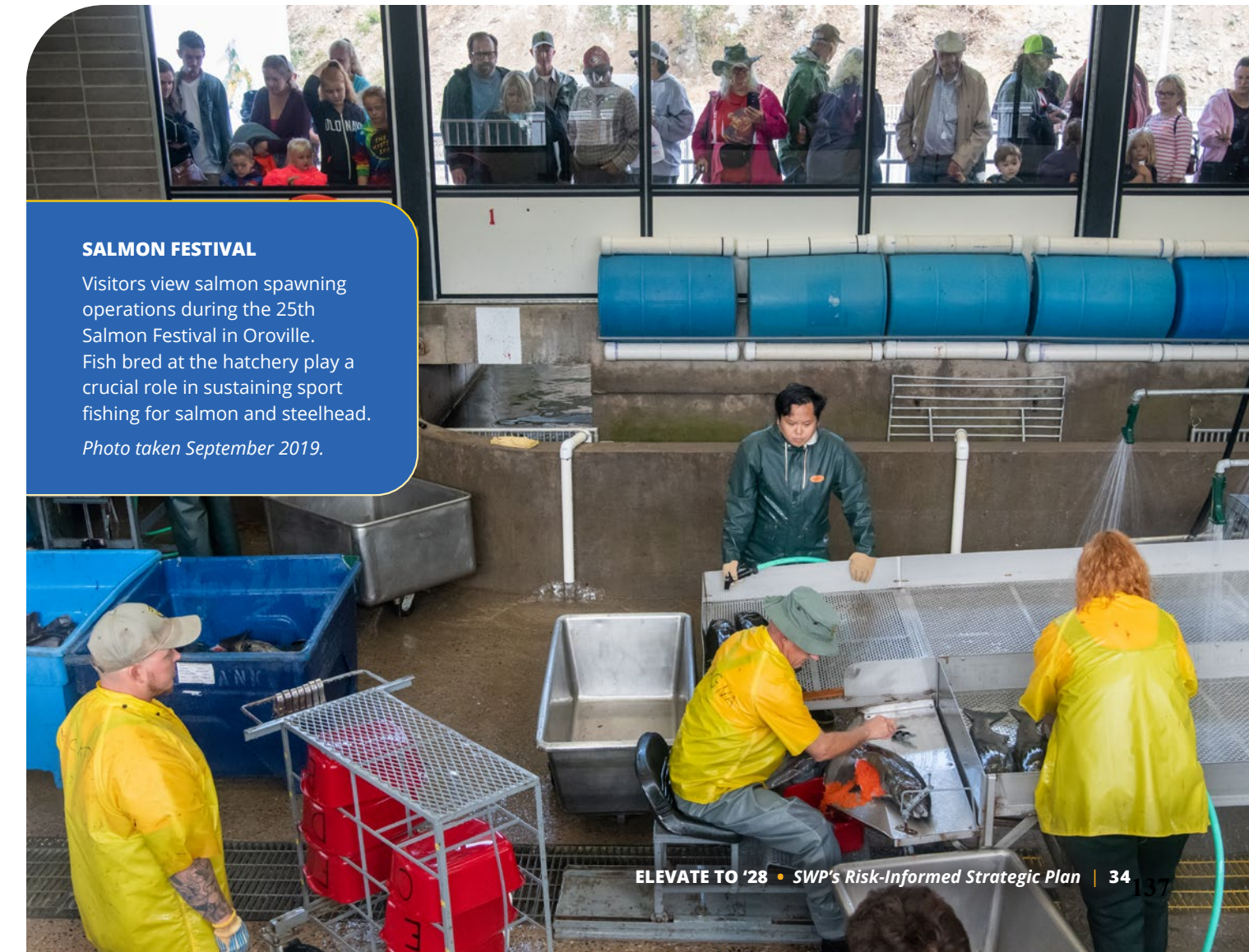
Photo taken July 2021.



INTEGRATING RISK AND STRATEGY

Throughout the development of Elevate to '28, personnel input was complimented by close integration of strategic planning and risk management. We identified and prioritized external risk trends and the top risks facing SWP through extensive document reviews, industry research, benchmarking, and additional workshops and information gathering sessions.

Establishing a comprehensive understanding of the SWP-wide top risks gave us a critical risk-informed perspective while creating our new strategy. Incorporating risk management throughout our strategic planning process will empower SWP to proactively and cost effectively pivot Elevate to '28 according to changes in internal and/or external trends. We will enhance our reliability, sustainability, and resiliency as a water provider by seizing potential opportunities and managing risk in a consistent and systematic manner.



SALMON FESTIVAL

Visitors view salmon spawning operations during the 25th Salmon Festival in Oroville. Fish bred at the hatchery play a crucial role in sustaining sport fishing for salmon and steelhead.

Photo taken September 2019.

PATH TO IMPLEMENTATION

Next steps for Elevate to '28 include developing an Implementation Work Plan (Work Plan) outlining the actions we will take to achieve our goals and objectives. Actions will be prioritized according to multiple factors, including the extent to which they mitigate the top risks facing the SWP. The Work Plan will be complimented by a set of Key Performance Indicators (KPIs) and Key Risk Indicators (KRIs) to monitor our progress and evolving risks.

Implementation of Elevate to '28 also includes an Annual Refresh Process to adapt and refine Elevate to '28. The Annual Refresh Process provides an opportunity to reassess the top risks facing SWP, external and internal factors, and how well we are meeting our priorities for the year. Internal and external factors may include shifts in the regulatory landscape, societal priorities, technological advancements, environmental changes, availability of internal and external capabilities and resources, and overall changes in SWP's risk profile. The Annual Refresh Process will ultimately result in updates to strategic prioritization and resource allocation for the following year and beyond.

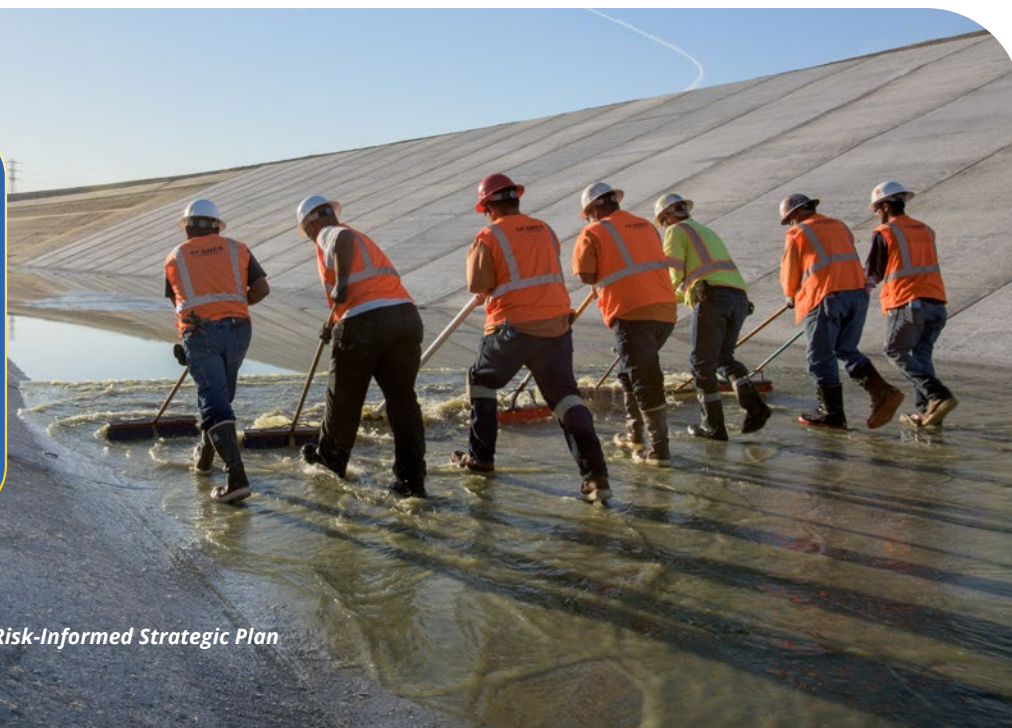
We will perform a more thorough review of Elevate to '28 during the Five-Year Update Process. During this time, we will reassess our goals and objectives based on many of the same factors described above. This top-to-bottom review allows us to reprioritize SWP's overall strategy and ensure our plan for the future continues to align with DWR's strategic plan and SWP's vision, purpose, and core values.

We are committed to evolving SWP's strategy to stay ahead of the ever-changing challenges we face today, tomorrow, and well beyond 2028. We will do this through incorporating lessons learned, proactively adapting to changing risks, and acting on future opportunities to improve the services we provide to the people and environment of California.

AQUEDUCT REPAIRS

A crew performs close-out repairs on sections of the lining and underlying embankment of the California Aqueduct in Kern County. A majority of the repair operation was conducted 24 hours a day, seven days a week.

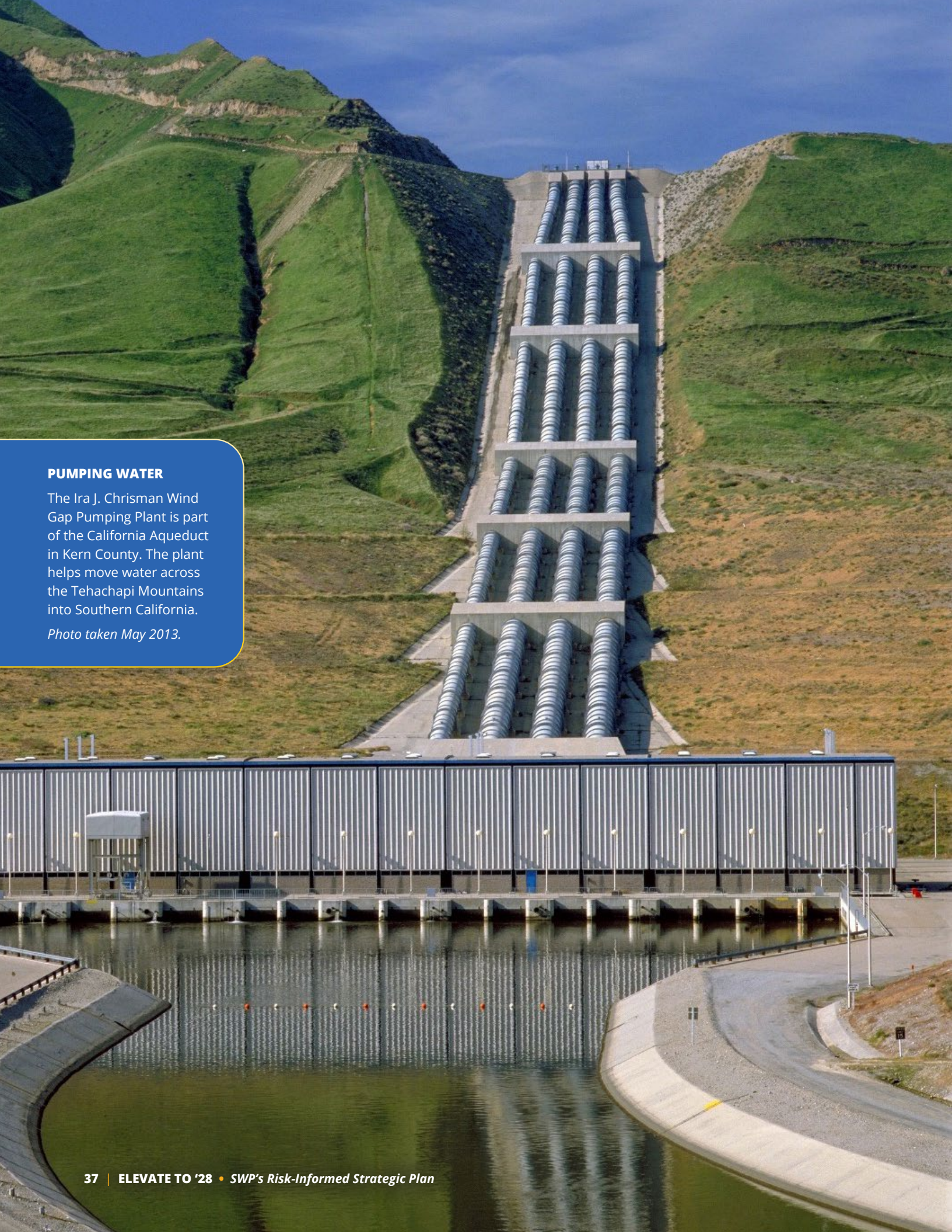
Photo taken February 2016.



EDUCATING STUDENTS

DWR scientists teach elementary school students about Feather River conservation efforts and restoration.

Photo taken November 2023.



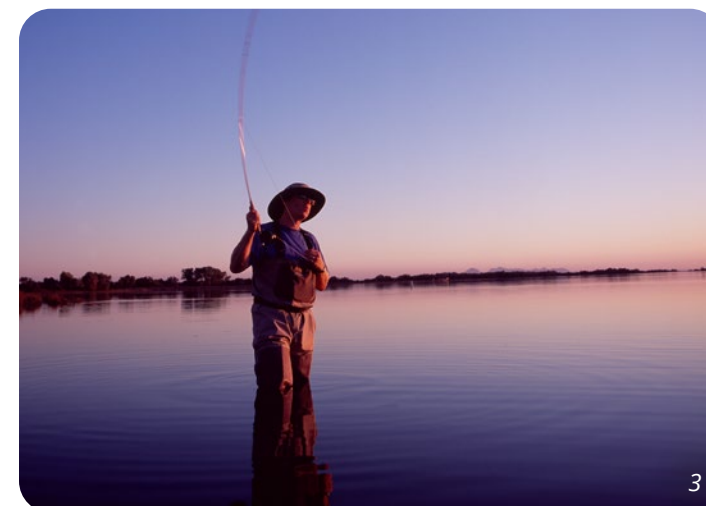
PUMPING WATER

The Ira J. Chrisman Wind Gap Pumping Plant is part of the California Aqueduct in Kern County. The plant helps move water across the Tehachapi Mountains into Southern California.

Photo taken May 2013.

ACKNOWLEDGEMENTS

We are grateful to everyone who provided support, input, and guidance throughout the strategic planning process. The parties who made Elevate to '28 possible demonstrated a passion and determination reflective of the SWP's resolve and our vision to be the most reliable, sustainable, and resilient water provider. The Elevate to '28 project team is immensely grateful for all the time and effort that made this work possible. Thank you all!



1) Boating at Lake Perris (2023), 2) Camping at Lake Oroville (2016), 3) Fishing at Thermalito Afterbay (2013), 4) Drinking water at a public park (2023)

ELEVATE TO '28 OVERVIEW

OUR MISSION	OUR VISION	OUR PURPOSE	OUR CORE VALUES
To sustainably manage the water resources of California, in cooperation with other agencies, to benefit the state's people and protect, restore, and enhance the natural and human environments.	To be the most reliable, sustainable, and resilient water provider for the people and environment of California, now and for future generations.	Operate the State Water Project as one team to provide safe, reliable, and affordable water for the well-being and prosperity of California.	<ul style="list-style-type: none"> • Safety • Stewardship • Integrity • Excellence • Respect

GOAL 1 Advance an industry-leading safety culture

OBJECTIVES	1.1 Enhance employee safety training, practices, and procedures to reduce risks to employees.	1.2 Equip employees and interested parties with the tools and knowledge regarding their roles and responsibilities in an emergency.	1.3 Prioritize security to protect human resources and assets.	1.4 Strengthen the safety of infrastructure to enable the performance of key operations.

GOAL 2 Be the employer of choice

OBJECTIVES	2.1 Improve the recruitment strategy to attract a diverse and engaged workforce.	2.2 Promote an employee-centric culture to meet the current and future needs of personnel.	2.3 Expand promotional pathways to increase employee retention.	2.4 Implement succession planning to improve knowledge management.	2.5 Foster diversity to create an inclusive work environment.

GOAL 3 Accelerate adaptation and strengthen resiliency for a changing climate

OBJECTIVES	3.1 Improve long-term project planning to anticipate and adapt to climate change.	3.2 Promote a culture of accountability to increase climate change resilience.	3.3 Be a leader in achieving California's climate goals.

GOAL 4 Promote awareness of the State Water Project's significance

OBJECTIVES	4.1 Strengthen communications and engagement with external partners to achieve our shared initiatives.	4.2 Increase public awareness of SWP to strengthen support for its purpose and priorities.	4.3 Foster internal awareness and collaboration to create a shared understanding of SWP's importance and the role of each division and office.

GOAL 5 Optimize infrastructure, financial integrity, and operations

OBJECTIVES	5.1 Innovate methods to proactively adapt to shifts in regulatory requirements and other external factors.	5.2 Increase fiscal discipline and financial transparency to responsibly manage finances.	5.3 Improve asset lifecycle management to streamline decision-making, increase operational efficiency, and improve future dependability.	5.4 Integrate environmental stewardship in all our work in order to protect, restore, and enhance our environment.	5.5 Implement SWP-wide organizational practices to demonstrate and achieve "best in class."

GLOSSARY

TERM	DEFINITION
Affordable	The concept of affordability within the context of the SWP is multifaceted and depends on various factors such as cost to customer agencies, infrastructure costs, environmental considerations, and the human right to water. SWP must balance all of these dimensions of affordability to maintain a sustainable water supply.
Annual Refresh Process	A process involving updates to the strategic plan based on inputs such as the annual SWP-wide risk assessment, new or evolving external risk trends, progress of strategy implementation, resource considerations, shifting priorities, and/or external events.
"Best in Class"	To be "best in class" is to achieve excellent performance, especially relative to industry peers. Excellent performance involves delivering increasing value to interested parties, improving overall organizational effectiveness and capabilities, and practicing organizational and personal learning.
Bulletin 132	Bulletin 132, <i>Management of the California State Water Project</i> , is an annual series reporting SWP water supply planning, construction, finance, management, and operations.
Core Values	Fundamental principles that guide the way SWP personnel work with those they serve and together as colleagues.
Customer Agencies	The 29 public agencies that have entered long-term water supply contracts with DWR for the receipt of water from the SWP.
Elevate to '28 Components	The individual parts of the risk-informed strategic plan that collectively make up Elevate to '28. This includes the vision statement, purpose statement, core values, goals, and objectives.
Excellence	One of SWP's core values. Valuing excellence means we individually and collectively strive to achieve organizational excellence; we aim to be the best in class and operate the SWP safely, reliably, and affordably.
Five-Year Update Process	Includes a top-to-bottom review and update of SWP's strategic plan, including the reprioritization of goals and objectives. The process enables leadership to identify new risks and opportunities and incorporates lessons learned from previous strategy implementation.
Goals	Results that organize the efforts of SWP leadership, divisions, and offices.

TERM	DEFINITION
Implementation Work Plan	Identifies and sequences the implementation of Elevate to '28 strategic actions; focuses on executing Elevate to '28 in the first year; includes broad outlines for actions to be implemented after year one.
Integrity	One of SWP's core values. Valuing integrity means we are honest and show consistent adherence to our commitments as well as strong moral and ethical principles.
Interested Parties	An individual, group, or organization that may affect, be affected by, or perceive itself to be affected by a decision, activity, or outcome of Elevate to '28.
Mission Statement	Explains how we will achieve our purpose and goals. SWP shares DWR's mission statement because we are all united in sustainably managing California's water resources.
Objectives	Key milestones and outcomes that can be measured and evaluated to achieve Elevate to '28's goals. Each goal has 3–5 objectives.
One Blue Team	The SWP operates as "One Blue Team", meaning we emphasize frequent collaboration and communication across divisions and offices. Our "One Blue Team" culture ensures we are all united under the SWP's vision, purpose, and core values.
Purpose Statement	A clear description of what we are working to achieve; an inspiring reminder of why we do what we do.
Reliable	Reliability in the context of SWP refers to the consistency and dependability of water supply, delivery, and other services provided by the SWP. For example, reliability can include infrastructure performance and climate resilience.
Resilient	Resilience in the context of SWP refers to our ability to withstand and recover from disruptions, uncertainties, and challenges while continuing to provide reliable and sustainable benefits to Californians.
Respect	One of SWP's core values. To respect something is to value, admire, or hold it in high regard, which builds feelings of trust, acceptance, and wellbeing. As SWP personnel, we respect each individual. As an organization, we respect the importance of the work that we do and the perspectives of our partners.
Safety	One of SWP's core values. Valuing safety means we commit our time and resources to ensure SWP personnel and the public are as safe as possible from risk, injury, danger, or loss.

TERM	DEFINITION
Strategic Planning	A process in which an organization's leaders define their vision and goals for the future.
SWP Divisions and Offices	The different divisions and offices that make up SWP, including the Delta Conveyance Office (DCO), the Division of Integrated Science and Engineering (DISE), the Division of Engineering (DOE), the Hydropower License Planning and Compliance Office (HLPCO), the Division of Operations and Maintenance (O&M), the SWP Analysis Office (SWPAO), and the Modeling Support Office (MSO).
SWP-wide Risk Assessment	An assessment of SWP-wide top risks using techniques such as a risk taxonomy, risk surveys, interviews, and facilitated workshops to develop and refine top risk profiles, assessment criteria, and tolerance elements.
SWP-wide Top Risks	Prioritized SWP-wide top risks that result from the SWP-wide risk assessment.
Top-to-Bottom Review	A full review of strategic plan goals and objectives. This level of review will be performed during the Five-Year Update Process.
Trends	Patterns and/or shifts supported by evidence that show a change in a particular direction.
Uncertainties	Unknown events or factors that may present an opportunity or risk for an organization.
Vision Statement	The "north star" of Elevate to '28, guiding our strategy so that we can achieve SWP's ideal future.
Work Group	Provided perspectives from each of SWP's different divisions and offices during the drafting of Elevate to '28 components.
Workshop	An interactive, in-person working session where select SWP personnel brainstorm and discuss the SWP-wide top risks and/or draft Elevate to '28 components (e.g., vision statement, core values, goals).

SAN LUIS RESERVOIR

The sun rises over the San Luis Reservoir State Recreation Area. San Luis Reservoir is a key storage facility that enhances the SWP's ability to provide reliable water supply. It has an operating capacity of 2 million acre-feet.

Photo taken August 2021.

ELEVATE TO '28

The State Water Project's Risk-Informed Strategic Plan



OUR VISION



To be the most reliable, sustainable, and resilient water provider for the people and environment of California, now and for future generations.

OUR PURPOSE



Operate the State Water Project as one team to provide safe, reliable, and affordable water for the well-being and prosperity of California.

OUR CORE VALUES



- Safety
- Stewardship
- Integrity
- Excellence
- Respect

water.ca.gov

◀ WHEELER RIDGE-MARICOPA WATER STORAGE DISTRICT ▶

MEMORANDUM

TO: Board of Directors

FROM: Robert Kunde

DATE: March 11, 2024; revised April 8, 2024

SUBJECT: Sites Reservoir Project - Benefits and Obligations Contract Update

At its February 16, 2024 meeting, the Sites Project released for public comment a public draft of the (a) Benefits and Obligations Contract, (b) Amended Joint Powers Authority Agreement, and (c) Phase 3, 4 and 5 Bylaws. These interrelated documents will form the Governance structure for Phases 3, 4, and 5 of the Project commencing in mid-2025.

Attached find the Sites staff memorandum and Attachment A - “*Draft B&O Contract and Governance FAQ Document*” thereto. Attachments B (the 68 page Benefits and Obligations Contract), C and D are available upon request. From the memo:

“It is important for all JPA members and Participants to be engaged and constructive in the development of these agreements and identify any “deal stoppers” immediately. Staff anticipates bringing forth another update including the current state of the documents in June 2024.”

Staff requests that Participants and JPA members 1) conduct a detailed review of the attached public draft B&O Contract, JPA Amendment, and Bylaws and provide any comments from your agency by the March 22, 2024 meeting, and 2) consider what information and/or timing of materials is needed to expeditiously secure within your agency authorization to execute these agreements, [WRM will only execute the B&O Contract] and identify any gaps you foresee with the current proposed approach.”

These documents will be reviewed with the Board at its April 8 meeting. Director attention is directed to the attached “*Draft Benefits & Obligations Contract and Governance Development Frequently Asked Questions (FAQ) Related to these Subjects*” Board input is encouraged.

Presentation notes on the FAQ document and additional information is attached.

Attachments:

1. Sites February 16, 2024 memo “Draft Benefits and Obligations (B&O) Contract)
2. Draft Appendix 7C-2 to B&O Contract
3. Kunde Presentation Outline

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Meeting: **Reservoir Committee & Authority Board Agenda** **February 16, 2024**
Item 3.2

Subject: **Draft Benefits & Obligations (B&O) Contract**

Requested Action:

Receive an update on the a) development of the Benefits & Obligations Contract, Amended and Restated Joint Powers Agreement, and Phase 3, 4, 5 Bylaws and b) next steps to achieving Participants securing authority to execute these documents.

Detailed Description/Background:

The Benefits & Obligations Contract (B&O Contract), Amended and Restated Joint Powers Agreement (JPA Agreement) and Phase 3, 4, and 5 Bylaws as a whole form the governance structure for Phase 3, 4, and 5. Together these documents, when executed by Participants and the Sites Authority, inclusive of each individual JPA member, will be the contractual basis for decision making on the Project. Staff has advanced the B&O Contract, JPA Agreement, and Bylaws alongside each other based on the Final Adopted Guiding Principles and Preliminary Terms agreed to and provided by the Authority Board and Reservoir Committee, and direction from the **Governance Ad Hoc Subcommittee**. Public drafts of all three documents are attached. **For reference and your use in discussing the Sites Project contracts and governance structure among your own agency, staff is also providing a Frequently Asked Questions (FAQ) document** (included as Attachment A). If you have other questions you would like to see addressed in the FAQ, please raise them with Staff. This document will be updated as needed. The drafts of the B&O Contract, JPA Agreement and Bylaws are included as Attachments B, C, and D, respectively.

It is important for all JPA members and Participants to be engaged and constructive in the development of these agreements and **identify any “deal stoppers” immediately**. Staff anticipates bringing forth another update including the current state of the documents in June 2024.

Staff requests that Participants and JPA members 1) conduct a detailed review of the attached public draft B&O Contract, JPA Amendment, and Bylaws and provide any comments from your agency by the March 22, 2024 meeting, and 2) consider what information and/or timing of materials is needed to expeditiously secure within your agency authorization to execute these agreements. as applicable, and identify any gaps you foresee with the current proposed approach.

Operations Plan:

The draft B&O Contract includes contractual provisions related to Project operations. The Operations Plan, Version 2.0 (refer to Agenda Item 03-01) is intended to be used to describe the process and systems Authority Staff will be using to coordinate Sites operations with Storage Partners and permitting agencies.

Prior Action:

January 2024 – Confirmed the development of the B&O Contract remains consistent with the board adopted Guiding Principles and Preliminary Terms and delegate development of further operational details to the Operations and Engineering Committee.

Fiscal Impact/Funding Source:

The Amendment 3 Work Plan includes sufficient budget to cover required resources and activities to develop the Sites Reservoir Benefits & Obligations Contract. The drafting of the Joint Powers Agreement and Bylaws was anticipated in General Counsel’s (Young Wooldridge) Amendment 3 scope with \$100,000 of the contract authority being allocated which is sufficient to cover the costs.

Staff Contact:

JP Robinette (B&O Contract)

Jerry Brown / Alan Doud (Joint Powers Agreement/Bylaws)

Primary Service Provider:

Nossaman / Brown & Caldwell (B&O Contract)

Young Wooldridge (Joint Powers Agreement / Bylaws)

Attachments:

Attachment A – Draft B&O Contract and Governance FAQ Document

Attachment B – Draft B&O Contract

Attachment C – Draft JPA Amendment

Attachment D – Draft Bylaws Amendment



Draft Benefits & Obligations Contract and Governance Development Frequently Asked Questions (FAQ) Related to these Subjects

The Benefits and Obligations Contract (B&O Contract) between the Sites Authority and the Participants will describe the contractual commitments and obligations each of the Participants and Sites Authority will have to each other. **The Governance of the Project is described in the B&O Contract plus the amended JPA and Bylaws.** This FAQ is intended to be used for reference in Participants' continued review and comment on these contract documents and to assist the Participants in developing their approach to getting B&O Contract signature authority from their Boards, representing the transition to a final and irrevocable commitment to the Project and a revised governance for Phase 3, 4, and 5.

What does a Participant get when entering into a B&O Contract?

- Participants get a contractual commitment to a share of the Project's storage space (B&O 3.5) and a share of actual diverted water made under the Sites Water Right, along with control over the use of that share of the asset in cooperation with other Storage Partners. In addition, the Participant schedules releases of water out of the Reservoir to the primary point of delivery and in some cases, a secondary point of delivery (B&O 4.4). The Sites Authority commits best efforts in achieving all Storage Partners (Participants, State, Reclamation) requests and where physical limitations in capability occur, the Sites Authority will allocate capacity or provide rescheduling as available to accommodate requests in coordination with Storage Partners.

What kicks off the process for Participant home-boards to consider signing a B&O Contract? **When will this occur?**

- A recommendation by the Reservoir Committee and a Resolution of the Authority Board to Offer Capacity Interest and water service in the Sites Reservoir Project (a "Resolution to Offer Capacity and Service") through the B&O Contract will initiate the process for home-board review and action. It is expected that this action would be taken after determining sufficient progress has been made on finalizing key permits and agreements and developing an updated project cost estimate. Please refer to the condition precedent reporting document reviewed at the August 18, 2023 and November 17, 2023 Board meetings for the current status of the activities to be completed prior to the execution of the B&O Contracts.

- A deadline for returning an executed B&O Contract would be set at the time of adopting the Resolution. Currently a six-month period is planned for all Participants to complete their approvals.

Why is signing the B&O Contract critical to the Project?

- **Once signed, the B&O Contract represents a final and irrevocable commitment to proceed with the Project.** The B&O Contract will supersede all prior Participant Agreements (B&O 2.3) and will be the basis for funding, financing, constructing, and operating the Project. **For Participants, the B&O Contract describes the obligations of and the benefits that flow to each of the Participants.** For the Sites Authority, it outlines the Sites Authority's obligation to build and operate the Project, largely at the direction of the Participants. (B&O Recitals D-F).
- Together with the amended JPA and Bylaws, these three documents are the contractual commitments of the parties to the governance of the Project through Phase 3, 4, and 5. These documents specify the representation in decision making that each Storage Partner will have in the implementation of the Project.

What is required for the B&O Contract to take effect?

- For the B&O Contract to take effect, the Sites Authority must receive executed counterparts representing 100% of Base and Downstream Capacity Interests and the Sites Authority must also execute the B&O Contract (B&O 2.1.1).
- As a practical matter, having 100% Capacity Interests under contract will require the Sites Authority to execute the State and Federal Contracts (currently ~25% of Capacity Interest) (B&O Appendix 2).
- The Sites Authority amended JPA and Bylaws must also be executed which involves each of the JPA member agencies obtaining approval from their individual home boards.

What is required for the Project to move into construction?

- The B&O Contract outlines conditions precedent to construction including determination by the Sites Authority that it has secured all necessary approvals and permits and a resolution of the Reservoir Committee recommending commencement of construction (B&O 3.2).

- The adopted overall Project Schedule shows “breaking ground” in 2026 which would involve preparations for heavy construction (e.g. mobilization, securing power/water/sewer at field offices, clearing and grubbing, etc) which are activities envisioned to be allowed to precede prior to adopting the construction Resolution.

How will all of the approvals come together to “seal the deal”?

- A process similar to escrow on a home sale is envisioned due to the number of parties involved and the interdependency of the various documents with each becoming effective only upon the completion of all. Achievement of 100% capacity interest under contract will require as a minimum (note: the sequence of approvals is being evaluated and is not yet represented here):
 - Each Participant executes the B&O Contract, which commits the Participant to being a Reservoir Committee member and to be subject to the amended JPA and Bylaws. (22 Agencies)
 - The Sites Authority adopts the Amended and Restated JPA and the Phase 3,4,5 Bylaws, executes the B&O Contract, executes the Proposition 1 Water Storage Investment Program Contracts and the Reclamation Partnership Agreement. (1 Agency)
 - Each JPA member agency approves the Amended and Restated JPA and the Phase 3,4,5 Bylaws. (9 Agencies)
 - The California Water Commission authorizes final award of Proposition 1 funds and acknowledges the necessary Proposition 1 Water Storage Investment Program Contracts. (1 Agency)
 - The Bureau of Reclamation executes the Reclamation Partnership Agreement. (1 Agency)

What happens if the Project is undersubscribed prior to these final commitments being executed?

- We don’t expect this to happen but it is possible, so it is prudent to plan for just in case. The existing priority system for deciding where to offer contracts for Capacity Interest as described in the Credit Reimbursement Policy needs to be confirmed by the Board. At this juncture, Staff is not aware of any current Participants indicating an intent to drop or reduce their participation. Also, the waiting list has now grown to 15 agencies and approximately 250,000 af of storage space so demand is strong.

- However, last minute changes to participation levels or payment approach would be disruptive and have a schedule impact because all of the finance planning and contract document preparation is occurring around the current participation.

How does this B&O Contract relate to the other agreements and does anyone have express higher priority?

- To ensure that each Storage Partner has the ability to manage their own storage space and prioritize their use of Sites water, the Authority Board adopted the Storage Principles. The Storage Principles identify that all Storage Partners, including the State of California and Reclamation, have discretion over release of water from their Storage Allocation. The Storage Principles also identify a process to work through any release conflicts to meet the water demands of Storage Partners
- Each Storage Partner has rights that are exclusive to them, independent of the other Storage Partners, and within their sole control to the extent another is not impacted (B&O 4.2.3).
- The Sites Authority intends to enter into contracts with the State, and Reclamation that have similar terms and conditions as those that are proposed with Participants. However, there are provisions in the state and federal statutes that will need to be addressed in the state and Reclamation contracts which will make these contracts unique to them. Participants will have the final forms of the State and Reclamation agreements available prior to their considering execution of the B&O Contract.

What document takes precedence in the event of ambiguity?

- B&O 1.1.3 stipulates the following order of precedence depending on the extent of the ambiguity but generally with first being the B&O Contract, then the Bylaws, and finally the JPA Agreement.

Are Participants required to participate in the Sites Authority's Project Financing?

- No. The B&O Contract includes provisions for both Financing Participants (B&O 5.3) and Self-Funding Participants (B&O 5.5). The B&O Contract also allows for use of both approaches.
- It should be noted that the group financing may depend on having a high level of participation in Sites Financing from rated entities. It was acknowledged that there are benefits to this group financing in the Guiding Principles (Guiding Principles 4.2)

Can future projects be completed?

- Yes, other projects within or complementary to the Sites facilities are permitted under the B&O Contract. If the project is considered a capital improvement in order to continue to deliver initial Project functions, Participants may not opt out (B&O 9.2). If the proposed project will deliver new benefits, it can be pursued by a subset of Participants (B&O 9.3).

What happens if a Participant doesn't make a payment?

- B&O 10 describes the default process in detail. A supplement is included as Exhibit 1 to this document.

What happens if there is a dispute about the Sites Contract Document or any other referenced agreement?

- Each of the governance documents covers the dispute resolution process to be followed depending who the dispute is between. There are three scenarios covered in the documents thus far: JPA member has a dispute with another JPA member, the Reservoir Committee has a dispute with the Authority Board, a Participant has a dispute with the Authority Board. Supplements are included as Exhibits 2, 3 and 4 to this document.
- Dispute resolution between the Authority Board and/or State and Federal Storage Partners has not yet been determined but agreement to a similar process as to that described in the supplements will be sought.

Exhibit 1: Sites “Default Waterfall”

The Sites Benefits & Obligations Contract (B&O Contract) addresses potential payment defaults by one or more Participants in Section 10.

In the event a Participant fails to make any payment (i.e. debt service and/or any O&M) in full when such payment is due, Sites will inform the Participant of such failure through a written demand pursuant to Section 10.1.1. of the B&O Contract.

The Participant then has 30 days to remedy that payment default, after which Sites would provide written notice of suspension or termination of one or more of: the Participant’s Capacity Interest, interest in the Participant’s Water and rights to the services provided by Sites (Sections 10.2, 10.3 and 10.4 of the B&O Contract). This termination or suspension will become effective 30 days from the written notice of such termination or suspension.

In any case, the defaulting Participant will still be liable for any payment and the Participant’s share of Project Costs until such obligation is otherwise paid or incurred by another Participant (Section 10.5.6. of the B&O Contract).

Upon a default and termination of the Participant’s Capacity Interest and interest in Participant’s Water under section 10.3 and 10.4 of the B&O Contract, Sites is obligated to use its best efforts to transfer the defaulting Participant’s interests for all or a portion of the remaining contract. First, Sites will work with existing Participants to determine if any Participant wishes to increase its Capacity Interest, right to Sites Water and right to convey water by acquiring some or all of the defaulting Participant’s interest. If there is more Participant interest than available capacity, water etc., the defaulting Capacity Interest and interest in the defaulting Participant’s Water will be allocated pro rata among the interested Participants. Otherwise, the defaulted interests will be allocated pursuant to the Participants’ stated quantities.

Upon assignment of the defaulted interests, the assigned Participants will be obligated to pay some (if the defaulting Participant has made partial payment) or all of the amounts unpaid and will be obligated to pay the acquired Project Costs (in addition to the Participant’s original obligations) for the balance of the contract period assigned (Sections 10.5.1, 10.5.2).

If there is insufficient interest among the existing Participants to acquire all of the defaulting Participant’s Capacity Interest and rights to Participant’s Water, Sites will make those interests available to other parties. The new party or parties will assume the obligations and be entitled to the benefits of the Benefits and Obligations Contract. This transfer will not occur unless Sites has determined

the transfer will not affect the tax-exempt status of any Sites Financing (Sections 10.5.3, 10.5.4) and is subject to the shared decision making of the Reservoir Committee and the Authority Board.

If there is insufficient interest among the existing Participants or any qualified outside entity to acquire all of the defaulting Participant's Capacity Interest and interest in the defaulting Participant's Water, all or the remaining amounts will be assigned to the non-defaulting existing Participant's in proportion to their then existing Capacity Rights and interest in Sites Water. In exchange, each of the existing Participants will receive the benefits and incur the obligations to pay for Project Costs associated with those acquired interests (Section 10.5.5).

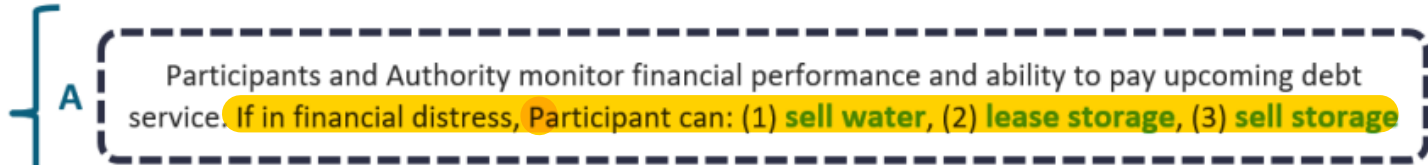
During the pendency of these actions, Sites will utilize amounts in the Liquidity Reserve to make needed payments on an interim basis. The Liquidity Reserve will be replenished to the Liquidity Requirement through payments (if any) from the defaulting Participant(s) and the non-defaulting Participants, who will pay the remaining amounts to meet the Liquidity Requirement in proportion to their Capacity Interest (Master Resolution Section 3.5 and definition of Fixed O&M Costs in the B & O Contract). The Sites Authority would collect such amounts in the next succeeding invoice cycle beginning on January 1.



Project Sufficiency (Default) Waterfall

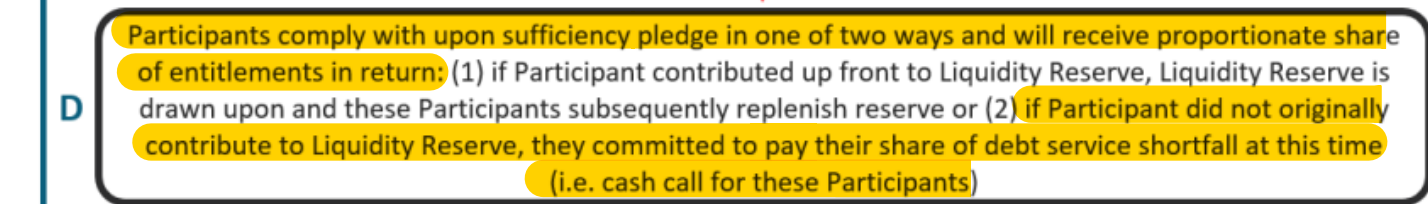
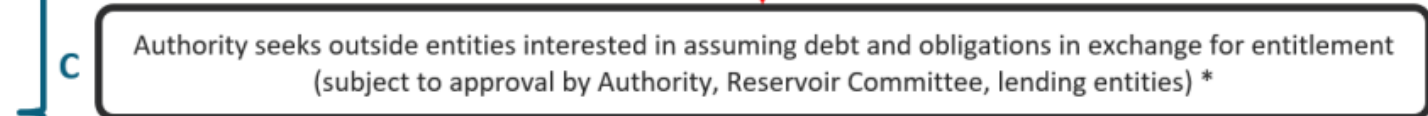
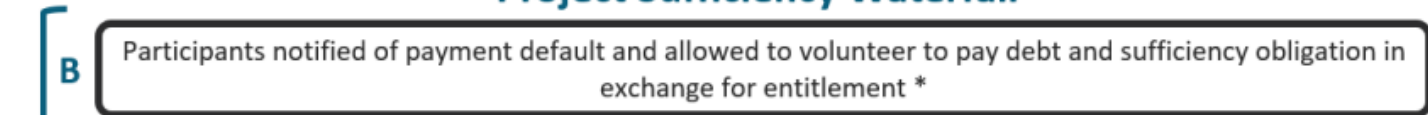
as presented in the 2021 Draft Plan of Finance / described in Section 10 of the Draft Benefits & Obligations Contract

Participant in control of asset/project rights



Project Sufficiency Waterfall

Authority in control of asset/project rights



* Changes will require lender/rating agency notification and approval

[LAND BASED CHARGES WRMWD APPENDIX]

APPENDIX 7C-2

LAND BASED CHARGES
(WHEELER RIDGE-MARICOPA WATER
STORAGE DISTRICT IMPOSED)

This Appendix 7C-2 (this “Appendix”) to the Benefits and Obligations Contract (the “Contract”), dated as of ____, 2024, by and between the entities listed therein and the Sites Project Authority (the “Sites Authority”) sets forth the exclusive source of payment of the Wheeler Ridge-Maricopa Water Storage District (“WRMWS”) and exclusive recourse for amounts due to the Sites Authority pursuant to the Contract and certain other terms supplementary to the Contract.

Unless the context otherwise requires, all acronyms, abbreviations and terms used in this Appendix have the meanings given in the Contract.

A. Source of Payment. WRMWS shall make payments due under the Contract solely (i) from special benefit assessments or charges in lieu of assessments (the “Assessments”) levied by WRMWS on certain parcels of land within WRMWS (the “Participating Properties”), the owners of which (the “Participating Landowners”) have executed agreements with WRMWS to participate in the Project (the “Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts”), pursuant to and as authorized by such Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts and applicable law, and (ii) from amounts received by WRMWS from the Participating Landowners for the provision of water service, water storage and other services with respect to the Project collected under the Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts (collectively, the “Pledged Landowner Revenues”). The Sites Authority shall not have the right of any recourse against the revenues, reserves or other assets of WRMWS or the Wheeler Ridge-Maricopa Groundwater Sustainability Agency (the “GSA”) or any revenues generated by WRMWS or the GSA from non-Sites related water service or groundwater management activities provided by WRMWS or the GSA, other than the Pledged Landowner Revenues. The Sites Authority’s recourse for the failure of WRMWS to pay WRMWS’s obligations under the Contract or to comply with the terms of the Contract will only be against the Pledged Landowner Revenues, including amounts received by WRMWS from WRMWS’s enforcement of the Assessments and the respective Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts.

B. Assessments. During each fiscal year of WRMWS (the “WRMWS Fiscal Year”), to the fullest extent permitted by law, WRMWS shall levy and collect Assessments in an amount equal to 110% of the amount of WRMWS’s Financing Obligations payable during such WRMWS Fiscal Year and shall apply such Assessments to the payment of WRMWS’s Financing Obligations.

C. Service Revenues. To the fullest extent permitted by law, WRMWS shall fix, prescribe and collect, during the WRMWS Fiscal Year, amounts under the Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts, which are reasonably expected to be sufficient to pay amounts coming due under the Contract (net of WRMWS

Financing Obligations that are reasonably expected to be paid with the proceeds of the Assessments) for such WRMWS D Fiscal Year.

D. Enforcement of Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts. WRMWS D shall at all times have Wheeler-Ridge Participating Benefits and Obligations Contracts in place with each of the Participating Landowners. To the fullest extent permitted by law, WRMWS D covenants and agrees that WRMWS D shall enforce the WRMWS D’s rights under each Wheeler-Ridge Participating Landowner Benefits and Obligations Contract against the respective Participating Landowners, collect amounts due in a timely manner and shall take all necessary actions permitted by the respective Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts, including the discontinuance of all Sites water to parcels of land owned by those specific Participating Landowners in default under the respective Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts, and by law to collect in such time and amounts Assessments and amounts payable pursuant to the Wheeler-Ridge Participating Landowner Benefits and Obligations Contracts as shall permit WRMWS D to pay its obligations under the Contract in accordance with the terms of the Contract.

This Appendix is supplemental to the terms of the Contract, and, in the event of a conflict between the provisions of this Appendix and the provisions of the Contract, the terms of this Appendix shall govern.

Dated: _____, 2024

WHEELER RIDGE-MARICOPA
WATER STORAGE DISTRICT

By: _____

Sites Reservoir Project - Benefits and Obligations Contract Update - Kunde Presentation Outline

Make Board Comments during presentation. Purpose to identify “deal stoppers” based on this high level FAQ. Only draft B&O, not JPA or Bylaws.

1. WRM previously submitted 2 sets of detailed comments. Most were adequately addressed. WRM still unhappy with delinquency procedures.
2. Pg 1 of 2 - 1st highlight. Kunde serves on Governance Ad Hoc SubCommittee.
3. Pg 1 of 2 - 2nd highlight. In lieu of 68 page actual B&O Contract.
4. Pg 1 of 2 - 3rd highlight. Identify any “deal stoppers”.
 - a. See “Defaults” discussion below.
 - b. Affordability i.e. costs too high and/or yield too low
5. Pg 1 of 2 - 4th highlight. Kunde to review & submit by March 22.
6. Pg 1 of 7 - 1st highlight. Governance - see 7.d. below.
7. Pg 1 of 7 - 2nd highlight - What do we Participating Growers get?
 - a. Capacity interest in reservoir storage and “downstream facilities” - in effect, ownership, although title to the facilities will be held by the Sites Project Authority (SPA).
 - b. Pro rata share of water diverted - in effect, ownership
 - c. Deliveries from the Reservoir in accordance with requested schedule as limited by capacity and permit constraints. Where limited, pro rata allocation of capacity.
 - d. Control of the Project through the Governance Structure - B&O Contract, amended JPA, and Bylaws where SPA delegates authority to RPC.
8. Pg 1 of 7 - 3rd highlight - When will this occur? i.e. consideration and signing of B&O Contract by District
 - a. Starts when “Resolution to Offer Capacity and Service” adopted after water right and other key permits obtained (March/April 2025), then six months (Sept/Oct 2025) to sign B&O.
9. Pg 2 of 7 - 1st bullet - Why the B&O?
 - a. Not mentioned explicitly in B&O FAQ is:
 - b. Obligation to pay project costs (85% of which is annual debt service)
 - c. Obligation to provide information as needed.
10. Pg 2 of 7 - “What is required for B&O to take effect?”
 - a. 100% of capacity subscribed through executed B&O Contracts including Bureau and DWR for public benefits
 - b. Execution of amended JPA and Bylaws.
11. Pg 3 of 7 - “Seal the Deal” - The escrow process - 22 B&O Contracts, etc.
12. Pgs 6 and 7 of 7 - Defaults - written description
 - a. Don’t have time to review the details today - much time has been spent on these matters already by Kunde, Water User Participants, and Sites
13. Page titled “Project Deficiency (Default) Waterfall”
 - a. 1st highlight - Wheeler Ridge Participating Landowner in control of assets pre-default in order to prevent

default

- b. 2nd highlight - "Missed payment" allows Sites to proceed with default measures after 30 days
 - i. Kunde to submit markup of B&O Contract allowing more than 30 days with 10% penalty (like District Water Service Contract)
- c. Related - Wheeler Ridge Participating Landowners not in agreement on in-District default measures of:
 - i. Backup Agreement
 - ii. District Reserve
 - iii. Time to foreclose on land collateral for Sites debt still an issue - First Deed a problem for some growers
- d. 3rd/4th highlights - To the extent the "default waterfall" does not fully cover defaulted costs, Participants (i.e. District, therefore Wheeler Ridge Participating Landowners (mandatory), other Water Users (voluntary), or District (voluntary) must cover defaults of other Sites Participants in return for share of defaulted assets.

14. B&O Contract "Appendix 7C-2" provides:

- a. WRM obligated to enforce contract terms against participating Water Users including
 - i. No lien or enforcement against WRM general revenues or assets. (Torigiani)
 - ii. Only Sites remedy is against "Pledged Landowner Revenues" including "special benefit assessments or charges in lieu [thereof]" which are an assessment lien that can be exercised to foreclose on the property.
 - iii. Requires WRM shutoff of all "Sites Water" in event of default, but not "all Water", but this provision is still subject to feedback/negotiation with prospective lenders including EPA WIFIA funding.

15. Not in written materials

- a. B&O Contract not executed until "conditions precedent" satisfied
 - i. Water right obtained.
 - ii. State & federal ESA permits obtained.
 - iii. Satisfactory progress on DSOD permits, ISO interconnection, Clean Water Act permits, and others
- b. Key remaining in-District elements:
 - i. Decision on in-District default measures (recommendation of District Sites Ad Hoc Committee and Participating Landowners)
 - ii. Drafting of Wheeler Ridge Participating Landowner Benefits and Obligations Contract



KERN COUNTY WATER AGENCY

Stuart T. Pyle Water Resources Center

3200 Rio Mirada Drive
Bakersfield, California

Notice of Special Board Meeting

March 28, 2024

Conference Line: [+1 \(571\) 317-3122](tel:+15713173122)

Access Code: 863-465-805#

<https://global.gotomeeting.com/join/863465805>

AGENDA

- I. Call to Order – 11:30 a.m.
- II. Directors' Forum
- III. Public Comment
Anyone may comment on any subject within Agency jurisdiction whether or not it is on the agenda. Time for such comment may be limited.
- IV. Report of the General Manager
- V. Review of the Kern County Water Agency General Fund and State Contract Payment Fund Budgets and Cash Flow Projections
- VI. Adjournment

DECLARATION OF POSTING: I declare under penalty of perjury, that I am employed by the Kern County Water Agency and that I posted the foregoing Agenda at the Agency Office on March 22, 2024.


Stephanie N. Prince, Board Secretary

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Secretary in advance of the meeting to ensure availability of the requested service or accommodation.



KERN COUNTY WATER AGENCY

Stuart T. Pyle Water Resources Center
3200 Rio Mirada Drive
Bakersfield, California 93308

Notice of BOARD OF DIRECTORS MEETING

March 28, 2024

Conference Line: [+1 \(571\) 317-3122](tel:+15713173122)
Access Code: 863-465-805#
<https://global.gotomeeting.com/join/863465805>

AGENDA

- I. Call to order – 12:00 p.m.
- II. Report of the General Counsel
 - A. Authorization for Closed Session regarding:
 1. Conference with Legal Counsel – Existing Litigation (Government Code section 54956.9, subdivision (a)):
 - a. Applications Filed for Kern River Water
 - b. California Department of Water Resources v. All Persons Interested in the Matter of the Contract Extension Amendments
 - c. North Coast Rivers Alliance, et al. v. California Department of Water Resources (COA CEQA)
 - d. California Department of Water Resources v. All Persons Interested in the Matter of the Authorization of Delta Program Revenue Bonds
 - e. Rosedale-Rio Bravo Water Storage District, *et al.* v. Kern County Water Agency, *et al.* (CVC Issues)
 - f. Kern Delta Water District, *et al.* v. Rosedale-Rio Bravo Water Storage District (Onyx CEQA)
 - g. Rosedale-Rio Bravo Water Storage District v. Buena Vista Water Storage District, *et al.* (Onyx Water Rights)
 - h. California Sportfishing Protection Alliance, *et al.* v. California State Water Resources Control Board, *et al.*, Sacramento County Superior Court, Case No. 34-2021-80003761 (2021 Order Re Temporary Urgency Change Petition)

- i. California Sportfishing Protection Alliance, *et al.* v. State Water Resources Control Board, *et al.*, Sacramento County Superior Court, Case No. 34-2021-80003763 (2021 Order Re Shasta Temporary Management Plan)
 - j. California Water Impact Network v. Department of Water Resources, Sacramento County Superior Court Case No. 34-2020-80003492; North Coast Rivers Alliance v. Department of Water Resources, Sacramento County Superior Court Case No. 34-2020-80003491 (Water Management Tools)
 - k. Pacific Coast Federation of Fishermen’s Associations, *et al.* v. Ross,, E.D. Cal., Case No. 1:20-cv-00431 & California Natural Resources Agency, *et al.* v. Ross, *et al.*, E.D. Cal., Case No. 1:20-cv-00426 (Long-term Operations)
 - l. State Water Board Cases, Sacramento County Superior Court Case No. JCCP 5013 (Water Quality Control Plan Phase 1 Litigation)
 - m. Oroville Dam Cases, Sacramento County Superior Court Case No. JCCP 4974
 - n. Long-term State Water Project Operations Cases, Sacramento County Superior Court Case No. JCCP 5117
 - o. Temporary Applications Filed for Kern River Water
 - p. Bring Back the Kern, *et al.* v. City of Bakersfield, *et al.*, Kern County Superior Court Case No. BCV-22-103220
2. Conference with Legal Counsel – Initiation of Litigation (Government Code section 54956.9, subdivision (d)(2)):
 - a. Two potential suits
 3. Conference with Legal Counsel – Anticipated Litigation: Significant exposure to litigation: (Government Code section 54956.9, subdivision (d)(2)):
 - a. Two potential suits
 4. Conference with Real Property Negotiator (Government Code section 54956.8):
 - a. Negotiator: Water Resources Manager
 Property: State Water Project Water
 Parties: California Department of Water Resources and State Water Project Contractors
 Under Negotiation: Price & Terms
- III. Directors’ Forum
- IV. Public Comment
 Anyone may comment on any subject within Agency jurisdiction whether or not it is on the agenda. Time for such comment may be limited.
- V. Minutes of Board Meetings and Committee Meetings –
- | | |
|-----------------------|-------------------|
| Special Board Meeting | February 22, 2024 |
| Regular Board Meeting | February 22, 2024 |
| Special Board Meeting | March 11, 2024 |
| Special Board Meeting | March 18, 2024 |

VI. Report of the General Manager

VII. Advisory Committee Reports

- A. Cross Valley Canal Advisory Committee
- B. Improvement District No. 3 Advisory Committee
- C. Urban Bakersfield Advisory Committee

VIII. Board Committee Reports

The following items will be discussed in detail at the meeting and may result in appropriate action being taken relating to the subject matter (such action may or may not conform to any staff recommended action):

A. **ADMINISTRATIVE COMMITTEE – Director Cattani, Chair**

- 1. Report of the Administrative Operations Manager
- 2. Payment of the Bills
- 3. Financial Report
- 4. Authorization to Order the Deposit or Withdrawal of Money in the Local Agency Investment Fund
- 5. Consideration of the Kern County Water Agency Investment Policy
- 6. Appointment of Association of California Water Agencies Joint Powers Insurance Authority Director and Alternate Directors
- 7. Authorization to Sell Kern County Water Agency Surplus Equipment
- 8. Authorization to Execute Amendment No. 3 to the Kern County Water Agency Agreement for the Stuart T. Pyle Water Resources Center Security Modifications Project

B. **POLICY COMMITTEE – Director Milobar, Chair**

- 1. Update on Delta Conveyance Activities
- 2. Update on Legislative Activities
- 3. Update on Agreements to Support Healthy Rivers and Landscapes

C. **WATER RESOURCES COMMITTEE – Director Fast, Chair**

- 1. Report of the Water Resources Manager
- 2. Report on the State Water Contractors Board Meeting
- 3. Report on 2024 State Water Project and Central Valley Project Allocations and Operations

4. Water Delivery Operations
 - a. Report on Kern County Water Agency California Aqueduct Deliveries
 - b. Update on Water Transfers, Exchanges and Purchases
5. Report on the Kern Groundwater Authority Meetings
6. Report on the Kern River

D. WATER MANAGEMENT COMMITTEE – Director Averett, Chair

1. Report of the Engineering and Groundwater Services Manager
 - a. Update on Groundwater Banking Construction/Maintenance Projects
 - b. Update on Pioneer Project Recharge Facilities – Basin 11
2. Report on 2024 Water Operations
3. Report on Kern Water Bank Activities

E. CROSS VALLEY CANAL COMMITTEE – Director Lundquist, Chair

1. Report of the Water Resources Manager
 - a. Update on Cross Valley Canal Construction/Maintenance Projects
2. Report on Cross Valley Canal Operations and Deliveries
3. Authorization to Execute Amendment No. 2 to the Kern County Water Agency Agreement for a Construction Management Services Consultant for the Cross Valley Canal Extension Lining Project – Pool No. 8 – Contract No. KCWA 2022-05
4. Authorization to Execute Amendment No. 2 to the Kern County Water Agency Agreement for a Geotechnical Consultant for the Cross Valley Canal Extension Lining Project – Pool No. 8 – Contract No. KCWA 2022-05
5. Authorization to Execute a Contract for the Cross Valley Canal Pools 1 through 6 Sediment Removal
6. Authorization to Execute an Agreement for Construction of Pacific Gas and Electric Company Pipeline L-300B Replacement Crossing of the Cross Valley Canal

F. URBAN BAKERSFIELD COMMITTEE – Director Wulff, Chair

1. Report of the Improvement District No. 4 Manager
 - a. Update on Improvement District No. 4 Construction/Maintenance Projects

- b. Report on the Kern River Groundwater Sustainability Agency Meeting
- c. Update on the Improvement District No. 4 Water Education Program
- 2. Authorization to Set Groundwater Charges Within Improvement District No. 4 for Fiscal Year 2024-25
- 3. Report on the Improvement District No. 4 2024 Water Supply and Management Plan
- 4. Report on the Henry C. Garnett Water Purification Plant
 - a. Authorization to Request Bids for Chemicals Used in the Water Treatment Process
 - b. Authorization to Execute Amendment No. 1 to the Kern County Water Agency Contract for the Sediment Removal for the Temperature Equalization Pond and Calloway Canal Extension

IX. Correspondence

X. Brief Report on Potential New Business

XI. Adjournment

DECLARATION OF POSTING: I declare under penalty of perjury, that I am employed by the Kern County Water Agency and that I posted the foregoing Agenda at the Agency Office on March 22, 2024.


Stephanie N. Prince, Board Secretary

Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

KERN WATER BANK AUTHORITY

Regular Meeting of Board of Directors
Tuesday, April 9, 2024, 3:00 P.M. ⁱ
Kern Water Bank Authority Conference Room
1620 Mill Rock Way, Suite 500, Bakersfield, California

This meeting is held in accordance with the Brown Act pursuant to Section 54950, et seq. of the California Government Code and the Kern Water Bank Authority Joint Powers Agreement.

- 1. Roll Call**
- 2. Acknowledge Receipt of Documentation Appointing Director**
- 3. Appoint Treasurer**
- 4. Approval of Minutes**
March 12, 2024, Regular Board of Directors Meeting.
- 5. Treasurer's Report**
Submission of the March 2024 Treasurer's Report for approval.
- 6. Authorization to Pay Expenses of Authority**
Submission of the March 2024 accounts payable for approval to pay.
- 7. KWBA Use Fees**
Consider approval of proposed use fee increase.
- 8. Resolution #2024-02 to Change Board Meeting Time**
Consider, and possibly adopt a resolution changing the date and time of the regularly scheduled Board of Director's Meetings.
- 9. Transfer SGMA Budget Funds to KWB GSA**
Consider, and possibly approve transfer of funds from the KWBA SGMA Budget to the KWB GSA.
- 10. KWBA Third-Party License Easement Agreement**
Consider approval of Third-Party License Easement Agreement.
- 11. Water Reporting and Invoicing Delays**
Discussion and possible action related to delays in local water supply reporting and invoicing.
- 12. Reports**
 - A. Staff Report**
Review and possibly act on previously submitted Staff Report and staff recommendations regarding:
 - (1) Water Bank Operations

- (2) 3rd Party Facilities on Kern Water Bank
- (3) Adjacent Properties
- (4) KWBA HCP/NCCP and Land Management
- (5) Capital Improvements and Funding Status
- (6) Power Update
- (7) Data Management Change
- (8) AB2079 [Well Permitting] Discussion/Direction

B. Directors, Counsel, and Committee Reports

The Board of Directors will hear and possibly act on reports and recommendations:

- (1) Kern Fan Monitoring Committee
- (2) Kern Groundwater Authority
- (3) Engineering Committee

13. Old Business

This portion of the meeting is set aside for the discussion of matters which have been addressed at previous Board meetings.

14. New Business

This portion of the meeting is set aside to provide the Board an opportunity to bring to the attention of the other Board members and the public, matters which have come to their attention, subject to certain exceptions. No action can be taken on any matter discussed during this portion of the meeting; however, a Board member may request that a subject be placed on any future agenda.

15. Public Input

This portion of the meeting is set aside to provide the public an opportunity to bring to the attention of the Board members, matters of which the Board may not be aware, subject to certain exceptions. No action can be taken on any matter discussed during this portion of the meeting; however, a Board member may request that a subject be placed on any future agenda.

16. Closed Session

The Board will meet in a closed session and possibly act on the following:

- A) Conference with Legal Counsel - Pending Litigation (Gov't. Code section 54956.9(d)(1)).
 - 1) Various Applications to appropriate Kern River water, complaint, and related proceedings before the State Water Resources Control Board.
 - 2) KWBA v. Kern LAFCo (Kern County Sup. Ct., Case No. BCV-21-101310-GP, Fifth Appellate Dist., Case No. F085669).

- B) Conference with Legal Counsel - Anticipated Litigation: Initiation of litigation pursuant to Gov't. Code section 54956.9(d)(4). Two potential litigations.
- C) Conference with Legal Counsel - Anticipated Litigation: Significant exposure to litigation pursuant to Gov't Code section 54956.9(d)(2). Two potential litigations.
- D) Conference with Real Property Negotiator – Gov't. Code section 54956.8.

KWBA Representative: General Manager
Under Negotiation: Price and Terms of Payment
Negotiating Parties: Kern County Water Agency (KCWA) and KWBA
Property: Basin 11 and KCWA Pioneer Project Easement and Joint Use Agreement

- E) Conference with Real Property Negotiator – Gov't. Code section 54956.8.

KWBA Representative: Assistant General Manager
Under Negotiation: Price and Terms of Payment
Negotiating Parties: KWBA and Chevron
Properties: APN #'s 160-060-22, 160-060-23, and 160-060-24

- F) Public Employment – Gov't Code section 54957
Personnel: General Manager; Assistant General Manager; Facilities and Operations Manager.

- 17. Reconvene and Report from Closed Session (Gov't. Code section 54957.1)**
- 18. Adjourn**

ⁱ Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Secretary in advance of the meeting to ensure availability of the requested service or accommodation.

Kern Water Bank Groundwater Sustainability Agency

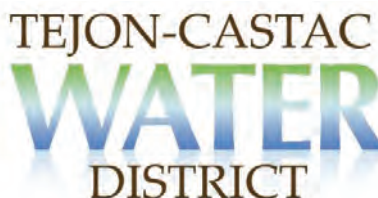


**Regular Meeting of Board of Directors
Tuesday, April 9, 2024, 4:15 P.M.
Kern Water Bank Authority Conference Room¹
1620 Mill Rock Way, Suite 500, Bakersfield, California**

This meeting is held in accordance with the Brown Act pursuant to Section 54950, et seq. of the California Government Code.

- 1. Roll Call**
- 2. Approval of Minutes**
March 12, 2024, Board of Directors Meeting.
- 3. Acknowledge Receipt of Documentation Appointing Directors**
- 4. Appointment of Treasurer**
- 5. Consider Resolution No. 24-02 Fixing Regular Meeting Schedule**
- 6. Reports**
 - a. Bank Account
 - b. Insurance
 - c. SGMA Compliance
 - d. JPA Agreement
 - e. Conflict of Interest Code
 - f. Other
- 7. New Business**
- 8. Public Comment**
- 9. Closed Session Item Descriptions (Gov. Code, § 54956.8):**
 - a. Conference with Legal Counsel
 1. Anticipated Litigation
 - i. Gov. Code § 54956.9(d)(2): Two Items
- 10. Reconvene and Report from Closed Session (Gov't. Code section 54957.1)**
- 11. Adjourn**

¹ Requests for a disability-related modification or accommodation, including auxiliary aids or services, in order to attend or participate in a meeting should be made to the Board Secretary in advance of the meeting to ensure availability of the requested service or accommodation.



South of Kern River Executive Committee Regular Meeting

Thursday, April 11, 2024

9:00 a.m. to 11:00 a.m.

Meeting Information Posted:

www.sokrgsp.com

<http://www.aewsd.org> * <http://www.wrmwsd.com>

<http://www.tejoncastacwd.com> * <https://www.arvincsd.com>

In Person: Arvin-Edison Water Storage District Headquarters
20401 E. Bear Mountain Blvd. Arvin, CA 93203

Via Remote (**Microsoft Teams**): <https://www.microsoft.com/microsoft-teams/join-a-meeting>

Click here to join the meeting

Meeting Number: **289 619 843 830**

Meeting Password: **ko5K35**

Phone: **1.213.437.9052**

Phone Meeting Number (access code): **276 512 496#**

NOTICE: Members of the public interested in participating by teleconference may do so using the call-in information above or by following [this link](#). Please note that this teleconference option is provided as a courtesy and at the participant's own risk. The Committee cannot guarantee that there will be no loss of connectivity or other technological obstacle to full participation through teleconferencing. By participating in this way, participants confirm that they understand this risk and that the Committee is not obliged to delay any portion of the meeting due to such technological obstacles and thus that teleconference participants may be unable to participate.

1. CALL TO ORDER
2. ROLL CALL
3. PLEDGE OF ALLEGIANCE
4. APPROVAL OF THE AGENDA
5. APPROVAL OF FEBRUARY 20, 2024 MEETING MINUTES
6. PUBLIC COMMENT
7. REPORT ITEMS
 - a. GSP Manager Report (*Muhar*)
 - i. Basin Coordination
 - b. Technical Consultant Report (*EKI*)
 - i. Basin coordinated GSP and response to California Department of Water Resources (DWR) deficiencies
 - ii. Report on March 6, 2024 and April 3, 2024 technical meetings with State Water Resources Control Board (SWRCB) Staff

iii. SGMA Monitoring Network performance and sustainable management criteria (SMC) compliance

c. Finance Report (*Nicholas*)

d. California Aqueduct Subsidence Program (CASP) update (*Nicholas*)

e. Management Area updates (*Muhar, Nicholas, Martin, Barraza*)

8. CLOSED SESSION

a. Potential Litigation (Government Code §54956.9(d)(2), (e)(1); 2 items).

9. ACTION ITEM(S)

a. Discussion and potential action to recommend INTERA's Proposal for Additional Data Collection and Modeling to Support Subsidence Mitigation Cost Analysis for the Friant-Kern Canal for approval by SOKR GSA boards (*Muhar*)

b. Discussion and potential action to recommend SOKR GSA boards' participation in the proposed Third Amended and Restated Joint Exercise of Powers Agreement for the Kern Non-districted Lands Authority (*Muhar*)

10. CORRESPONDENCE

a. Letter from Basin Point of Contact to SWRCB Vice Chair D'Adamo.

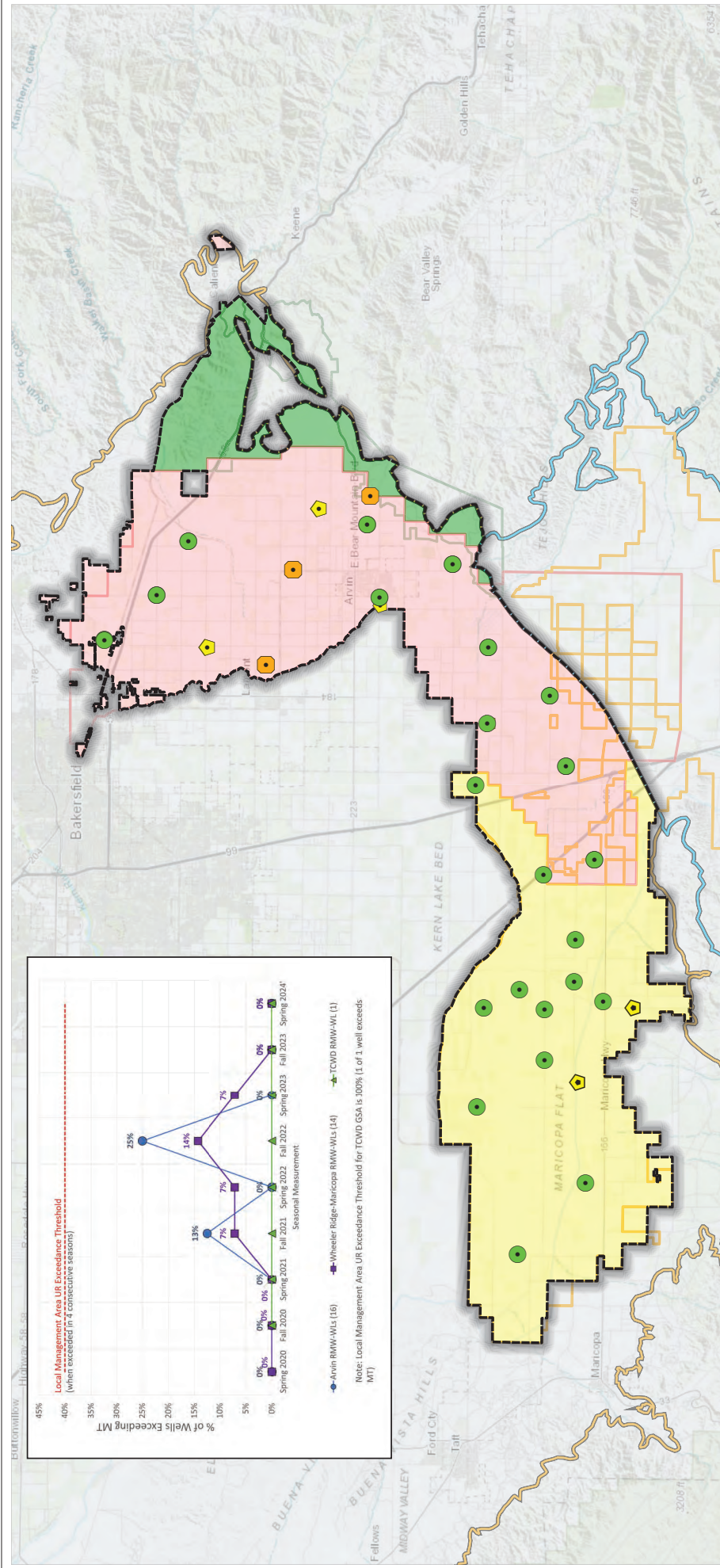
b. Letter from Tina Cannon Leahy, Attorney Supervisor, SWRCB Office of Chief Counsel to Basin Point of Contact.

11. ADJOURNMENT

**Kern Subbasin
GSP Chapters Review Schedule**

Chapters/Sections	Draft to TWG	END TWG Review	Draft to Subbasin	END Subbasin Review
¹ Chapters 1 - 4: Purpose, Sustainability Goal, Agency Information, GSP Organization	12/04/23	03/16/24	12/18/23	05/03/24
¹ Chapter 5: Plan Area, Introduce Organizing Themes, Land Use Elements, Communications	04/03/24	04/10/24	04/12/24	04/17/24
Chapters 6 and 7: Basin Setting and Hydrogeological Conceptual Model	02/02/24	03/01/24	03/04/24	03/18/24
Chapter 9: Water Budget	04/08/24	04/12/24	04/18/24	04/25/24
Chapter 8: Current & Historical Groundwater Conditions	03/27/24	04/02/24	04/10/24	04/19/24
Chapter 10: Management Areas	03/06/24	03/27/24	04/04/24	04/17/24
*Chapters 11 - 13: SMCs	03/13/24	03/27/24	04/04/24	04/17/24
*Chapter 14: PMAs	03/21/24	04/25/24	04/25/24	05/01/24
*Chapter 15: Monitoring Network	03/27/24	04/02/24	04/05/24	04/17/24
Chapter 16: Plan Implementation	04/03/24	04/08/24	04/11/24	04/17/24
Executive Summary, Revisit Chapters 1-3	04/22/24	04/25/24	04/29/24	05/03/24
Final Draft		05/03/24		05/10/24
Release Public Draft, Submit to State Board and DWR				
Wednesday, May 15, 2024				

¹Chapters 1-4 and 5 are mostly introductory and background information; ending the review period isn't being strictly applied since edits will be made up to March 16 as work develops. However, to have feedback incorporated into the final work products, the TWG will strictly adhere to the review timelines for Chapters 6-18.



Legend

- Water Level above MO (23 or 74%)
- Water Level between MO and MT but closer to MO (5 or 6%)
- Water Level between MO and MT but closer to MT (3 or 10%)
- South of Kern River Plan Area
- Arvin GSA
- Wheeler Ridge-Maricopa GSA
- Tolon-Castac Water District GSA
- WRMWS District Service Area
- AEWSD Service Area
- TCWD Service Area
- Groundwater Subbasin
- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

Representative Monitoring Wells and Status as of March 2024

Abbreviations

- AEWSD = Arvin-Edison Water Storage District
- DWR = California Department of Water Resources
- GSA = Groundwater Sustainability Agency
- MO = Measurable Objective
- MT = Minimum Threshold
- RMW = Representative Monitoring Well
- SGMA = Sustainable Groundwater Management Act
- SMC = Sustainable Management Criteria
- TCWD = Tolon-Castac Water District
- UR = Undesirable Result
- WRMWS District = Wheeler Ridge-Maricopa Water Storage District

Sources

1. Base map is ESRI's ArcGIS Online world topographic map, obtained 3 April 2024.
2. GSA boundaries obtained from SGMA GSA Map Viewer portal, accessed 6 May 2022.
3. DWR groundwater basins are based on the boundaries defined in California's Groundwater Bulletin 118 - 2019 Update.

Notes

1. All locations are approximate.
2. Undesirable Results are deemed to occur if groundwater levels in 40% or more RMWs are below their respective MT for four consecutive bi-annual measurements (Spring and Fall) in any management area.

March 2024 Water Levels Relative to SMCs

South of Kern River GSP
Kern County, CA
March 2024
C20055.00

Figure 1

eki environment & water

INTERIM FIGURE - FOR INFORMATIONAL PURPOSES ONLY

Legend

Representative Monitoring Wells and Status as of March 2024

- Water Level above MO (11 or 68%)
- Water Level between MO and MT but closer to MO (3 or 19%)
- Water Level between MO and MT but closer to MT (2 or 13%)

Sustainability Criteria Zones

- ACSD
- Edison
- North Canal
- South Canal
- Arvin GSA
- Arvin-Edison Water Storage District

Groundwater Subbasin

- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

Abbreviations

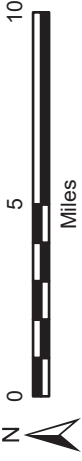
- ACSD = Arvin Community Services District
- DWR = California Department of Water Resources
- ft msl = feet above mean sea level
- GSA = Groundwater Sustainability Agency
- MO = Measurable Objective
- MT = Minimum Threshold
- RMW = Representative Monitoring Well
- SMC = Sustainable Management Criteria

Notes

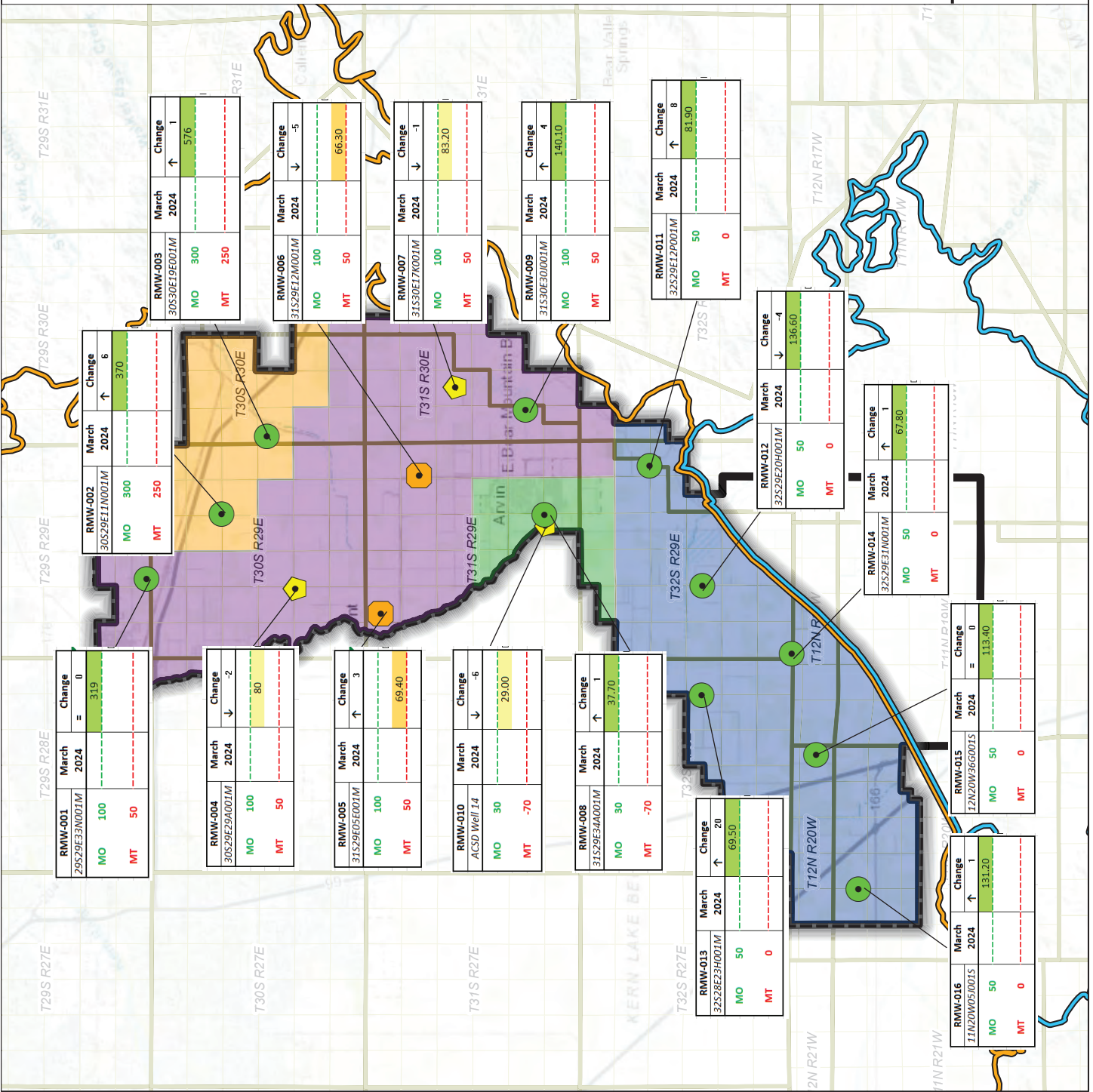
1. All locations are approximate.
2. Groundwater elevations reported in units of ft msl.
3. All water levels collected during March 2024.
4. Arrow direction indicates water level change from previous month.

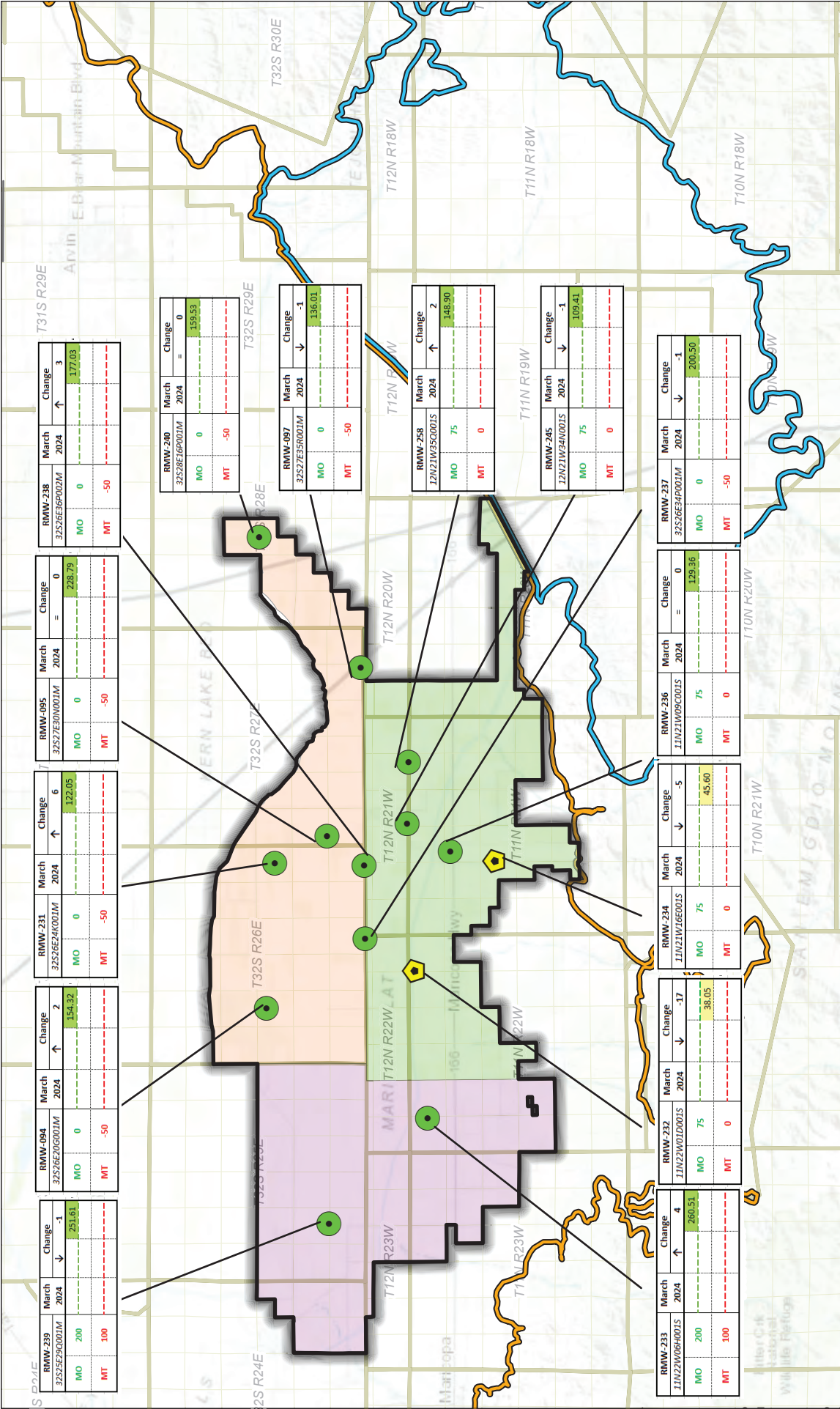
Sources

1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 2 April 2024.



Groundwater Levels Relative to SMCs
March 2024
Arvin GSA
 Arvin-Edison Water Storage District
 Kern County, California
 March 2024
 B60064.10
Figure 2





Legend

Representative Monitoring Wells and Status as of March 2024

- Water Level Above MO (12 or 86%)
- Water Level Between MO and MT but closer to MO (2 or 14%)
- Groundwater Subbasin
 - Kern County (DWR 5-022.14)
 - White Wolf (DWR 5-022.18)

Sustainability Criteria Zones

- Northeast
- Southwest
- West

Wheeler Ridge-Maricopa GSA

- Wheeler Ridge-Maricopa GSA

Notes

- All locations are approximate.
- Groundwater elevations reported in units of ft msl.
- All water levels collected during March 2024.
- Arrow direction indicates water level change from previous month, except change in WLS at RMW-094 and RMW-231 are relative to measurements collected in Jan 2024

SOURCES

- Basemap is ESRI's ArcGIS Online world topographic map, obtained 2 April 2024.

Abbreviations

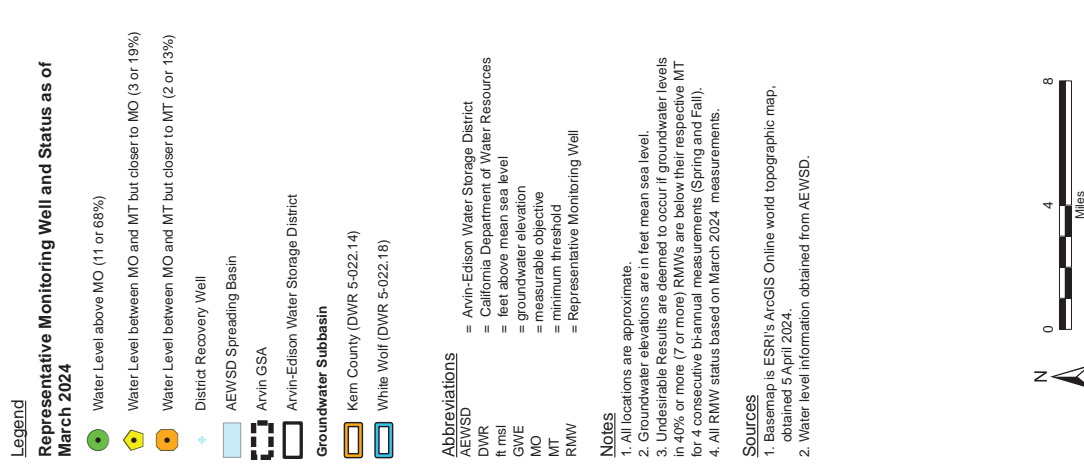
DWR = California Department of Water Resources
 ft msl = feet above mean sea level
 GSA = Groundwater Sustainability Agency
 MO = Measurable Objective
 MT = Minimum Threshold
 SMC = Sustainable Management Criteria

Scale

0 4 8
 (Scale in Miles)

Groundwater Levels Relative to SMCS
 March 2024
 Wheeler Ridge-Maricopa GSA
 South of Kern River
 Kern County, California
 March 2024
 C20055.00

Figure 3



Legend

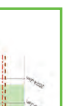
- Representative Monitoring Well and Status as of March 2024**
- Water Level above MO (11 or 68%)
 - Water Level between MO and MT but closer to MO (3 or 19%)
 - Water Level between MO and MT but closer to MT (2 or 13%)
 - District Recovery Well

- AEWSD Spreading Basin
- Arvin GSA
- Arvin-Edison Water Storage District
- Groundwater Subbasin
- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

- Abbreviations**
- AEWSD = Arvin-Edison Water Storage District
 - DWR = California Department of Water Resources
 - ft msl = feet above mean sea level
 - GWE = groundwater elevation
 - MO = measurable objective
 - MT = minimum threshold
 - RMW = Representative Monitoring Well

- Notes**
1. All locations are approximate.
 2. Groundwater elevations are in feet mean sea level.
 3. Undesirable Results are deemed to occur if groundwater levels in 40% or more (7 or more) RMWs are below their respective MT for 4 consecutive bi-annual measurements (Spring and Fall).
 4. All RMW status based on March 2024 measurements.

- SOURCES**
1. Basemap is ESRI's ArcGIS Online world topographic map, obtained 5 April 2024.
 2. Water level information obtained from AEWSD.



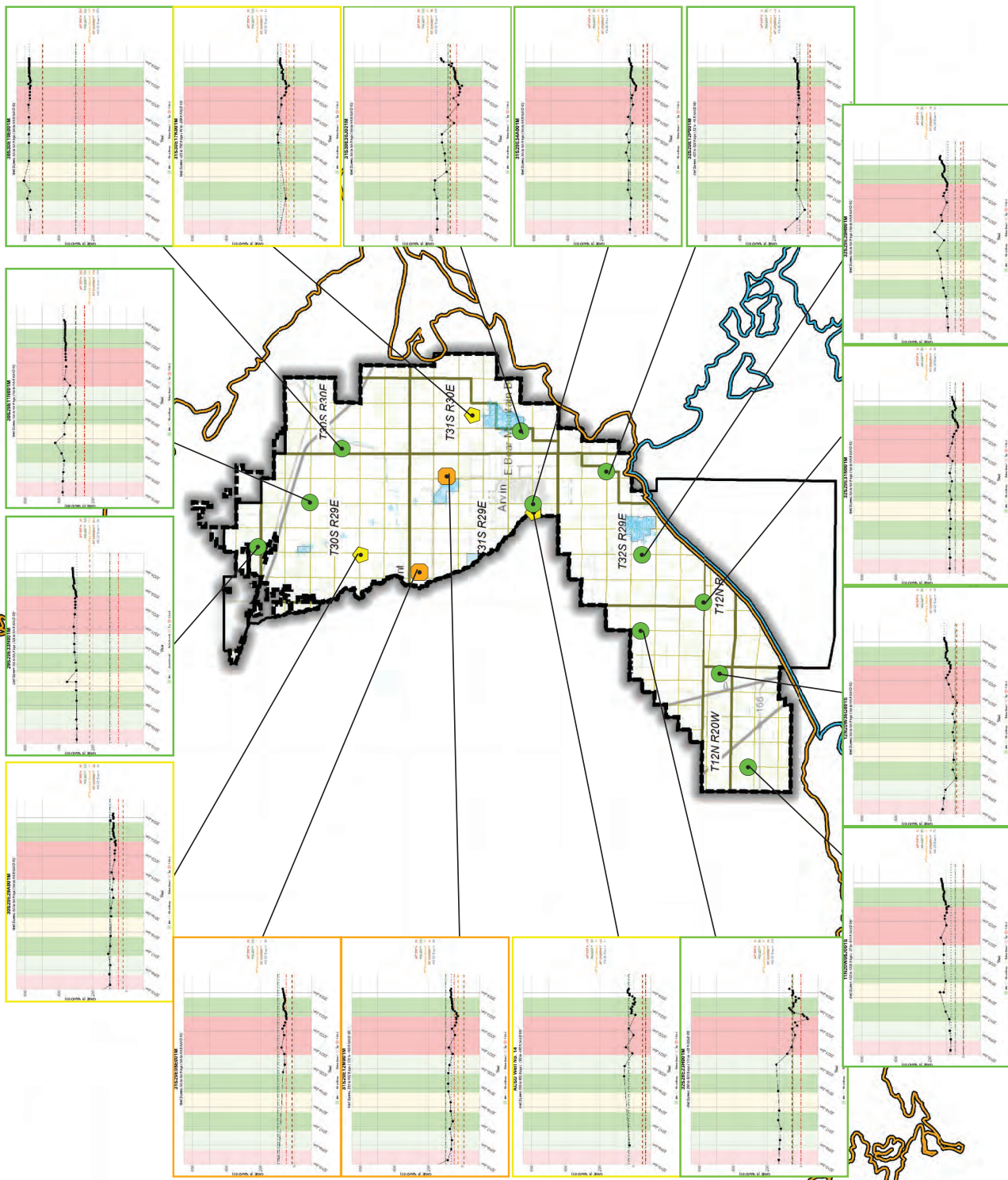
DRAFT

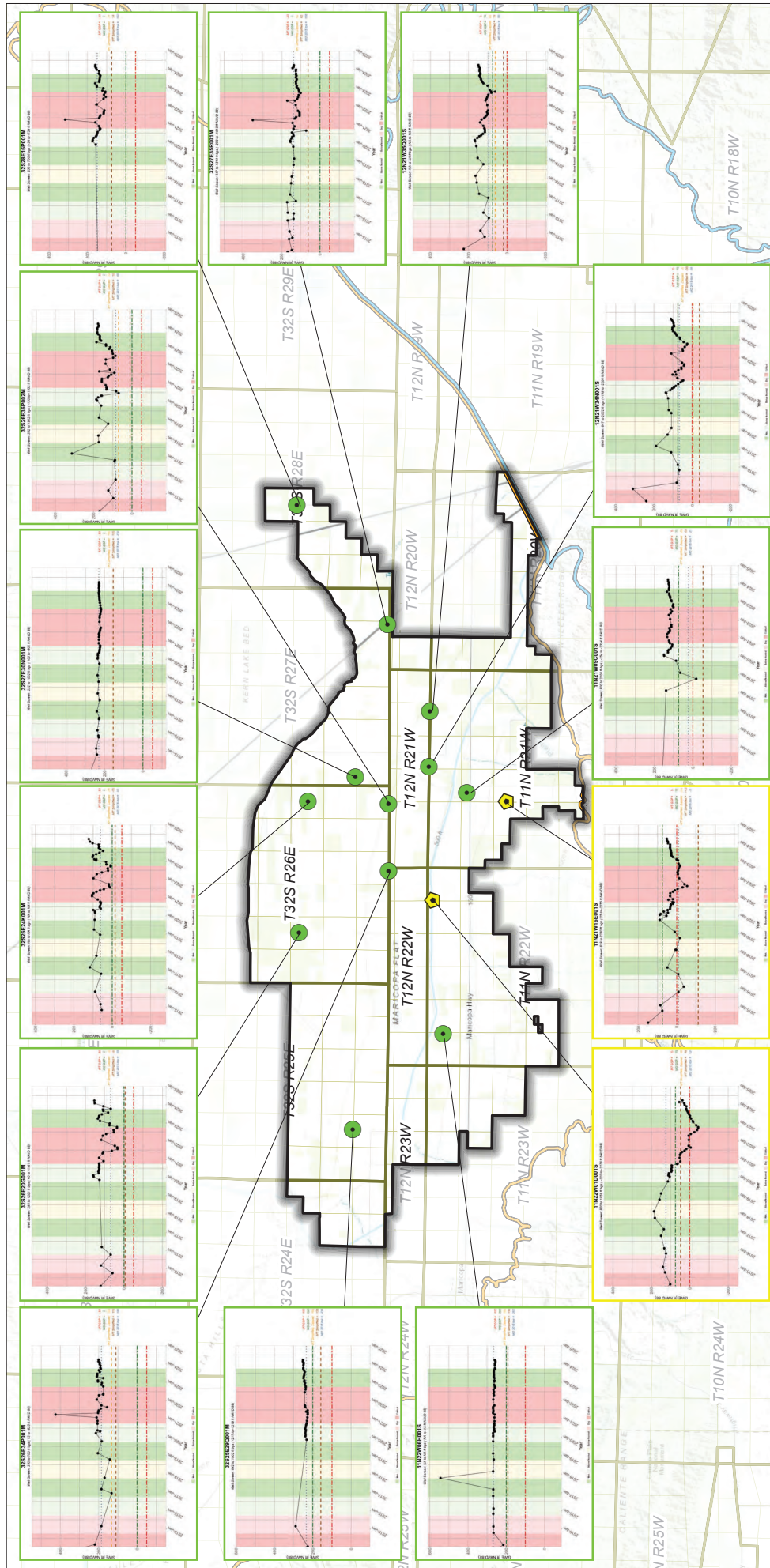
Hydrographs in Representative Monitoring Wells
(Jan 2015 - March 2024)

Arvin-Edison Water Storage District
Kern County, CA
March 2024
C20055.01

eki environment & water

INTERIM FIGURE - FOR INFORMATIONAL PURPOSES ONLY





Legend
Representative Monitoring Wells and Status as of March 2024

- Water Level Above MO (12 or 86%)
- Water Level Between MO and MT but closer to MO (2 or 14%)
- Wheeler Ridge-Maricopa GSA
- Groundwater Subbasin
- Kern County (DWR 5-022.14)
- White Wolf (DWR 5-022.18)

Notes

1. All locations are approximate.
2. Groundwater elevations are in feet mean sea level.
3. Undesirable Results are deemed to occur if groundwater levels in 40% or more (6 or more) RMWs are below their respective MT for 4 consecutive bi-annual measurements (Spring and Fall).
4. All RMW status based on March 2024 measurements.

Abbreviations

- DWR = California Department of Water Resources
- ft msl = feet above mean sea level
- GSA = Groundwater Sustainability Agency
- MO = Measurable Objective
- MT = Minimum Threshold
- RMW = Representative Monitoring Well
- WRMWS = Wheeler Ridge-Maricopa Water Storage District

Hydrographs in Representative Monitoring Wells
(January 2015 - March 2024)

Wheeler Ridge-Maricopa Water Storage District
 Kern County, CA
 March 2024
 B70103.01
Figure 5



INTERIM FIGURE - FOR INFORMATIONAL PURPOSES ONLY

March 29, 2024

Dorene D'Adamo, Vice Chair
State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812-0100
Via email: dorene.dadamo@statewaterboard.ca.gov

Subject: Kern County Subbasin Progress Update

Vice Chair D'Adamo:

The Kern County Subbasin (Subbasin) Groundwater Sustainability Agencies and Management Areas¹ (GSAs/MAs) write to inform the State Water Resources Control Board (SWRCB or Board) Members about the Subbasin's work to revise the 2022 Groundwater Sustainability Plans (GSPs) in response to the Department of Water Resources (DWR) March 2023 Inadequate Determination Letter² (DWR Letter). The Subbasin GSAs, in consultation with SWRCB staff and Subbasin stakeholders, have made significant progress during the past year to address the plan deficiencies identified by DWR for the 2022 GSPs and have incorporated feedback received from consultation meetings with SWRCB staff. **The Subbasin GSAs/MAs intend to submit revised GSP(s) in May 2024³** for the Board Members' consideration prior to preparation of the SWRCB staff report and the Subbasin's tentative January 2025 probationary hearing date.

Revised GSP(s) Development

Since receipt of the DWR Letter on March 2, 2023, which deemed the Kern County Subbasin GSPs inadequate, the Subbasin GSAs/MAs have invested significant time and resources in addressing the plan deficiencies through development of more consistent and coordinated revised GSP(s), with a project cost of \$1.3 million. Throughout this process, the Subbasin held seven (7) technical meetings with SWRCB staff (Figure 1).⁴



18 Managers **60** TWG **28** Subbasin **7** SWRCB

Figure 1. Kern County Subbasin Revised GSPs Development Meetings

The Subbasin has held over 117 meetings between landowner representative policy members, GSA/MA managers, and a technical working group (TWG) consisting of the GSA/MA consultants.⁵ These meetings are in addition to regularly held GSA meetings.

The meetings to date have addressed the Subbasin's revised GSP(s) with a Subbasin-wide coordinated approach for:

- Sustainable Management Criteria
 - Groundwater Levels
 - Subsidence
 - Water Quality
 - Water Budgets
- Well Inventory and Well Mitigation Program
- Monitoring Network
- Projects and Management Actions

¹ December 2023, Kern County Subbasin Map (Attachment 1)

² March 2, 2023, Department of Water Resources, *Inadequate Determination Letter* (Attachment 2)

³ Kern County Subbasin Revised GSP(s) Schedule (Attachment 3)

⁴ 2023-2024, SWRCB and Kern County Technical Meetings (Attachment 4)

⁵ March 2024, Kern County Subbasin Contacts List (Attachment 5)

Addressing DWR Identified Deficiencies

The Subbasin’s aim over the last year has been to develop “a well-explained Plan that will be implemented in a coordinated manner.” In addition to developing and applying uniform Sustainable Management Criteria (SMCs) methodologies based on the best available science to all GSPs within the Subbasin, the Subbasin has also developed a common organizational structure and a consistent narrative explanation for how the Subbasin will achieve sustainability by 2040. The revised GSP(s) also rely on common data and methodologies to SMCs and Undesirable Results (URs), as described in more detail below.

Deficiency 1: The GSPs do not establish undesirable results that are consistent for the entire Subbasin^{6,7}

The revised GSP(s) utilize consistent data and methodologies, adopt clear and consistent terminology and standard templates to clearly define Subbasin-wide definitions for URs, Minimum Thresholds (MTs), and Measurable Objectives (MOs) for each applicable Sustainability Indicator. For example, to define UR’s for lowering of groundwater levels, the Subbasin conducted a robust Subbasin-wide well impacts analysis using the revised MTs and updated Subbasin well inventory to quantify potential impacts to beneficial users. The progress made on revised MTs and URs for lowering of groundwater levels was presented to SWRCB staff on October 4, 2023. On November 1, 2023, the Subbasin presented additional analyses to SWRCB staff to address feedback received from the October 4, 2023, meeting.

Revised UR Definition: Based on the technical analysis, the Subbasin developed a two-part definition that considers direct impacts on domestic and drinking water supply wells (no more than 15 dewatered per year) and a Subbasin-wide percentage of 25% MT exceedances at representative monitoring wells (184 total) across the Subbasin. Through model results, the most likely scenario results in at most 51 total drinking water wells being impacted by 2040 at the projected MTs (out of 1,476 or 3%). To address potential impacts to drinking water wells, the following Subbasin-wide approaches were developed and presented to SWRCB staff on March 6, 2024:

- 1. MT Exceedance Policy:** Requires GSA action in the event of a single MT exceedance for Chronic Lowering of Groundwater Levels, Degraded Water Quality, and Land Subsidence.
- 2. Well Mitigation Program:** Addresses proactive mitigation of Chronic Lowering of Groundwater Levels and Degraded Water Quality impacts on domestic and drinking water wells.

The Subbasin has also initiated a Letter of Intent to begin negotiations with Self-Help Enterprises (SHE) to administer a locally funded Subbasin-wide Well Mitigation Program (Program). In response to SWRCB staff feedback, the Subbasin has accelerated the initial, proposed implementation timeline for the Program. The Subbasin intends for the Program to begin January 2025, and include Program components shown in Figure 2.



Figure 2. Kern Subbasin Coordinated Well Mitigation Program Components

⁶ Page 13, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

⁷ Pages 9-13, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

The Subbasin is committed to funding effective implementation of the Program to ensure domestic well mitigation services are provided to any domestic or drinking water user submitting a verified claim. Existing well mitigation programs in the Subbasin will continue to assure adequate coverage continues as the 2024 SHE contracts are finalized.

Deficiency 2: The Subbasin’s chronic lowering of groundwater levels sustainable management criteria do not satisfy the requirements of SGMA and the GSP Regulations^{8,9}

The revised GSP(s) utilize a Subbasin-wide methodology for setting MTs and MOs for Chronic Lowering of Groundwater Levels. This methodology was established using an iterative process that considered more than eleven (11) potential MT methodologies that were vetted against the Subbasin UR definition, and potential well impacts, which resulted in development of Subbasin-wide analyses (Figure 3).

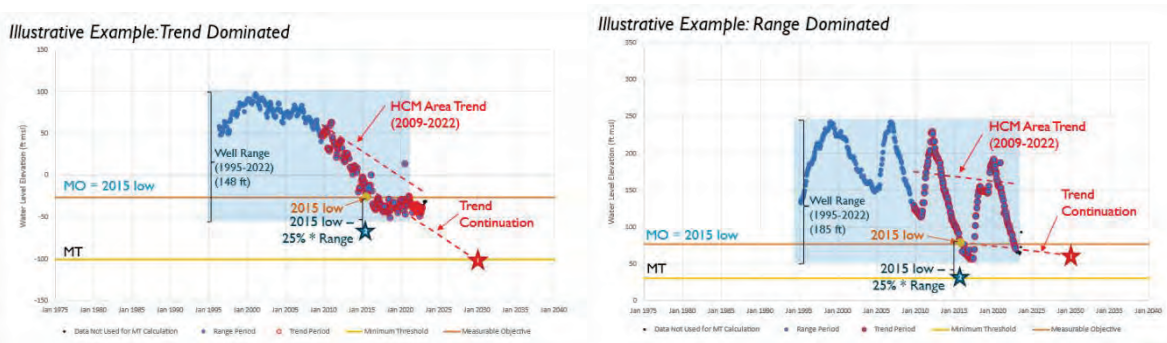


Figure 3. Kern Subbasin Coordinated Minimum Threshold Analyses

1. **Well Impacts Analysis:** Conducted using the updated Subbasin well inventory, MTs and the quantitative criteria for URs to better quantify potential impacts to beneficial users. To address SWRCB staff feedback, the Subbasin has set MOs at 2015 groundwater levels. The above graphic illustrates the MT variance to consider Subbasin complexity to address local concerns, while maintaining a unified approach throughout the Subbasin.
2. **Depletion of Supply Analysis:** Conducted to quantify the percentage of domestic and drinking water supply wells that may be impacted at MTs and the UR definition. Under the modeled most likely scenario, only 1.5% of the total estimated domestic and drinking water supply may be impacted by 2040 at the projected MTs (which will be subject to mitigation). The Subbasin has estimated a 4% reduction of groundwater storage that would occur at groundwater level MTs. As previously mentioned, the Subbasin will address impacts to domestic and drinking water supply wells via the Subbasin-wide well mitigation program developed in partnership with SHE.
3. **Representative Monitoring Well (Level and Quality) Density:** The Subbasin has a common and consistent groundwater level density grid (111 sites) with additional 73 monitoring sites for a total of 184 wells (Figure 4). In addition, groundwater level proxy for water quality



Figure 4. Kern Subbasin Coordinated Representative Monitoring Well Density

⁸ Page 32, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

⁹ Pages 31-32, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

results was replaced with a representative water quality network to protect areas with the potential for water quality to be impacted by groundwater management actions. In sensitive areas of drinking water concerns, groundwater level MTs were adjusted to be protective of water quality concerns. In response to SWRCB staff feedback received on February 5, 2024, water quality monitoring was expanded to include the addition of Uranium and 123TCP to the constituents of concern list (also monitoring Arsenic, Nitrate and Total Dissolved Solids [TDS]).

Deficiency 3: The Subbasin’s land subsidence sustainable management criteria do not satisfy the requirements of SGMA and the GSP regulations^{10,11}

The revised GSP(s) assess Subbasin-wide causes, extent, and magnitude of land subsidence and impacts to critical infrastructure through development of a coordinated approach in addressing land subsidence (Figure 5). As presented to SWRCB staff on December 13, 2023, analyses resulted in two main objectives which guided the Subbasin-wide approach for the assessment of impacts to land subsidence and critical infrastructure to develop SMCs:

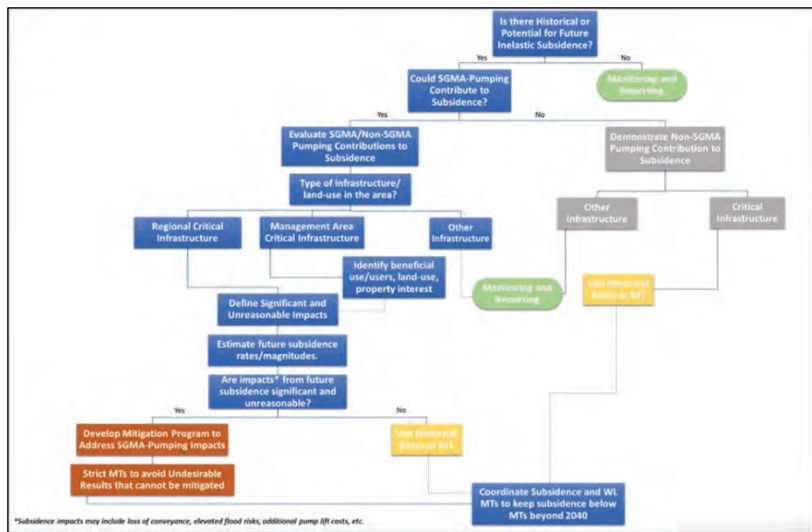


Figure 5. Kern Subbasin Coordinated Subsidence Approach

1. Identify Subsidence Factors:

In comparison to other Southern San Joaquin Valley subbasins, the Subbasin has not historically experienced significant amounts of subsidence with widespread impacts to land surface infrastructure. However, in response to DWR’s identified deficiencies, the Subbasin further investigated and scientifically demonstrated differences between subsidence caused by groundwater extraction activities (within GSA authorities) versus other causes for example oil production, geotechnical/expansive soils, and infrastructure lifespan (outside of GSA authorities) using the most recently available data (including DWR InSAR).

2. Protect Regional and Management Area Infrastructure: Developed consistent SMCs to address subsidence within GSA authorities that accommodate Subbasin complexity and meet SGMA objectives to assess and monitor land subsidence and develop projects and management actions to prevent future impacts. A Subbasin-wide monitoring network has been established.

- 3. Considered Best Available Data and Studies:** During this process, the Subbasin:
- Funded a series of new land subsidence studies that filled key data gaps noted by DWR in their deficiency letter. These studies have been shared with DWR’s California Aqueduct Subsidence Project (CASP) and the Subbasin continues to engage with CASP as an interested stakeholder.
 - Coordinated with the Friant Water Authority (FWA), including construction of a new extensometer on the Friant-Kern Canal, and the Subbasin continues to engage with FWA as an interested stakeholder.

¹⁰ Page 45, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

¹¹ Pages 42-45, March 2, 2023, Department of Water Resources, *Inadequate Determination Letter*

- Continues to incorporate updated DWR InSAR data as it is released into technical analysis (Figure 6).
- Updated basin setting definitions consistent with DWR Best Management Practice guidance to consider physical (e.g., to of bedrock), geophysical (e.g., US EPA Underground Source of Drinking Water) and geologic boundaries of aquifer exemptions.

Conclusion

The Subbasin has made significant progress and expended substantial resources to create revised GSP(s) to address the deficiencies identified in DWR's inadequate determination, as well as incorporating SWRCB staff feedback. **The existing GSPs do not represent the Subbasin, and the Subbasin respectfully request that SWRCB staff forego further review of the existing GSPs and instead focus review on the revised GSP(s) to be submitted in May 2024 for consideration prior to preparation of the SWRCB staff report and the Subbasin's tentative January 2025 probationary hearing date. The revised GSP(s) will include a brief Executive Summary that will present key aspects of the document(s).**

The Subbasin is eager to share a comprehensive overview of how our revised GSP(s) address both DWR's deficiencies and SWRCB staff feedback at our May 31, 2024, meeting with SWRCB staff. The Subbasin welcomes and encourages any State Board members who are available to attend this meeting. In addition, the Subbasin landowner representative policy members would like to extend an invitation to all Board Members (while respecting any legal limitations) and invite the Board Members to a hosted tour, or tours, of the Kern County Subbasin.

The Subbasin appreciates your consideration and this opportunity to provide an update on progress. If you have any questions regarding this letter, please contact Kristin Pittack at 760-223-5062 or kpittack@rinconconsultants.com.

Sincerely,



Kristin Pittack, MS
Kern County Subbasin Plan Manager/Point-of-Contact

CC:

E. Joaquin Esquivel, Chair
State Water Resources Control Board

Laurel Firestone, Board Member
State Water Resources Control Board

Sean Maguire, Board Member
State Water Resources Control Board

Nichole Morgan, Board Member
State Water Resources Control Board

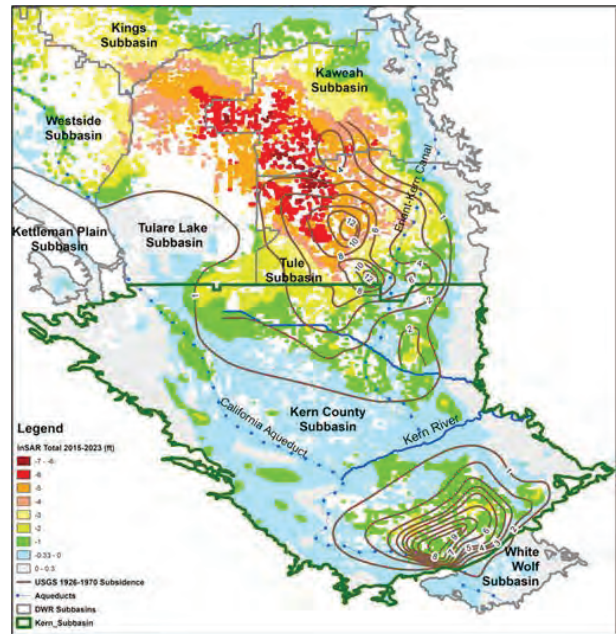
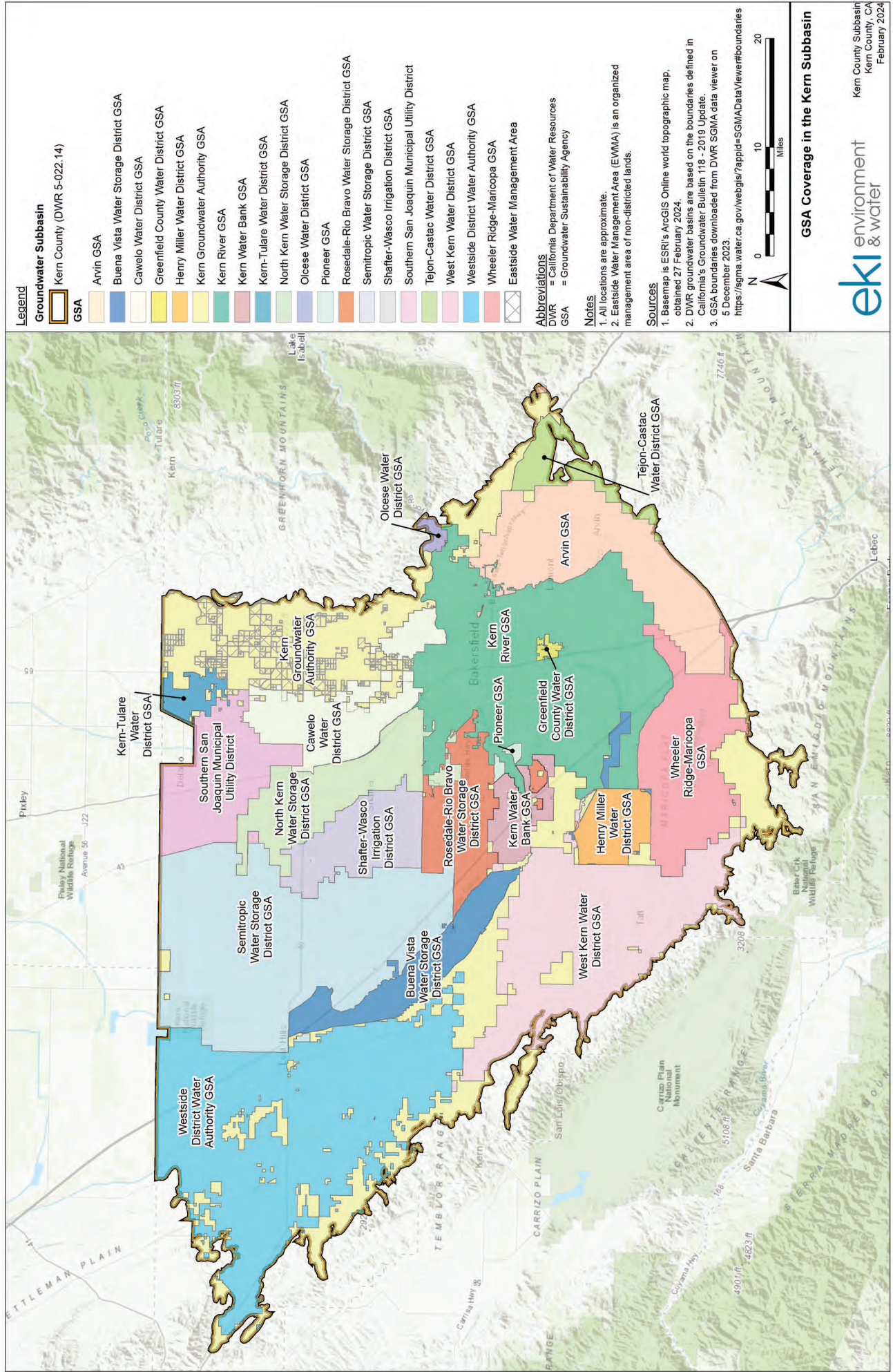


Figure 6. SGMA Data Viewer, Subsidence Vertical Displacement



SWRCB Staff and Kern County Subbasin Meetings (2023 - 2024)

Date	Topics
5/17/23	SWRCB Probation Process and Kern County Subbasin Introductions
6/23/23	Revised GSPs Approach: Sustainability Considerations, Addressing Deficiencies, Proposed Timeline
10/4/23	Minimum Thresholds, Measureable Objectives, and Undesirable Results Approach
11/1/23	10/04/23 Technical Follow Up: Groundwater Levels
12/13/23	Subsidence Approach
1/24/24	Water Quality Approach
3/6/24	Well Inventory & Well Mitigation Program Approach
4/3/24	Sustainable Management Criteria and Monitoring Network Approach
4/23/24	Water Budgets, Banking Programs, & PMAs Approach
5/29/24	Final GSP Presentation

Kern County Subbasin Contact List - March 2024									
Party	AGENCY	MEMBER	DIRECTOR	MANAGER	CONSULTANT	CONSULTANT LEAD	GENERAL COUNSEL	ATTORNEY	SIGNATORY
1	South of Kern River (3)	Arvin-Edison Wheeler Ridge Tejon-Casias	Derek Yurosek Michael Blaine Mark Valpredo	Jeevan Wuhan Sheridan Nicholas Angelica Martin	EKI	Anona Dutton adutton@ekiconsult.com	Hughes/KDG Torigliani/YW Doud/YW	Julie Gantenbein	Derek Yurosek Dennis Atkinson Angela Martin amartin@tejonranch.com
4	Kern Delta Kern River GSA (3)	Rodney Pala Bob Smith Gene Lundquist	Steve Teglia Daniel Maldonado David Beard	Todd Groundwater	Maureen Riley MRiley@toddgroundwater.com	Iger Gennaro MinaBerrigarai	Iger Gennaro MinaBerrigarai	Rodney Pala Bob Smith David Beard dbear@kcwa.com	
7	Southern San Joaquin	Brandon Morris Randy Bloemhof	Roland Gross Kris Lawrence	GEI	Stephanie Hearn shearn@geiconsultants.com	Hughes/KDG	Roland Gross Randy Bloemhof	Roland Gross Randy Bloemhof	
8	Shafter-Wasco	Randy Bloemhof	Kris Lawrence	INTERA	Abhi Singh singh@intera.com	Young Wooldridge	Randy Bloemhof	Randy Bloemhof	
9	7th Standard Annex	Kevin Andrew	David Hampton	INTERA	Abhi Singh singh@intera.com	Young Wooldridge	Kevin Andrew	Kevin Andrew	
10	North Kern	Kandrew@illumag.com	dhampton@northkernwsd.com	INTERA	Abhi Singh singh@intera.com	Young Wooldridge	Kandrew@illumag.com	Kandrew@illumag.com	
11	Cawelo	John Gauget	David Halapoff	Todd Groundwater	Mike Maley MMaley@toddgroundwater.com	St. Lawrence	David Halapoff	David Halapoff	
12	Westside District Water Authority	Rob Goff	Morgan Campbell	Aquilogic	Tom Watson tom.watson@aquilogic.com	Hughes/KDG	Mark Gilkey	Mark Gilkey	
13	Semitropic	Dan Waterhouse	Jason Gianquinto	GEI	Larry Rodriguez lrodriguez@geiconsultants.com	Kevin O'Brien	Dan Waterhouse	Dan Waterhouse	
14	Pioneer	Royce Fast	Lauren Bauer	Woodard Curran	Micah Eggleton ceggleton@woodardcurran.com	MinaBerrigarai	Tom McCarthy	Tom McCarthy	
15	Kern Water Bank	Kim Brown	Jon Parker	KWB	N/A	Torigliani/YW	Jon Parker	Jon Parker	
16	West Kern	Gary Morris	Greg Hammett	Woodard Curran	Micah Eggleton ceggleton@woodardcurran.com	Hughes/KDG	Greg Hammett	Greg Hammett	
17	Kern Tulare	Andrew Hart	Vanessa Yap	KT	N/A	David Cameron	Skye Grass	Skye Grass	
18	Eastside Water	Chad Hathaway	Taylor Blakslee	EKI	Jeff Shaw jshaw@ekiconsult.com	Dan Raytus	Chad Hathaway	Chad Hathaway	
19	Rosedale	Gary Umuth	Dan Bartel	RRB	N/A	Dan Raytus	Dan Bartel	Dan Bartel	
20	Henry Miller	Jeff Wyrick	Dominic Sween	Luhdorff Sealmanini	Willi Helligan whelligan@lsce.com	St. Lawrence	Jeff Wyrick	Jeff Wyrick	
21	Oleese	Jim Nickel	Brian Grant	EKI	Anona Dutton adutton@ekiconsult.com	St. Lawrence	James L. Nickel	James L. Nickel	
22	Buena Vista	Terry Chica	Tim Ashlock	GEI	Dave Miller dmiller@geiconsultants.com	St. Lawrence	Terry Chica	Terry Chica	

Plan Manager (Kristin Pittack - Rincon)
Listed Manager is Agencies SGMA rep and may not be the General Manager
Kern River GSA includes Greenfield and Lamont
SWID/NK/WSO includes Shafter and Wasco
Arvin GSA includes Arvin CSD

Technical Working Group Members

Name	GSA	Firm
Abhishek Singh	North Central Kern GSA - NK & SWID	Intera
Anona Dutton	South of Kern River & Olcese GSAs	EKI
Christina Lucero	South of Kern River GSA	EKI
Dan Bartel	Rosedale-Rio Bravo Water Storage District	Rosedale-Rio Bravo Water Storage District
David Miller	Buena Vista WSD GSA	GEI
Jonathan Parker	KGA – Kern Water Bank	Kern Water Bank
Larry Rodriguez	KGA – Semitropic GSA	GEI
Micah Eggleton	KGA – Pioneer GSA & West Kern WD	Woodward & Curran
Mike Maley	North Central Kern GSA - Cawelo	Todd Groundwater
Maureen Riley	Kern River GSA	Todd Groundwater
Stephanie Hearn	North Central Kern GSA - SSJMUD	GEI
Tom Watson	KGA – Westside Districts MA	Aquilogic
Vanessa Yap	KGA – Kern-Tulare WD	Kern-Tulare Water Storage District
Will Halligan	Henry Miller GSA	Luhdorff & Scalmanini Consulting Engineers

Technical Working Group Tasks

Task	Name
GSP Amendment & Schedule	All TWG Members
Subcommittees	
Alternative Methodologies for Groundwater Levels SMC – <i>7 Additional Committees: Domestic/Beneficial Users, Critical Infrastructure/Subsidence, Aquifers, Gradients, Banking, Trends, Refinements</i>	Anona (Lead) , Christina, Larry, Abhi, Tom, Will, and David – <i>7 Additional Committees: All TWG Members</i>
Well Mitigation Program	Stephanie (Lead) , Dan, Jon, Abhi
Projects and Management Actions	Dan (Lead) , David, Mike, Larry
Subsidence	Tom (Lead) , Abhi, Mike, Anona, Stephanie, Vanessa
Water Quality	Stephanie (Lead) , Maureen, Anona
Monitoring Network	Will (Lead) , Vanessa, Mike

Kristin Pittack

From: Leahy, Tina@Waterboards <Tina.Leahy@Waterboards.ca.gov>
Sent: Wednesday, March 20, 2024 2:29 PM
To: Kristin Pittack
Cc: Jayakody, Jeevan@Waterboards; Stork, Natalie@Waterboards
Subject: FW: Kern County Subbasin – GSP Amendment Review Request

Follow Up Flag: Follow up
Flag Status: Completed

CAUTION: This email originated from outside of Rincon Consultants. Be cautious before clicking on any links, or opening any attachments, until you are confident that the content is safe .

Kristin,

Thank you for your email. It references a meeting that between the Kern Subbasin GSAs and the Department of Water Resources and asks 3 questions, which are:

1. What format should revised GSPs be submitted to SWRCB staff for review, in draft or final draft form?
2. What public outreach and engagement requirements should subbasin's follow?
3. When should city and county NOIs be submitted and to where (i.e., DWR SGMA Portal, GSA/Management Area websites)?

1. Format and Complexity. As the email correctly states, the State Water Board does not have regulatory specifics “for submitting revised GSPs” for review. Each basin is unique, and each process may be different. The question asks whether the GSPs should be in “draft,” or “final draft” form, however neither term is defined. State Water Board staff will, of course, do their best to evaluate any new information that is received and the extent to which they are able to perform a review will depend on how much time is provided in advance of proposed noticing and/or hearing, the complexity of the information provided, and how significant the changes are. In addition, in order to understand how different revisions interact, it seems necessary to view the proposed revisions as integrated plans. As previously recommended, it would aid staff's review if any new GSP submissions are accompanied by a cross-walk that clearly explains the GSP revisions and how they correspond, with specificity, to identified deficiencies.

The larger challenge for the Kern Subbasin GSPs, as identified in DWR's deficiency findings, may continue to be the number, complexity, and lack of clarity among the GSPs in the Kern Subbasin. Since DWR's finding of deficiencies, it appears that the number of local agencies managing groundwater in the Kern Subbasin has now increased from 19 to at least 20 (although a reference to “22” entities was made during a recent online meeting). Those entities area:

1. Arvin GSA
2. Buena Vista Water Storage District GSA
3. Cawelo Water District GSA
4. Greenfield County Water District GSA
5. Henry Miller Water District GSA
6. Kern Groundwater Authority GSA
7. Kern-Tulare Water District GSA
8. Kern River GSA
9. North Kern Water Storage District GSA

10. Olcese Water District GSA
11. Pioneer GSA
12. Rosedale-Rio Bravo Water Storage District GSA
13. Semitropic Water Storage District GSA
14. Southern San Joaquin Municipal Utility District
15. Shafter-Wasco Irrigation District GSA
16. Tejon-Castac Water District GSA
17. Wheeler Ridge-Maricopa GSA
18. West Kern Water District GSA
19. Westside District Water Authority GSA
20. Kern Water Bank GSA

Those 20 agencies previously submitted 6 GSPs, which may now be increasing with the addition of the Kern Water Bank GSA. Some these GSPs were further subdivided into “Management Areas” or “Management Area Plans” (MAPS), which may include additional sub-areas identified variously as “management areas,” “watch areas,” and “monitoring areas.” For example, the Amended Kern Groundwater Authority GSP (Amended KGA GSP) has approximately 21 management areas and 6 “watch areas.” As the Amended KGA GSP explains:

Management areas were created by the districts/member agencies under the KGA to support groundwater sustainability in the Subbasin. While there is no one approach, majority of the management areas in the region maintain respective district boundaries. Districts and member agencies under the KGA already maintain/manage water rights, contracts, and governing agreements in their regions. By creating their own management areas, Districts/members can maintain/manage maximum flexibility and control over SGMA compliance within its service area, allowing them to implement projects and management actions applicable to their respective areas.

(Amended Kern Groundwater Authority GSP, p. 196.) This complexity may continue to make the plans difficult to evaluate. For example, a previous comment by the Leadership Counsel for Justice and Accountability stated, “The Draft GSP is incomplete and must include additional information for the public to evaluate the GSP. The Draft GSP omits critical data regarding the consideration of drinking water impacts on disadvantaged communities and protected groups, sustainable management criteria that consider all beneficial users, and projects and management actions that address significant and unreasonable impacts to beneficial users.” In response the KGA GSP advised, “This comment is directed to the KGA GSP and will be addressed by KGA. We respectfully disagree with the statement, as the information that Leadership Council claims is missing from the GSP is actually included in the management area plans, as appropriate to each respective management area.” (Amended KGA GSP, PDF p. 517.)

The KGA GSP submitted 36 additional documents as “Supporting Information,” including 12 clean and redlined versions of MAPS, which appear to act in some ways as their own GSPs under an “umbrella,” but with differences that require review of those documents as well. As an example, just one of these, the Westside District Water Authority “Amended Chapter GSP,” is 374 pages. It would appear that the reader, such as the Leadership Counsel, is being directed to individual plans, which then, themselves reference back to the KGA GSP. For example, the Westside District Water Authority MAP advises that the “40/4 Method” is being used in the Subbasin, meaning:

“Within the Subbasin a Management Area Exceedance occurs when a management area exceeds minimum thresholds at 40% or more of representative monitoring wells (RMWs) within a management area over four consecutive bi-annual SGMA monitoring events, referred to as the Minimum Threshold Trigger. Once a management area triggers the Management Area Exceedance, the management area will be counted towards the calculation of an undesirable result for the entire Subbasin.”

(Westside District Water Authority MAP, p. 78.) The Shafter-Wasco Irrigation District Amended MAP is 388 pages, etc. That MAP states, “The methodology used to develop the MOs and MTs for water levels by the larger

neighboring management areas (i.e., SWID Management Area and north Kern Water Storage District) was applied for the Management Area, resulting in a consistent approach for the region.” (Shafter-Wasco MAP, p. 7.) It is unclear if this means for this MAP or all MAPs and, if so, why there isn’t one set of MOs and MTs that could be easily understood by potentially affected stakeholders. The Kern Water Bank Storage Project Within the [KGA GSP]” is 715 pages long. The Kern-Tulare Water District MAP is 197 pages long and refers to itself as its own GSP (“Kern-Tulare Water District (District or KTWD) has prepared this Groundwater Sustainability Plan (Plan) to assess the District’s groundwater conditions and to provide monitoring and management actions to achieve sustainability that comply with SGMA,” p. 1-1.), even though it does not appear it was submitted separately and also references itself as a “Management Chapter.” The connected/disconnected nature of the GSPs and MAPs makes them extremely difficult to evaluate on the whole and, in fact, is the primary reason from the delay in my response.

2. Public Outreach. The question is posed as what are the “engagement requirements.” SGMA requires that GSAs consider all beneficial uses and users (Wat. Code, sect. 10723.2) and maintain a list of interested persons who receive timely information (Wat. Code, sect. 10723.4). The intent of these sections is that water users that would be potentially impacted by basin management, including those in economically disadvantaged communities with shallow wells, are considered in basin management and kept informed. In keeping with that goal, DWR’s regulations require that each GSP include a communication section with “a summary of information relating to notification and communication by the Agency with other agencies and interested parties.” (Cal. Code Regs., tit. 23, sect. 354.10.) If there are concerns in the basin regarding sufficient outreach (such as the example posed above by Leadership Counsel) the Board members are likely to be interested in how the Kern GSAs have sought, received, and incorporated the concerns of those users, including the points I raise above. As part of the suggested cross-walk, it would be helpful to highlight how the communication section was updated to reflect increased outreach, if any.

3. City and County NOI. The question asks when NOIs should be submitted and where. However, the email further advises, “Paul additionally stated that subbasin’s submitting revised GSPs to SWRCB Staff for review should upload NOIs to the DWR SGMA Portal in timing of submittal of revised GSPs as required by SGMA regulations (90-days prior).” I assume the reference to NOI is the notice of intent to adopt or amend a GSP required by Water Code section 10728.4, which must be provided “to a city or county within the area of the proposed plan or amendment” 90 days before the public hearing to adopt or amend the GSP to allow for consultation or comment. When the GSAs previously amended the GSP in response to DWR’s initial finding of incomplete, notices were submitted to DWR’s portal. If I am understanding correctly, your email of March 14, 2024, concludes – following your viewing of a DWR webinar – that you do not have to upload notices of plan amendment to DWR’s website. After conferring with DWR, it was my understanding that uploading NOIs, as well as any amended plans, provides public transparency and may be required since the plans would be proposed amended plans and the public may want to comment. However, DWR will not begin reviewing those plans because the basin was referred to the State Water Board. To be specific, the posting of new NOIs or GSPs to DWR’s web site does not affect State Water Board jurisdiction pursuant to SGMA Chapter 11. I will check with DWR regarding the advice provided in the webinar.

Let me know if you have any questions,

Tina Cannon Leahy

Attorney Supervisor
Office of Chief Counsel
State Water Resources Control Board
1001 I Street, 22nd Floor
Sacramento, CA 95814
Tina.Leahy@waterboards.ca.gov
(916) 319-8559 Direct

**White Wolf Subbasin Groundwater Sustainability Agency
Regular Board Meeting of the Board of Directors**

**Agenda
April 2, 2024 at 1:00 p.m.**

Public may attend in-person, via telephone, or Web-based service:

In Person: Wheeler Ridge-Maricopa Water Storage District Headquarters
12109 Highway 166
Bakersfield, CA 93313

Or Virtual Option:

Go To Meeting: <https://meet.goto.com/911605181>
Call by Phone: (872) 240-3311 Access Code: 911-605-181

Remote participation by a Director will also occur at:
7058 N. West Ave.
Fresno, CA 93711

- 1. Call to Order**
- 2. Recognition of Guests**
- 3. Approval of Minutes of the Regular Board Meeting of March 5, 2024**
- 4. Financial Accounting Report (Robert Velasquez)**
- 5. California Department of Water Resources (DWR) SGMA Implementation Round 2 grant update (Angelica Martin)**
- 6. Updates on actions discussed or authorized on March 5, 2024 (EKI)**
 - a. Update on Groundwater Sustainability Plan (GSP) implementation activities
 - i. March 2024 groundwater levels
 - ii. Dedicated monitoring well siting
- 7. Discuss and consider approval of EKI Task Order #12 Water Year (WY) 2024 GSP Implementation Support**
- 8. Correspondence**
- 9. Public Comment**

At this time, the public may address the Board on any item not appearing on the agenda that is within the subject matter jurisdiction of the Board. Comments will be limited to three minutes.

10. Consider and provide direction on future agenda items

In compliance with the Americans with Disabilities Act, if you need disability-related modifications or accommodations, including auxiliary aids or services, please call Angelica Martin (661) 663-4262.

**White Wolf Subbasin Groundwater Sustainability Agency
Regular Board Meeting of the Board of Directors**

**Agenda
April 2, 2024 at 1:00 p.m.**

- 11. Closed Session** – *Anticipated litigation (Government Code Section 54956.9(d)(2))—1 item.*
- 12. Report out of Closed Session**
- 13. Adjourn**

In compliance with the Americans with Disabilities Act, if you need disability-related modifications or accommodations, including auxiliary aids or services, please call Angelica Martin (661) 663-4262.

WHITE WOLF GSA FINANCIAL INFORMATION

WHITE WOLF GSA - Year To Date Ending March 31, 2024

FUNDING	\$ 260,000	EKI		\$ 184,030
INTEREST INCOME	656	Young Woolridge		\$ 5,657
TOTAL FUNDING	260,656	Land IQ LLC		\$ 84,070
PROFESSIONAL SERVICES - CONSULTING	\$ 184,030	Bank Fees		\$ 377
PROFESSIONAL SERVICES - LEGAL	5,657	Other		\$ -
PROFESSIONAL SERVICES - GENERAL	84,070			
FEES - OTHER	377			
OTHER	-			
TOTAL EXPENDITURES	\$ 274,134			
Net Change	\$ (13,478)			
Beginning Funds Available	\$ 73,150			
FUND AVAILABLE AT MARCH 25, 2024	\$ 115,945			
	\$ 1,115	O/S Checks		
	\$ 114,830			
ARVIN EDISON FUNDING PENDING	\$ 55,000			
	\$ 169,830			

	YTD FISCAL YEAR 2024		
	FORECAST	BUDGET	VARIANCE
FUNDING	\$ 315,656	\$ 315,000	\$ (54,344)
EXPENDITURES	377,821	376,000	(101,866)
NET CHANGE	\$ (62,165)	\$ (61,000)	\$ 47,522



White Wolf Groundwater Sustainability Agency

Arvin-Edison Water Storage District
Tejon-Castac Water District
Wheeler Ridge-Maricopa Water Storage District
Kern County

AGENDA MEMORANDUM

Date: 27 March 2024

To: Board of Directors, White Wolf Groundwater Sustainability Agency (GSA)

From: Angelica Martin, Secretary, White Wolf GSA

Item: 7. Discuss and consider approval of EKI Task Order #12 Water Year (WY) 2024 Groundwater Sustainability Plan (GSP) Implementation Support

SUMMARY

Recommendation: Approve EKI Environment and Water, Inc. (EKI)'s Task Order #12 WY 2024 GSP Implementation Support

Fiscal Impact: \$337,000 total:

- \$307,000 estimated grant reimbursable; and
- \$30,000 GSA responsible (\$10,000 per District)

BACKGROUND

The White Wolf Groundwater Sustainability Agency (GSA) is required to conduct ongoing implementation once the GSP has been adopted and submitted. The GSP identifies the following key technical aspects of GSP implementation all of which will occur to some degree during WY 2024: (1) Monitoring, Data Collection, and Data Gap Filling, (2) Stakeholder Outreach and Coordination, and (3) Reporting. As outlined in the GSP, each of these aspects have specific subtasks associated with them.

The White Wolf GSA is required by Title 23 California Code of Regulations (23-CCR) § 356.2 to submit an Annual Report to DWR by April 1 of each year following the adoption of the GSP. The WY 2024 Annual Report will cover 1 October 2023 through 30 September 2024. Certain data and analysis are required to extend from 1 January 2015 through 20 September 2024.

Furthermore, the GSP identified 24 potential Projects and/or Management Actions (P/MAs) that GSA member districts may want to pursue during GSP implementation in order to achieve sustainability in the White Wolf Subbasin (Basin). The GSA has initiated a P/MA committee to evaluate how P/MAs can best be implemented and make recommendations to the GSA Board.

DISCUSSION

This Task Order will involve conducting WY 2024 GSP implementation support through 1 April 2025. As part of WY 2024 GSP implementation support, each GSA-member district will be required to collect and provide specific data. Specific tasks for WY 2024 GSP implementation support that are eligible for grant reimbursement will include:

- Data collection, compilation, and data gap filling efforts, including monthly groundwater level tracking against Sustainable Management Criteria and a GDE field mapping exercise.
- Continued stakeholder engagement support including preparation, support for, and attendance at monthly GSA Board meetings and P/MA Committee meetings, a stakeholder workshop, and routine website maintenance.
- Intra-basin coordination including coordination with the ad-hoc technical committee to facilitate data collection and management efforts.
- Preparation of the WY 2024 Annual Report, including groundwater flow model extension.
- Grant administration support for quarterly progress reporting and invoicing.

Finally, there is an as-needed support task that is not eligible for grant reimbursement that would cover costs for as-needed, as-directed support for future grant solicitations, technical work to address any policy related questions, well permitting support, or technical studies, as directed by the GSA and/or Technical Committee.

Attached:

- EKI Task Order #12 - White Wolf Subbasin WY 2024 GSP Implementation Support

22 March 2024

Angelica Martin
Secretary of the Board
Tejon-Castac Water District, on behalf of the
White Wolf Groundwater Sustainability Agency
5665 Santa Elena Drive
Arvin, CA 93203

Subject: Task Order #12 – White Wolf Subbasin Water Year (WY) 2024 Groundwater Sustainability Plan (GSP) Implementation Support
White Wolf Subbasin, Kern County
(EKI C20014.03)

Dear Ms. Martin:

Tejon-Castac Water District (TCWD, District, or Client) has requested that EKI Environment and Water, Inc. (EKI) prepare a scope to support WY 2024 GSP implementation activities for the White Wolf Subbasin (Basin) following the approval of the GSP.

BACKGROUND

The White Wolf Groundwater Sustainability Agency (GSA) is required to conduct ongoing implementation once the GSP has been adopted and submitted. The GSP was adopted on 25 January 2021 and was approved by the California Department of Water Resources (DWR) on 26 October 2023. The GSP identifies the following key technical aspects of GSP implementation all of which will occur to some degree during WY 2024: (1) Monitoring, Data Collection, and Data Gap Filling, (2) Stakeholder Outreach and Coordination, and (3) Reporting. As outlined in the GSP, each of these aspects have specific subtasks associated with them.

The White Wolf GSA is required by Title 23 California Code of Regulations (23-CCR) § 356.2 to submit an Annual Report to DWR by April 1 of each year following the adoption of the GSP. The WY 2024 Annual Report will cover 1 October 2023 through 30 September 2024. Certain data and analysis are required to extend from 1 January 2015 through 20 September 2024.

Furthermore, the GSP identified 24 potential Projects and/or Management Actions (P/MAs) that GSA member Districts may want to pursue during GSP implementation in order to achieve sustainability in the Basin. The GSA has initiated a P/MA committee to evaluate how P/MAs can best be implemented and make recommendations to the GSA Board.

The GSA applied for and has been awarded a DWR Sustainable Groundwater Management Act (SGMA) Implementation grant through the Sustainable Groundwater Management (SGM) Grant Program, which was executed on 9 February 2024. The GSA was awarded funds for two construction projects, GSP reporting, data gap filling outreach, SGMA compliance activities, and grant administration.

Based on the above, EKI has prepared the scope of work outlined below for conducting WY 2024 GSP implementation support. Additionally, we have included a task for as-needed support to cover additional technical work products, as directed by the GSA. Any other grant-funded tasks anticipated during WY 2024 that are not mentioned above (i.e., dedicated monitoring well installation support) have not been included herein and will be brought forth to the GSA at a future time.

SCOPE OF WORK

Task 1 – GSP Implementation

Task 1 consists of two subtasks dedicated to GSP implementation including on-going monitoring, data compilation, data gap filling efforts, and data assessment.

Subtask 1.1 – Data Gap Filling, Data Compilation, and Assessment (\$79,000)

Under Subtask 1.1, the GSA member districts will be required to collect and provide specific data including, but not limited to, monthly and/or semi-annual water level measurements and/or data downloads from data loggers and annual water quality sampling data from the SGMA Monitoring Network. Additionally, the GSA will be required to upload groundwater elevation data from Representative Monitoring Wells (RMWs) to DWR’s SGMA portal twice a year (seasonal high measurement to be submitted by July 1st and seasonal low measurement to be submitted by January 1st).

Under Subtask 1.1, EKI will conduct the following technical work efforts:

- Data compilation, quality assurance/quality control (QA/QC), and Data Management System (DMS) updates for:
 - District-collected water level data collected from the Representative Monitoring Wells (RMW-WLs) and supplemental monitoring sites (MW-WL);
 - Downloaded water quality data from the public water system RMW-WQs from the State Water Board’s Drinking Water Watch website;
 - District-collected water quality data collected from the supplemental monitoring wells (MW-WQ);
 - Downloaded streamflow from the supplemental stream gauges from California Environmental Data Exchange Network (CEDEN) and Kern County, as available.
- Develop monthly maps comparing groundwater levels to the Sustainable Management Criteria (SMCs);
- Semi-annual upload of seasonal high and seasonal low water level data to DWR’s SGMA portal by July 1st and January 1st, respectively;
- Processing of other GSA member district-provided water use information, including surface water supply, delivery, diversions, and pumping;
- Processing of evapotranspiration (ET) data from Land IQ;

- Download and processing of public water system pumping data available from the State Water Board’s Electronic Annual Report website;
- Download and processing of land surface elevation data from 34 supplemental land surface elevation monitoring sites along the California Aqueduct from DWR, two supplemental Global Positioning System (GPS) subsidence monitoring stations from UNAVCO, and DWR-provided InSAR data; and
- Facilitate data collection and intra-basin coordination efforts, including preparation for and participation in up to twelve (12) virtual monthly Technical Committee meetings.

Subtask 1.2 – Groundwater Dependent Ecosystem (GDE) Monitoring (\$57,000)

Under Subtask 1.2, EKI will process data associated with GDEs in the Basin, including:

- Process high-frequency water level data from three transducers in the shallow RMW-ISWs and stream flow data from El Paso Creek stream data logger. This scope assumes that GSA-member district personnel will collect and transmit the data to EKI.
- Download, compilation, and processing of The Nature Conservancy (TNC) GDE Pulse data.
- Sub-contract with a biologist to conduct field GDE mapping, and update the GDE inventory and map included in the 2022 GSP.

Task 2 – Reporting

Task 2 consists of work efforts associated with reporting for SGMA compliance, including extending the White Wolf Groundwater Flow Model (WWGFM) and writing and submitting the WY 2024 Annual Report.

Subtask 2.1 - Groundwater Flow Model Extension (\$30,000)

Subtask 2.1 involves extending and updating the WWGFM to run through September 2024. This involves updating all input files to include surface water delivery, pumping, ET, boundary conditions, and land use data between October 2023 and September 2024 compiled under Task 1, running the model, and post-processing results. The model results will be used to produce the change in groundwater storage maps and graphs required for the WY 2024 Annual Report.

Subtask 2.2 – WY 2024 Annual Report (\$25,000)

Subtask 2.2 involves: (1) drafting the WY 2024 Annual Report using the previous Annual Report template and data compiled in the tasks above, and (2) submitting the Annual Report to DWR. As part of annual reporting, the necessary graphics, tables, and descriptions required under 23-CCR § 356.2 will be produced. Where applicable and required, graphics will include information back to January 1, 2015. Furthermore, a comparison of WY 2024 groundwater conditions to the applicable SMCs will be conducted.

Task 3 – Stakeholder Outreach and Coordination

Task 3 involves facilitating stakeholder engagement and coordination efforts during WY 2024. Specifically, EKI will:

- Provide support including developing meeting agendas, presentations, and packets as applicable, and participate in the following stakeholder and public outreach venues:
 - Up to ten (10) monthly GSA Board meetings, assuming in-person attendance at up to three (3) meetings and that two (2) monthly meetings will either be canceled and/or combined (e.g., November and December);
 - One in-person stakeholder workshop; and
 - Up to six (6) virtual monthly ad-hoc P/MA Committee meetings.
- Conduct routine website maintenance for meeting noticing requirements; and
- Participate in inter-basin coordination efforts with GSAs in the adjacent Kern County Subbasin on an as-needed basis.

Task 4 – Grant Administration

EKI will support DWR SGMA Implementation grant administration tasks, including:

- Preparation of up to four (4) quarterly progress reports; and
- Support TCWD staff with preparation of up to four (4) quarterly invoices and associated backup materials.

Task 5 – As-Needed Support

Task 5 includes as-needed, as-directed support for future grant solicitations, technical work to address any policy related questions, well permitting support, or technical studies, as directed by the GSA and/or Technical Committee. All work will be conducted on a time and materials basis in close coordination with the GSA.

PERSONNEL

EKI's staff members who will lead this project include Anona Dutton, P.G., C.Hg. (Officer), Christina Lucero, P.G. (Associate 1), Brad Arnold (Grade 1), and Sarah Gerenday, Ph.D. (Grade 2); grades in parentheses are for purposes of billing in accordance with the attached Schedule of Charges (see Attachment A). Other EKI staff members will be assigned to assist with the performance of the tasks as required to meet project commitments.

TERMS AND CONDITIONS

All work performed by EKI under this Task Order will be performed pursuant to the Terms and Conditions of our existing Agreement with Tejon-Castac Water District.

COMPENSATION

Inasmuch as the exact level of effort required to complete the above Scope of Work cannot be known precisely, EKI proposes to perform the work on a time and materials expense reimbursement basis in accordance with our current (2024) Schedule of Charges (Attachment A). As shown in Table 1, the estimated budget for this scope of work is \$337,000. We will inform you if the level of effort exceeds this anticipated amount. The estimated budget does not include costs directly paid by the GSA and/or GSA member-Districts, such as laboratory sampling or analytical costs, and procurement of the satellite ET data.

Table 1. Estimated Budget

TASK	Cost Estimate	Estimated Grant Reimbursable Amount	GSA Responsible Amount
Task 1 – GSP Implementation	\$136,000	\$136,000	\$0
Task 2 – Reporting	\$55,000	\$55,000	\$0
Task 3 – Stakeholder Outreach and Coordination	\$76,000	\$76,000	\$0
Task 4 – Grant Administration	\$40,000	\$40,000	\$0
Task 5 – As needed support	\$30,000	\$0	\$30,000
TOTAL:	\$337,000	\$307,000	\$30,000

SCHEDULE

EKI is prepared to start work on the above Scope of Work immediately upon authorization to proceed. Tasks 1 through 4 will begin upon authorization and will continue through 1 April 2025. Task 5 will begin upon authorization and continue on an as-needed, as-directed basis. EKI will inform the GSA of any issues that arise that may affect the schedule for completion or impact the anticipated level of effort.

We are happy to discuss the proposed approach and anticipated level of effort for this task and subtasks in more detail with you and look forward to working with you on this important project. If this Task Order meets with your approval, please sign where noted below and return a fully executed copy to our office to confirm authorization to proceed. Please call if you have any questions or wish to discuss this proposal in greater detail.

Angelica Martin
Tejon-Castac Water District, on behalf of the
White Wolf Groundwater Sustainability Agency
22 March 2024
Page 6 of 6

Very truly yours,

EKI ENVIRONMENT & WATER, INC.



Anona L. Dutton, P.G., C.Hg.
Vice President / Principal-In-Charge

AUTHORIZATION
TEJON-CASTAC WATER DISTRICT (CLIENT)

By _____

Title _____

Date _____

Attachments

2024 Schedule of Charges

**Client/Address: Tejon-Castac Water District, on behalf of the
White Wolf Groundwater Sustainability Agency**
5665 Santa Elena Drive
Arvin, CA 93203



Proposal/Agreement Date: 22 March 2024

EKI Proposal/Project # C20014.03

SCHEDULE OF CHARGES FOR EKI ENVIRONMENT & WATER, INC.

1 January 2024

<u>Personnel Classification</u>	<u>Hourly Rate</u>
Officer and Chief Engineer-Scientist	345
Principal Engineer-Scientist	333
Supervising I, Engineer-Scientist	323
Supervising II, Engineer-Scientist	310
Senior I, Engineer-Scientist	297
Senior II, Engineer-Scientist	286
Associate I, Engineer-Scientist	275
Associate II, Engineer-Scientist	259
Engineer-Scientist, Grade 1	241
Engineer-Scientist, Grade 2	227
Engineer-Scientist, Grade 3	209
Engineer-Scientist, Grade 4	187
Engineer-Scientist, Grade 5	165
Engineer-Scientist, Grade 6	144
Project Assistant	135
Technician	129
Senior GIS / Database Analyst	170
CADD Operator / GIS Analyst	148
Senior Administrative Assistant	162
Administrative Assistant	128
Secretary	108

Direct Expenses

Reimbursement for direct expenses, as listed below, incurred in connection with the work will be at cost plus fifteen percent (15%) for items such as:

- a. Maps, photographs, reproductions, printing, equipment rental, and special supplies related to the work.
- b. Consultants, soils engineers, surveyors, drillers, laboratories, and contractors.
- c. Rented vehicles, local public transportation and taxis, travel, and subsistence.
- d. Special fees, insurance, permits, and licenses applicable to the work.
- e. Outside computer processing, computation, and proprietary programs purchased for the work.

A Communication charge for e-mail access, web conferencing, cellphone calls, messaging and data access, file sharing, local and long distance telephone calls and conferences, facsimile transmittals, standard delivery U.S. postage, and incidental in-house copying will be charged at a rate of 4% of labor charges. Large volume copying of project documents, e.g., bound reports for distribution or project-specific reference files, will be charged as a project expense as described above.

Reimbursement for company-owned automobiles, except trucks and four-wheel drive vehicles, used in connection with the work will be at the rate of sixty cents (\$0.60) per mile. The rate for company-owned trucks and four-wheel drive vehicles will be seventy-five cents (\$0.75) per mile. There will be an additional charge of thirty dollars (\$30.00) per day for vehicles used for field work. Reimbursement for use of personal vehicles will be at the federally allowed rate plus fifteen percent (15%).

CADD and other specialized software computer time will be charged at twenty dollars (\$20.00) per hour. In-house material and equipment charges will be in accordance with the current rate schedule or special quotation. Excise taxes, if any, will be added as a direct expense.

Rate for professional staff for legal proceedings or as expert witnesses will be at a rate of one and one-half times the Hourly Rates specified above.

The foregoing Schedule of Charges is incorporated into the Agreement for the Services of EKI Environment & Water, Inc. and may be updated annually.



BOARD OF DIRECTORS MEETING

Date: *Thursday, April 4, 2024*
Time: *1:00 P.M.*
Location: *Rosedale-Rio Bravo WSD, 849 Allen Road, Bakersfield, CA 93314*

AGENDA

1. CALL TO ORDER
2. ANNOUNCEMENT OF QUORUM
3. INTRODUCTIONS
4. PUBLIC COMMENT
5. **APPROVAL of 2/29/2024 Special Board Meeting Minutes***
6. TREASURER/FINANCIAL REPORT
 - a. **March 2024 Accounts Payable/Receivable Ratification***
 - b. **SWB '23-'24 Fees***
7. ADMINISTRATIVE
 - a. Form 700, w/ Original Signatures Due April 2, 2024.
 - b. **Adoption of Resolution Changing Time of Board Meetings***
8. KRWCA MANAGER REPORT/ILRP PROGRAM UPDATE
 - a. Enrollment
 - b. Reporting
 - c. MPEP FREP Letter of Support
9. NITRATE CONTROL PROGRAM MANAGEMENT ZONE
 - a. Kern Water Collaborative (KWC) Update:
 - b. Administrative Services Agreement: Report of action taken by KWC
 - c. **KWC Contribution Agreement***
 - i. **2024 KWC Contribution Statement (Pay Q1 & Q2)***
 - d. Possible Coordination Agreement between SGMA and KWC

Posted pursuant to Government Code § 54954.2(a) at least 72 hours prior to said meeting.

By: Nicole M. Bell Date: April 1, 2024

Per Govt. Code § 54953.2 and § 54961, requests for a disability-related modification or accommodation, including auxiliary aids or services, to attend or participate in this meeting should be made to Nicole Bell (phone 661-616-6500) in advance of the meeting to ensure availability of the requested service or accommodation.



10. REPORT OF PROVOST & PRITCHARD CONSULTING GROUP
 - a. Program Updates:
11. CV-SALTS <http://www.cvsalinity.org>
Manager Bell and Land IQ represent KRWCA at the Monthly CV-SALTS Meetings. Information related to CVSALTS is available at www.cvsalinity.org.
12. OLD OR NEW BUSINESS
13. ATTORNEYS REPORT
14. CLOSED SESSION
 - a. Conference with Legal Counsel - Pending Litigation - Government Code Section 54956.9(d)(1)
 - i. Petitions filed by the Kern River Watershed Coalition Authority, et al. with the State Water Resources Control Board (SWRCB) regarding the Tulare Lake Basin General Order.
 - ii. Environmental Law Foundation v. SWRCB, et al., Sac. County Sup. Ct., Case No. Case No. 34-2018-80002851
 - iii. Protectores Del Aqua Subterranea v. SWRCB, et al., Sac. County Sup. Ct., Case No. 34-2018-80002852
 - iv. Monterey Coastkeeper, et al. v. Central Valley Regional Water Quality Control Board, et al., Sac. County Sup. Ct., Case No. 34-2018-80002853
 - v. Petition for Review by Protectores Del Aqua Subterranea with the SWRCB in Re CVRWQCB Order R5-2019-001 Amending General Orders for Grower Members of a Third-Party Group: Tulare Lake Basin Area R5-2013-0120-06, etc.
 - b. Conference with Legal Counsel – Anticipated Litigation/Significant exposure to litigation – Government Code Section 54956.9(d)(2). One item.
15. RECONVENE and REPORT from CLOSED SESSION - Gov't. Code section 54957.1.
16. KRWCA MEETING ATTENDANCE HIGHLIGHTS – INFORMATION ITEM
 - a. 3/1, Kern Water Collaborative Board Meeting
 - b. 3/6, SSJV MPEP Meeting
 - c. 3/13, MZ Leaders Meeting/CVSC Board Workshop, Sacramento
 - d. 3/14, CVSALTS, Sacramento
 - e. 3/18, CVGMC Meeting
 - f. 3/19, KWC Technical Team Meeting
 - g. 3/20, GWP Targets Meeting
 - h. 3/26, KWC SGMA Coordination Call
 - i. 3/29, PEOC Meeting
 - j. 4/1, KWC Technical Team Meeting
 - k. 4/2, MZ Leaders Coordination Meeting
 - l. 4/3, SSJV MPEP Meeting
 - m. 4/3, P&O Study Archetype Call with Technical Team



17. NEXT MEETING

The next regular KRWCA Board Meeting is scheduled for May 2, 2024.

18. ADJOURN

“*” Notates and action item (Approval/Ratification)

COMMITTEE FOR DELTA RELIABILITY

AGENDA

Date: Tuesday, April 9, 2024
Time: 1:00 pm – 2:30 pm
Location: Teams Viewer – online conference call
Call-in Info: Access via [Teams Viewer](#)

1. Administration

- a. February 13, 2024, Meeting Notes (Brad S.)– **(Page 2)**
- b. Financial Report – WRMWSD **(Page 4)**
- c. Date of Next Meeting: July 9, 2024

2. Delta Operations – Biological Opinions / Collaborative Science Process

- a. Voluntary Agreements status (Paul W.)
- b. Interim Operation Plan (IOP) (Paul W.)
- c. 2024 Biological Opinions and ITP – (Paul W.)
- d. Coordination with SWC regarding white sturgeon– (Paul W.)
- e. Proposed Rule to List Longfin Smelt– (Paul W.)
- f. National Academies update (Scott H. and Dennis M.)
- g. CSAMP Update (Bill P.)
- h. Delta smelt entrainment (Scott H.)
- i. ESA Section 7 Rule

3. Other

- a. Center for California Water Resources Policy and Management publishing (Dennis M.)
(Page 8)
 - i. Blog Update
 - ii. Scholarly articles
- b. Organizational Assessment of Center, Coalition, and Committee (Bill P. and Brad S.)

Half measures aren't enough: California must confront hatchery and harvest impacts to achieve salmon recovery goals

Written by [Bradley J Cavallo](#) Posted on [March 21, 2024](#)

In February, Governor Newsom released a plan to recover California's salmon. The strategy – [California's salmon strategy for a hotter, drier future: Restoring aquatic ecosystems in age of climate change](#) – sets an overarching goal of the recovery of salmon and reduction of extinction risk across the ranges of four salmon species, several distinct Chinook salmon runs, and steelhead. The Governor's strategy describes a serious commitment to salmon and their habitats, and the diverse ecosystems upon which both depend. For those concerned about California salmon, the strategy is an encouraging and positive conservation development.

At the same time, two issues critical to the recovery of California salmon were conspicuous in their omission from the Governor's salmon strategy. The first issue relates to the need to improve management and monitoring of ocean-harvest; better protections for salmon stocks listed under the federal Endangered Species Act, which include Sacramento winter-run, Central Valley spring-run and Coastal Chinook. The second issue is the need to assure that salmon produced by hatcheries are monitored and managed to improve the productivity, fitness, and life-history diversity of both hatchery-generated and wild fish.

Though never explicitly stated, the actions identified in the Governor's plan – habitat improvements, dam removals, augmented river flows, and more – are intended to benefit wild salmon and steelhead. Since the implicit purpose of the Governor's plan is to contribute to the recovery of wild salmon and

steelhead, and since salmon and steelhead hatcheries will continue to function, the plan should identify actions that contribute to minimizing adverse effects of hatchery production on wild salmon and steelhead. The plan acknowledges threats hatcheries pose to wild salmon – in a single sentence – but offers no tangible or meaningful actions to address these impacts.

The Four Hs provide a simple framework for and approach to recovery of wild salmon that is broadly accepted and commonly applied outside California. The Four Hs are:

Habitat – Its restoration and enhancement, including barrier removal, and actions that facilitate fish passage.

Hydro – Meeting the needs of salmon for river flows, water temperature, and water quality.

Harvest – Setting criteria and monitoring for sustainable ocean and freshwater salmon fisheries.

Hatcheries – Managing hatchery-produced fish to support harvest while minimizing adverse impacts to wild and ESA-listed stocks.

Addressing impacts from climate change might be added as a fifth critical topic. However, the key point is that a serious, effective wild salmon recovery strategy acknowledges and attempts to address all four of those major factors. For decades, salmon management in Oregon and Washington has followed the Four Hs framework. In 2023, Canada released a [*Pacific Salmon Strategy Initiative*](#) based on the Four Hs principles; it requires mass marking of hatchery-produced salmon and a “transformation” in harvest management.

Unfortunately, the California Department of Fish and Wildlife (CDFW) has yet to accept salmon-management principles embraced by our northern neighbors. The common refrain is that “California is different.” Of course,

California is different in many ways, but the State’s approach to salmon management isn’t working – for salmon or for Californians. In the last two decades, salmon fishing has been closed or severely curtailed in one year out of five. Central Valley spring-run Chinook are near the lowest abundance ever observed, while [ocean harvest impacts on that threatened species are neither managed nor monitored](#). Hatchery-produced salmon are straying and spawning in-river at rates that represent – according to National Marine Fisheries Service criteria – a high risk of extinction for Central Valley fall-run Chinook. Wild Chinook salmon still exist, but their dwindling numbers enjoy no protection from harvest and wild salmon must compete with abundant hatchery strays for limited, high-quality spawning habitats.

Hatchery salmon and their wild kin may appear identical, but basic principles of natural selection, affirmed by decades of salmon-specific scientific research, demonstrate they differ in one critical respect: their ability to successfully propagate themselves in the natural environment. After many generations of artificial propagation, it should not be surprising that hatchery salmon are adapted to maximize success in the hatchery environment. Selective pressures in the hatchery environment favor traits like early maturation, increasing fecundity by reducing egg size-quality, fast growth, and aggressive feeding behavior. At the same time, hatchery-produced fish are not exposed to selective pressures that would improve their ability to spawn successfully and produce offspring capable of surviving on their own in the natural environment.

That loss of fitness – sometimes called domestication selection – can be minimized by regularly introducing wild fish into hatchery broodstock. But most salmon and steelhead hatcheries operated by the CDFW have not followed that practice. As a result, fall-run Chinook salmon and steelhead produced in Central Valley hatcheries are the product of many generations optimized for success in the hatchery life cycle (Figure 1). Differences between the hatchery life cycle and the life cycle of wild salmon are significant. The hatchery life cycle excludes in-river spawning, egg incubation,

and freshwater juvenile rearing. As a result, with every generation of the hatchery life cycle, hatchery-produced salmon become less and less capable of being able to produce offspring that can grow and survive on their own. Worse, hatchery-produced salmon attempting to spawn in-river can contribute to the decline of wild fish both by competing for limited habitat and by interbreeding with remnant wild fish populations.

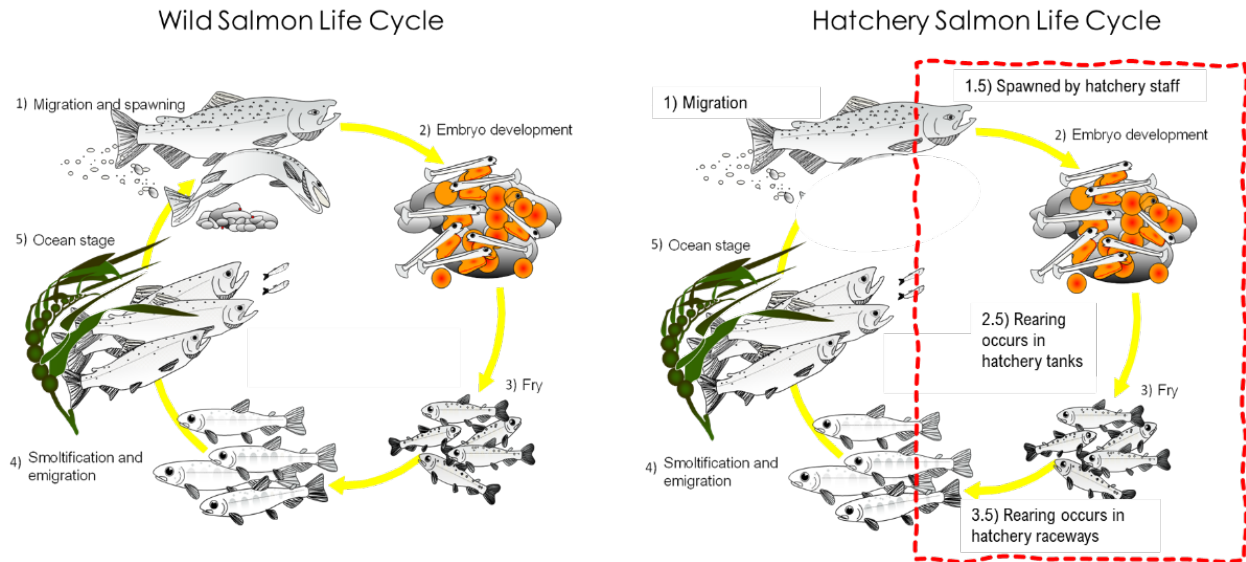


Figure 1 – Wild salmon and hatchery salmon are subjected to the same forces of natural selection from migration to the ocean as juveniles to their return as adults for spawning years later. However, hatchery-produced salmon are subjected to very different selective pressures (not selection to the natural environment) for the critical portion of their life cycle that takes place in the hatchery (inside the red dashed rectangle). Since natural selection is at work in all phases of the salmon life cycle, salmon originating from multiple generations of hatchery propagation will be less capable of spawning successfully in the natural environment and less capable of producing juveniles that will thrive in Central Valley rivers and in the San Francisco Estuary.

Thankfully, beginning to address those problems does not require shutting down salmon and steelhead hatcheries. In fact, a variety of management actions are readily available that would allow hatcheries to continue producing salmon for harvest, while reducing impacts to wild fish. It is regrettable that no such actions are identified in the State’s salmon strategy. The absence of such actions suggests CDFW’s leadership intends

to continue the long-standing policy of looking-the-other-way on hatchery-related impacts to California's salmon and steelhead runs.

If the State were to have a change of heart, a critical first step would be to begin marking with an adipose fin clip 100% of hatchery fall-run Chinook juveniles released from Central Valley hatcheries. The current 25% marking rate is inadequate, making impossible efforts to identify wild fish for use in hatchery broodstock and to differentiate wild fish from hatchery stock for the collection of biological information – genetic samples, scales, otoliths – which are needed in efforts to improve management of harvest and for effective monitoring of habitat restoration efforts targeting salmon.

Most urgently, the absence of 100% marking of hatchery salmon makes it impossible to monitor accurately the abundance of wild salmon in Central Valley rivers. Why do we need precise estimates of wild salmon abundance? The Voluntary Agreements program, now called the Healthy Rivers and Landscapes program, seeks to improve the capacity of Central Valley rivers to produce wild (natural origin) salmon and must closely track the effectiveness of habitat and flow enhancements in helping to achieve that goal. Marking 100% of juvenile salmon released by hatcheries provides the only practical basis for reliably, accurately estimating the abundance of wild salmon populations in Central Valley rivers. If the current 25% marking rate continues, it will be a major impediment to detecting and quantifying benefits to salmon resulting from the flow and habitat commitments of the Healthy Rivers and Landscapes program.

Rather than moving closer to addressing those issues, CDFW seems to be going in the opposite direction. In response to intense lobbying from salmon fishers, CDFW has sought ways to further increase fall-run hatchery production. The strategy of choice is to release more hatchery fish earlier in the season – as “fry” in February, rather than as larger juveniles (smolts) in May. Three million hatchery fry were released in 2023 and there are plans to increase that number in future years to more than 20 million. Diversifying the

timing of hatchery salmon releases is a sound management strategy. The complication is that salmon fry are too small to be marked or tagged using standard methods. In response, CDFW has proposed to implement a genetics-based tagging effort called parentage-based tagging (PBT).

Genetics can indeed be a very effective technique to identify a salmon's run or place of origin. However, it requires a carefully planned and rigorously executed effort to collect tissue samples from adult salmon in the fishery, from the spawning grounds, and from hatcheries. There is no indication that CDFW has developed a tissue sampling effort that is commensurate with this information need. Ironically, one of the greatest impediments to an effective genetics-based sampling program is CDFW's practice of marking just 25% of hatchery smolts. If 100% of hatchery smolts received an adipose fin clip, then tissue collections could target "unmarked" fish – expected to be a much smaller fraction of the overall population. With 100% marking of hatchery smolts, tissues collected from unmarked salmon could be used to identify PBT-based hatchery releases, but also to identify sensitive and endangered wild stocks. In contrast, at a 25% marking rate tissue collection is inefficient and ineffective – fish that are encountered with an intact adipose fin are much more likely to be unmarked hatchery smolts than to be genetically tagged hatchery fry or wild ESA-listed salmon.

Governor Newsom should be congratulated for shining a spotlight on the need to take action to ensure a secure future for the State's wild salmonids. But the State's salmon strategy cannot succeed unless it addresses all four of the four Hs – Habitat, Hydro, Harvest, and Hatcheries. The good news is that through the Healthy Rivers and Landscapes program the State is partnering with a host of other parties to address Habitat and Hydro. More good news stems from the reality that we have tools and resources at hand that would allow us to effectively address Harvest and Hatchery issues. With respect to the latter, the only question is whether the State will be guided by science and have the political will to adopt and implement readily available actions. If so,

we may finally see results from the considerable resources California has brought to bear to conserve our imperiled salmon populations.

1 **Using predictive models to manage risk of entrainment for Delta Smelt,**
2 **an imperiled estuarine fish**

3
4 **Scott A. Hamilton^{1*}, Dennis D. Murphy¹, Eduardo Montoya²**

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Keywords: delta smelt, imperiled species, entrainment risk, precedent conditions, resource-management strategy, predictive model

Short Title: Managing Entertainment Risk

23 **Using Predictive Models to Manage Risk of Entrainment for Delta Smelt,**
24 **an Imperiled Estuarine Fish**

25
26 **ABSTRACT**

27
28 Allocation of scarce water resources to meet beneficial but competing end uses has become
29 commonplace in drought-stricken western North America. In the Sacramento-San Joaquin
30 Delta in California, regulatory agencies endeavor to protect the endemic and imperiled
31 delta smelt from entrainment at water-project pumps, while meeting critical water
32 deliveries to agriculture and urban users. The current water management strategy is not
33 effective at or efficient in meeting those dual goals. To improve current practices, we
34 develop a risk-based strategy that protects delta smelt from population-level impacts from
35 water-project pumping, while enhancing essential water deliveries to consumers. We
36 identify and quantify the environmental factors associated with the presence of delta smelt
37 in the vicinity of water-project pumps. When delta smelt are likely not near the pumps in
38 the south Delta, the risk of entrainment is low, allowing for water deliveries to be increased
39 with *de minimis* losses of delta smelt. We present predictive management-guidance models
40 that identify the environmental-factor conditions influencing rates of take for three delta
41 smelt life stages. In a simulation for a 22-year period of water-project operations, the
42 implementation of a risk-based strategy is shown to keep losses of delta smelt under
43 specified limits in all years, unlike the current approach, while increasing water deliveries
44 by an average of 540,000 acre-feet (660,000 ML) per year. The models allow resource
45 managers to identify in real time the ecological circumstances that signal impending
46 heightened risks to delta smelt and trigger appropriate conservation responses.

47
48
49 **INTRODUCTION**

50
51 An extensive inland delta exists upstream of the confluence of Sacramento and San Joaquin
52 rivers in California. Downstream of that Confluence lies Suisun Bay and Suisun Marsh.
53 Collectively those areas of open water and wetlands form the upper estuary of the San
54 Francisco Bay, home to the endemic delta smelt, protected under federal and state
55 Endangered Species Acts. The estuary is tidally influenced and has been greatly altered
56 during the past two centuries. The dendritic sloughs and extensive marshlands that
57 dominated the Delta before European settlement and the floodplains that surrounded it
58 have been nearly completely replaced by agriculture and managed wetlands set behind
59 fortified levees (Whipple et al. 2012). Within this highly manipulated and fragmented
60 ecosystem, the endangered delta smelt persists in aquatic communities that are populated
61 with non-native competitors and predators, are embedded in highly altered food webs, and
62 are subject to ever-increasing anthropogenic disturbances (IEP MAST 2015).

63
64 The Delta also is the hub of a vast infrastructure system in which water is conveyed from
65 rivers and reservoirs in the Sacramento River watershed at distances of up to 500 miles
66 (800 km) to arid central and southern California. In years with greater precipitation, the

67 water system can convey more than 6.5 million acre-feet (8 million ML) from the Delta.
68 Reservoirs in the Sacramento River watershed capture runoff, reregulating river flow to the
69 Delta. Water is then conveyed across the Delta through rip-rapped channels to pumps at its
70 southern end, where the water is pumped (colloquially referred to as “exported”) into
71 canals that deliver the water southward. The capacity of these pumps is massive – with an
72 installed capacity of 15,000 cfs (425 ML/s), (DWR 1997, USBR 2024). As water is exported
73 from the Delta, fish screens upstream of the pumps divert fish into fish salvage facilities.
74 But, as a result of predation at those screens and a salvage process that is not entirely
75 effective, many fish die. The diminutive delta smelt are particularly vulnerable. Because
76 delta smelt are endangered, regulations have been implemented to protect them from
77 entrainment events.

78
79 When delta smelt were more abundant, their presence in fish salvage facilities varied
80 greatly from year to year, from less than 100 (2014 to 2018) to more than 150,000 (in
81 1999). Within a given year, salvage of delta smelt generally starts slowly and exhibits a
82 bell-shaped curve. In some years, two such bell-shaped salvage events can occur for adults.
83 The starting date of salvage also varies annually, ranging from early December to mid-
84 March. Managing water-project operations to protect delta smelt given this intra- and
85 inter-year variability has challenged resource managers. Entrainment of delta smelt can
86 occur during some or all of three delta smelt life stages: pre-spawning adults, spawning
87 adults, and juveniles.

88
89 Currently resource managers meet weekly through the winter and spring to assess the risk
90 of entrainment and modify water-project operations in an effort to protect delta smelt and
91 other threatened and endangered fishes that inhabit or migrate through the Delta. That
92 “risk assessment” process utilizes a variety of information, including data generated from
93 trawl surveys and real time environmental conditions. But delta smelt are scarce.
94 Sometimes a single fish near the pumps might indicate a large entertainment event that
95 might deleteriously affect the size of the delta smelt population is imminent. At other times
96 a single fish is a lone stray, the take of which at the pumps would have no population
97 consequences. Distinguishing the two types of observations is essential because, on the one
98 hand, delta smelt have become exceedingly rare. The fish is no longer observed in long-
99 term trawl surveys in which they were once common; its population is now being
100 supplemented with the release of tens of thousands of hatchery fish annually (Bland 2022).
101 On the other hand, regulations intended to protect delta smelt from entrainment can result
102 in a reduction of water deliveries from the Delta amounting to hundreds of thousands of
103 acre feet (megaliters) annually. With so few naturally occurring delta smelt being observed
104 in surveys, managers have moved away from specifying allowable salvage levels based on
105 observed abundances in surveys to a flow-based strategy, which defaults to limiting water
106 exports deliveries under a wide range of flow conditions. That pragmatic strategy comes at
107 significant water costs, with benefits for delta smelt that are difficult to quantify.

108
109 California’s Delta Reform Act of 2009 directs regulators and resource managers to meet
110 “co-equal goals” that are intended to “improve statewide water supply reliability and
111 protect and restore a vibrant and healthy Delta ecosystem”. Stakeholder groups
112 representing interests on either side of the co-equal goals claim that the allocation of water

113 entering the Delta from upstream is not reasonably balanced in compliance with the Act
114 and have sought solutions from the courts through litigation. But the courts are not
115 equipped to address such a complex ecological issue and a series of lawsuits have left listed
116 fish species imperiled and the state's water users in crisis.

117
118 The purpose of this study is to develop a risk-based strategy that protects delta smelt from
119 population-level impacts of water-project pumping while enhancing essential water
120 deliveries to California's agriculture and urban consumers. It has long been recognized that
121 salvage of delta smelt upstream of water-project pumping plants is rare prior to the first
122 major storm event of the winter. This can be considered a necessary or "precedent
123 environmental condition" for entrainment to occur. The magnitude and timing of the first
124 major storm event is a strong indicator of entrainment risks to delta smelt that will follow.
125 Here we recognize the nature of first major inflow events and identify additional precedent
126 conditions relevant for each delta smelt life stage, which differentiate high-risk conditions
127 from low-risk conditions for salvage events. High-risk conditions require heightened
128 awareness and modification of water operations. Low-risk conditions indicate that delta
129 smelt are distant from the pumps and that opportunities for increased water deliveries
130 exist. Differentiating between high-risk and low-risk conditions can allow managers to
131 narrow the temporal window during which exports are necessarily curtailed, with minimal
132 losses of delta smelt at the water-export facilities.

133
134 The concept of precedent conditions is fundamental to managing entrainment risk and
135 balancing that risk with water supply objectives. Apart from the nature of the first major
136 inflow event, there are several other precedent environmental conditions that indicate that
137 a high-risk of delta smelt losses is impending. Those physical conditions are identified
138 either from previously published work, or through our own investigations of the
139 environmental factors known to influence the distribution of delta smelt. Through
140 graphical and statistical analyses, we filter candidate precedent conditions to identify those
141 conditions most likely to delineate solely low-risk circumstances. The remaining set of
142 observations contain mostly high-risk circumstances, but also some with low risk. Drawing
143 on 22 years of daily abiotic data, we conduct empirical analyses to identify the
144 environmental-factor conditions that influence rate of take of delta smelt during high-risk
145 periods for each life stage, enabling timely identification of periods in which salvage limits
146 might be exceeded. With the identification of high-risk periods and estimates of rates of
147 take, water-project operations can be modified to prevent losses of delta smelt that would
148 have population-level consequences. We describe and illustrate how a water-resource
149 management strategy that differentiates levels of risk of delta smelt losses can be more
150 protective of the imperiled fish than the current approach, while providing for greater
151 water deliveries.

152
153 Correctly identifying precedent conditions and rates of take once the precedent conditions
154 manifest can offer empirical support for decision-makers. Additionally, the approach
155 provides new opportunities to increase protections for delta smelt while simultaneously
156 increasing average annual deliveries.

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METHODS

To develop and evaluate a risk-based strategy to improve the efficacy of water-project operations in minimizing losses of delta smelt, here we: 1) identify the environmental conditions that predictably precede high rates of delta smelt take once those conditions manifest, 2) explain the differences in rates of take between delta smelt life stages and years, and 3) then develop a model that can inform decisions to manage effectively and efficiently entrainment of delta smelt. Here we describe briefly pertinent attributes of the upper San Francisco Estuary and relevant delta smelt ecology before presenting a conceptual model.

The delta smelt is restricted to the upper San Francisco Estuary in California. Its range extends from the Napa River in the west through Suisun Bay and Marsh, the northern Delta, northeast to Yolo Bypass and the Sacramento deep water ship channel (Figure 1). Most delta smelt live for just one year. The annual life cycle for delta smelt can be divided into life stages, in part to facilitate analysis -- eggs (January to June), larvae (April to June), sub-juveniles (April to August), juveniles (June to December), subadults (September to December), pre-spawning adults (January to April), and spawning adults (January to May) (see Merz et al. 2011). It is understood that delta smelt disperse throughout the upper estuary and are most frequently found in areas of the upper estuary that exhibit narrow ranges of salinity, turbidity, temperature, and food availability requirements which vary by the fish's life stages (Simmonis and Merz 2019, Hamilton and Murphy 2020). Storm events in the Central Valley and surrounding watersheds are major drivers of those environmental conditions in the Delta (IEP MAST 2015), with hydrologic conditions in the Delta strongly influenced by large changes in through-Delta flows from the east and tidal forcing from the west.

Conceptual Ecological Model

Several conceptual ecological models addressing delta smelt entrainment have been referenced by resource managers in their efforts to mitigate delta smelt mortality at the water-project pumps (see USFWS 2008 Attachment A and Figure B-13, Grimaldo et al. 2009, IEP MAST 2015, Grimaldo et al. 2021). Those conceptual models include common elements.

The first major inflow event (colloquially, the “first flush”) resulting from winter and early spring storms generates a pulse of freshwater, increasing turbidity and decreasing salinity throughout the Delta. The first flush allows delta smelt to expand their distribution into previously unsuitable areas of the Delta, including into areas of the central and south Delta nearer to water-project pumps in the extreme south of the Delta (Grimaldo 2009, IEP MAST 2015).

Those pumps can create southward flows, net of tidal influences, in the channels leading to the pumping facilities, which are in the opposite direction of the natural downstream flow

203 in more than 80% of days between January and June (USGS NWIS). Delta smelt entering the
204 central and south Delta are vulnerable to entrainment because some stay in areas that
205 experience turbidity and salinity conditions that are suitable to the fish allowing them to be
206 drawn toward the water-project pumps.

207
208 The larger the delta smelt population, the greater the number of delta smelt that can be lost
209 to entrainment; that is, lost to take at the pumps. The rate of take of delta smelt at water-
210 project pumps is dependent on the abundance of delta smelt in the vicinity of the pumps,
211 which is determined by interactions among several ecological factors –

- 212 1) the size of the delta smelt population,
- 213 2) abiotic conditions that are influenced by gross volume of inflow into the Delta,
- 214 3) the magnitude of southerly flows in Old and Middle rivers, which draw delta smelt
215 towards the pumps, and
- 216 4) the magnitude of San Joaquin River flows that move delta smelt downstream and away
217 from the pumps.

218
219 Delta smelt that have even a small probability of being entrained are said to be in the “zone
220 of influence” of the pumps. This entrainment zone is not a static geographic area but rather
221 it increases in extent as flows toward the pumps increase. By definition then, if delta smelt
222 are entrained, they were previously located within the entrainment zone.

223
224 Our conceptual model (Figure 2) expands on earlier models, but better characterizes the
225 distribution of delta smelt in response to inter-annual differences in through-Delta flows. It
226 does so in two essential aspects. First, our conceptual model recognizes that
227 environmental conditions -- “precedent conditions” -- in addition to a first flush, are
228 necessary stimuli for delta smelt to move into and reside within the zone of influence of the
229 pumps. Absent those precedent conditions, rates of take at the pumps are very low,
230 independent of other environmental factors. Second, our model recognizes important
231 differences in the responses of delta smelt life stages to varying environmental conditions.
232 Delta smelt respond to environmental conditions differently in each of their life stages as
233 their physiological needs shift from feeding and growth to reproduction (Hamilton and
234 Murphy 2020).

235 236 **Identifying Precedent Environmental Conditions and Inferring Their Effects**

237
238 Identifying the environmental factors and associated factor thresholds that precede high
239 rates of delta smelt salvage is the first step in informing a conceptual model with requisite
240 predictive capability. Years with very high or very low Delta inflows have historically been
241 associated with lower levels of salvage of delta smelt. Very high flows move delta smelt
242 downstream, away from the pumps. Years with very low flows fail to produce the turbidity
243 and salinity conditions necessary to stimulate delta smelt dispersal into the south Delta. If
244 very high flows on the San Joaquin River occur during the period when juveniles are
245 present, those flows move the juveniles downstream away from the pumps (USFWS 2019,
246 IEP MAST 2015). Non-hydrologic factors that influence the distribution of delta smelt
247 include water temperature, turbidity, salinity, and prey availability (Bever et al 2016,

248 LaTour 2016, Mahardja et al. 2017, Petersen and Barajas 2018, Polansky et al. 2018,
249 Simonis et al. 2019, Hendrix et al. 2022).

250
251 Those above factors are considered in evaluating the first of two hypotheses that must be
252 confronted with available data on delta smelt and the environmental conditions they
253 encounter:

254
255 *Hypothesis H1: Identifiable hydrologic and abiotic environmental conditions precede*
256 *high salvage (mortality) rates in delta smelt.*

257
258 To identify precedent conditions, we evaluate the influence of each component of the
259 conceptual model affecting delta smelt abundance in the vicinity of the pumps. We graph
260 covariate values preceding a potential take period against subsequent population-adjusted
261 rates of take for each life stage. For each life stage we consider 1) the influence of the first
262 major flow event into the Delta, 2) temperature, salinity, and turbidity conditions, 3)
263 aggregated inflow into the Delta, and 4) San Joaquin River flows and flows in Old and
264 Middle rivers. In each case we identify ranges for covariates that subsequently lead to high
265 rates of take by employing the graphical analyses to delineate ranges of very low
266 population-adjusted rates of take from ranges where rates of take vary. We hypothesize
267 that the environmental covariate value ranges that correspond to exclusively low rates of
268 take reflect threshold conditions that prevent delta smelt from entering or remaining in the
269 zone of influence of the pumps, regardless of all other environmental conditions. In
270 instances where the analyses recognize the same high-risk years being associated with
271 more than one environmental covariate, we employ the covariate that appears earliest in
272 the causal chain in the conceptual ecological model. That factor is understood to be the
273 most relevant in management efforts to reduce delta smelt losses at the pumps because it
274 provides the earliest warning signal and the most time to prepare a management response.

275
276 We evaluate the first hypothesis by comparing the hydrologic and other abiotic conditions
277 that precede low and high rates of take for each life stage and test for statistical significance
278 in the differences of the means.

279
280 Understanding the environmental factors that influence the fraction of the delta smelt
281 population in the entrainment zone during high-risk periods is fundamental to managing
282 water-project operations to limit salvage. Quantifying the relevant factors contributing to
283 precedent conditions is advanced by evaluating a second hypothesis:

284
285 *Hypothesis H2: The average rate of take of delta smelt following a precedent condition is*
286 *influenced by river flow, water temperature, turbidity, and salinity.*

287
288 We evaluate the second hypothesis by testing whether the inclusion of environmental
289 factors in the equation below adds explanatory power using the Bayesian Information
290 Criterion (Schwarz's SBC). We used BIC rather than an adjusted R^2 as model-selection
291 criteria to reduce the likelihood of overfitting (Brewer et al. 2016). For each of the three
292 delta smelt life stages that are subject to entrainment, we hypothesize that factors affecting
293 rate of take can be presented as:

294
295 $A = \alpha + f(H) + f(S) + f(T) + f(N) + f(R)$ [1]
296

297 where A is the percentage of incidental take of delta smelt per hundred thousand acre-feet
298 of water pumped, α is a constant, f denotes a generalized non-linear functional, H
299 represents hydrodynamic conditions associated with the first major inflow event, including
300 starting day of the first major inflow event (days following 31 October) and a dummy
301 variable for early large inflow events, S is salinity near Clifton Court Forebay ($\mu S/cm$), T is
302 water temperature ($^{\circ}C$) near Clifton Court Forebay, N is turbidity (NTU) near Clifton Court
303 Forebay, and R is average river flows including (separately) Delta inflow, net daily flow in
304 Old and Middle rivers, and San Joaquin River flow.

305
306 We conducted extensive graphical analyses of all covariates individually for each life stage
307 against the rate of take to identify non-linear relationships and thresholds (conditions with
308 *di minimus* rates of take). Non-linearity, if identified, was addressed by including quadratic
309 terms. Data on river flows were obtained from DWR (Dayflow). Data and on abiotic
310 conditions are from DWR (CDEC station "CLC"). Equation [1] is estimated using ordinary
311 least-squares regression analysis. The models for each life stage were validated by
312 calculating a cross-validated R^2 (reported as Q^2 -- Addinsoft 2024).

313
314 The empirical analyses are conducted only for observations where precedent conditions
315 have manifested. To include observations where an individual environmental factor has
316 prevented delta smelt from entering the zone of influence of the pumps, regardless of the
317 values of other covariates, would confound the analysis and lead to biased estimates.

318 **Data Considerations**

319
320 *Salvage* -- Efforts are made to salvage fish, including delta smelt, prior to the fish reaching
321 the water-project pumps. Fish are diverted away from the intake canals that lead to the
322 pumping plants, routing them to salvage facilities. It is useful to distinguish "salvage," the
323 number of fish estimated to be captured at salvage facilities, from "entrainment," which is
324 the total loss of fish due to pumping (Kimmerer 2008). Salvage is a fraction of entrainment
325 (Kimmerer 2008, Miller 2011, Korman et al. 2021). Entrainment includes losses of fish due
326 to the upstream predation on delta smelt that would not otherwise have occurred,
327 ineffectiveness of diversion louvers in redirecting delta smelt away from the pumps, and
328 inability of delta smelt to survive the salvage process. The term "salvage" implies a
329 beneficial management measure, but in the context of this analysis it is a proxy for
330 entrainment – a source of delta smelt mortality. We use the term "rates-of-take" when
331 referring to "salvage rates".
332

333
334 *Study period* -- We use publicly available data on delta smelt and environmental conditions
335 that were gathered from 1993 forward; the identification of delta smelt in salvage
336 operations was reported to be more rigorous starting in that year (Grimaldo et al. 2009).
337 The study period ends in the 2014 water year, the last year in which the Fall Midwater
338 Trawl Index (FMWT) recorded numbers of delta smelt in double digits. The survey after

339 that date recorded delta smelt in numbers so low that just several delta smelt in the FMWT
340 survey skew coefficient estimates.

341
342 *Delineating the relevant periods for each life stage* -- For purposes of this study, we consider
343 three temporal salvage windows -- 1) the delta smelt pre-spawning period, the period from
344 first major inflow event to 13 February or until water temperature at Clifton Court Forebay
345 exceeds 10°C after 24 January, 2) the spawning period, the period from the end of period 1
346 to 20 April, and 3) the juvenile period, from 21 April to 7 July. Those temporal windows
347 were delineated based on length records for delta smelt from salvage data and maturity
348 data from the Spring Kodiak Trawl (see Supplementary Material Appendix A). Water
349 temperature rather than a calendar date appears to trigger risk of entrainment for
350 spawning delta smelt based on a review of historic data.

351
352 *Defining the first major inflow event* -- The first major inflow event in the Delta results from
353 the first major storm or storms of the season that occur in late autumn or early winter.
354 Large first storms modify turbidity and salinity in the Delta, thereby stimulating dispersion
355 by delta smelt. We identified inflow events large enough to allow dispersion of delta smelt
356 into the entrainment zone by examining historical inflow data from 1993 to 2014 in an
357 effort to determine the type of inflow event that preceded salvage.

358
359 Consequently, we define a first major inflow event as one that generates daily delta inflows
360 greater than 25,000 cfs on a running 3-day average, at a time when inflows increased by
361 12,500 cfs over the previous seven days. This delineation is similar to the one identified by
362 USFWS (2019), which required flows on the Sacramento River at Rio Vista to exceed
363 25,000 cfs and turbidity to exceed 50 NTU. We define the “date of the first major inflow
364 event” to be the first day of the three-day sequence. For context, in the years in which the
365 first major inflow event occurred in December or January, the average flow before the
366 event was 17,348 cfs and afterwards was 57,335 cfs, an increase of close to 40,000 cfs.

367
368 *Determining a starting date for delta smelt salvage events* -- In many years salvage is a
369 continuous event. Once salvage starts, daily take of delta smelt increases up to a peak and
370 then decreases, often resembling a normal distribution or bell-shaped curve. The date of
371 the start of a salvage event under those circumstances is readily discernable. For analytical
372 purposes in years when delta smelt take was not a continuous event, we use the date at
373 which the cumulative take for the season exceeded 5% of the annual salvage.

374
375 *Developing a metric for water-project take of delta smelt* -- The abundance of delta smelt can
376 vary significantly from year to year (Polansky et al. 2019). Generally, the take of delta smelt
377 increases as the number of delta smelt in the estuary increases (Grimaldo et al. 2021). To
378 account for different population sizes in different years we follow the method used by
379 USFWS (2008), calculating a “salvage index” by dividing salvage by the estimated
380 abundance of delta smelt in the prior autumn using the Fall Midwater Trawl (FMWT) Index
381 (see Petersen and Barajas 2018).

382
383 *Management target* -- Ideally, salvage should be managed to prevent water-project
384 operations from having population level impacts on delta smelt that cannot be mitigated.

385 Determining salvage levels at which population level impacts occur and establishing upper
386 levels of acceptable salvage (“salvage limits”) has been employed in management decision-
387 making previously (USFWS 2008, 2019). For regulatory management purposes, USFWS
388 (2008) established salvage limits that were referred to as “Incidental Take Levels” (ITL) for
389 adults (approximately 8 times the prior FMWT Index) and for juveniles (approximately 23
390 times the prior FMWT Index).

391
392 It is unclear whether population-level impacts on delta smelt occur when the ITL is
393 exceeded. While two studies offer evidence of such a relationship (Rose et al. 2013, Smith
394 et al. 2021), several others find no significant relationship between salvage numbers and
395 subsequent delta smelt abundance (USFWS 1996, Mac Nally et al. 2010, Thomson et al.
396 2010, Maunder and Deriso 2011, Miller et al. 2012, Hamilton and Murphy 2018).
397 Nevertheless, the ITL serves as a useful means of making population adjustments to allow
398 comparison of take between years, because the ITL is adjusted in response to
399 contemporary abundance index values. We use salvage limits here, given their current
400 regulatory importance, recognizing that this study is concerned with the factors influencing
401 rate of take and how take can be managed to stay under a certain limit.

402
403 For analytical purposes, we use the percentage of the incidental take per 100,000 acre-feet
404 of water pumped (the rate of take) as the dependent variable in equation [1] and as a proxy
405 for the abundance of fish in the zone of influence of the pumps, differentiating adult rates of
406 take from juvenile salvage, since ITLs are established separately for each life stage.

407

408 **Development and Evaluation of a Management Strategy**

409

410 The strategy underlying the current regulations is precautionary, that is, intentionally
411 limiting net flows towards the pumps (southerly flows) to 5,000 cfs in Old and Middle
412 rivers after the first major inflow event of the year. The alternative “risk-based” strategy
413 proposed here recognizes that higher levels of salvage will not occur until prerequisite
414 conditions have been met. Until those conditions are met, rates of take and the likelihood of
415 population level impacts are lower. Under the risk-based strategy, pumping rates are
416 decreased if salvage limits are likely to be exceeded.

417

418 The major difference between the two strategic approaches is the trigger for initiating
419 protective measures -- at the start of the first major inflow event, in the case of current
420 regulations, and at the onset of prerequisite conditions, in the case of the risk-based
421 strategy. Following initiation of protective measures, both strategies propose adjustment to
422 water-project operations based on perceived risk, resulting from data from fish surveys, in
423 the case of the current regulations, and from models estimating rates of take based on
424 environmental conditions, in the case of the risk-based strategy. Both strategies would
425 employ further restrictions in cases of actual salvage.

426

427 We conducted a simulation analysis to compare the risk-based strategy with current
428 regulations. We apply the model for each life stage to each year from 1993 to 2014. We
429 estimate the change in salvage of delta smelt and the change in water deliveries under each

430 management strategy for each year and compare strategies (see Supplementary Material –
431 Appendix B).

432

433

434 **RESULTS**

435

436 **Precedent Conditions**

437

438 Precedent conditions associated with high rates of take were identified for each delta smelt
439 life stage (the red rectangles in Figures 3, 4, 5, 6). We compared rates of take following a
440 precedent condition with rates of take when the condition did not occur (Table 1). Here we
441 note the influence of differing factors between life stages.

442

443 *Pre-spawning Period* -- For the pre-spawning period, we confirmed that rates of take of
444 delta smelt were higher following the first major inflow event (average rate of take 4.77%
445 per 100,000 acre-feet pumped -- htaf) than rates of take before it (average of 0.03%/htaf,
446 Table 1). The timing of and flow rates with the first major inflow event, further defined
447 circumstances with high and low rates of take of delta smelt. Inflow events that began
448 before January 10 had higher rates of take (average of 6.4%/htaf) than those later (average
449 of 0.3%/htaf), (Figure 3A). Also, maximum inflow during the first major inflow event that
450 is less than 65,000 cfs had an average rate of take of 6.4%/htaf, compared to an average
451 rate of take of 0.2%/htaf when the maximum inflow was greater than 65,000 cfs (Figure
452 3B). Salinity in the range between 520 and 600 $\mu\text{S}/\text{cm}$ prior to the start of the take event
453 was associated with a higher rate of subsequent take of 13.2%/htaf than when salinity was
454 outside that range resulting in an average rate of take of 1.3%/htaf (Figure 3C).

455

456 Having observed that high rates of take for pre-spawning delta smelt adults followed a first
457 major inflow event occurring before January 10 with maximum flows less than 65,000 cfs
458 and with EC in a range from 520 to 600 $\mu\text{S}/\text{cm}$ prior to the start of take, we graphed salinity
459 from the start of the first major inflow event until the start of take. We observed that in
460 years with a first major inflow event occurring before January 10 with maximum flows less
461 than 65,000 cfs, take did not start until salinity moved within a range from 550 to 600
462 $\mu\text{S}/\text{cm}$ and was then declining (Figure 4). We also graphed temperature and turbidity
463 conditions prior to the start of take but found no consistent patterns.

464

465 *Spawning Period* -- For the spawning period, two environmental conditions consistently
466 preceded high rates of take of delta smelt. Years with a first major inflow event that
467 occurred before February 1 had an average rate of take during the spawning period of
468 3.4%/htaf compared to years when the first major inflow event was later, 0.4%/htaf
469 (Figure 5A). Years with turbidity more than 10 NTU in the week prior to the spawning
470 salvage period (typically February 7 to February 13) had an average rate of take during the
471 spawning period of 3.4%/htaf compared to an average of 0.5%/htaf when turbidity was
472 less than 10 NTU (Figure 5B).

473

474 *Juvenile Period* -- Four environmental conditions preceding the juvenile entrainment period
475 were associated with high rates of take during the juvenile period -- average inflow less
476 than 60,000 cfs, Old and Middle rivers' flow less than 2,500 cfs, San Joaquin River flows less
477 than 10,000 cfs, and water temperature in the south Delta between 15.6 and 20 °C. The
478 hydrologic conditions occurred in the same years of lower flows leading to higher rates of
479 take, consistent with the hypothesis that strong outward flows move weak-swimming
480 juvenile delta smelt away from the pumps. Very warm water (greater than 20°C at the start
481 of the juvenile entrainment period) was associated with low rates of take. Of these four
482 environmental conditions, San Joaquin River flows less than 10,000 cfs was selected as the
483 more management-relevant metric as a precedent condition for take of juvenile delta smelt,
484 because it denotes the same high-risk years as the other hydrologic factors, is consistent
485 with existing regulations, and unlike flows in Old and Middle rivers is not readily controlled
486 through reoperation of water-project pumps. Water temperature was not employed as
487 management factor because water temperatures are likely to change through the juvenile
488 entrainment period (April 20 to July 7) due to changes in air temperature; therefore, air
489 temperature is better employed as a factor affecting the rate of take.

490
491 Years with San Joaquin River flows less than 15,000 cfs during the week prior to the start of
492 the juvenile period had an average rate of take during the juvenile period of 26%/htaf;
493 compared to 0.05%/htaf in years when San Joaquin River flows was greater than 15,000
494 cfs (Figure 6).

495 496 **Factors that Influence Rate of Take**

497
498 We hypothesized that the average rate of take of delta smelt following a precedent
499 condition is influenced by river flow, water temperature, salinity, and turbidity. We used
500 empirical analyses to fit equations to explain rate of take for each life stage. The fitted
501 equations had R² values exceeding 0.9 and Q² values exceeding 0.75 (Table 2). The
502 application of the model-selection criteria provided support for some of the hypothesized
503 covariates influencing rate of take, but not others. Starting dates of the first major inflow
504 events were found to be significantly non-linear during the adult periods, but linear during
505 the juvenile period, with the influence decreasing as first major inflow events occurred
506 later in the season. While a very large inflow event was associated with lower rates of take
507 during the pre-spawning period, it was associated with higher rates of take during the
508 spawning and juvenile periods, suggesting pre-spawning adults redistributed downstream
509 early in the year with very large flows, returned upstream to spawn, despite persisting high
510 outflows. Late inflow events were associated with lower rates of take during the juvenile
511 period (Table 2).

512
513 Rates of take increased during the pre-spawning period as salinity increased, but salinity
514 had no association with rate of take during the spawning period. During the juvenile period
515 the estimated relationship was non-linear. Water temperature was statistically significant
516 during the pre-spawning and juvenile periods, with increasing water temperatures
517 reducing rates of take non-linearly during the juvenile period. Turbidity was only

518 statistically significant during the pre-spawning period with increasing turbidity
519 increasing rate of take.

520 Higher flows in Old and Middle rivers towards the pumps were associated with increased
521 rates of take for all life stages. Because of the interactive relationship between water-
522 project pumping and flows in Old and Middle rivers, a proportional increase in pumping
523 results in more-than-proportional increase in take. Rates of take during the spawning
524 period increased as delta inflows increased, but no association is apparent during the pre-
525 spawning or juvenile periods.

526

527 **Alternative Management Strategies**

528

529 In comparing management strategies, the risk-based strategy had advantages over
530 operations under current regulations. The risk-based strategy resulted in 541,000 acre feet
531 (667,000 ML) more water being delivered to human uses per year on average, compared to
532 operations under current regulations (Table 3). Even though water deliveries had to be
533 severely restricted in 6 of 22 years to protect adult delta smelt under the risk-based
534 strategy, annual average deliveries were increased by pumping more water during low-risk
535 periods. There was little difference in the water deliveries between strategies during the
536 juvenile period because precedent conditions occurred in most years (17 of 22 years) and
537 pumping had to be restricted frequently in those years under the risk-based strategy to
538 stay under salvage limits.

539

540 Both current regulations and the risk-based strategy were protective of adults. The current
541 regulations did not keep salvage of juveniles below take limits in nearly one third of years,
542 whereas the risk-based strategy was designed to keep salvage below take limits in all years.

543

544

545 **DISCUSSION**

546

547 The investigation of environmental factors that influence fish losses due to entrainment or
548 impingement is not a particularly novel endeavor. Factors influencing the magnitude of
549 loss at large water diversion facilities, such as those for powerplant cooling systems,
550 turbines for hydroelectric plants, and irrigation diversions include hydraulics (approach
551 velocities to screens, sweeping velocities, the hydraulic influence of the diversion, the
552 proportion of water diverted), abiotic factors near intakes (water clarity, water
553 temperature, time of day, tide, season) and biology (the abundance of fish near intakes,
554 foraging behavior, life stage) (Nobriga et al. 2004, Grimaldo et al. 2009, Sechrist et al. 2010,
555 Mussen et al. 2013, Martins et al. 2014, Cooke et al. 2020, Grimaldo et al. 2021, Kock et al.
556 2023). The findings from this current study support the relevance of 1) Delta hydraulics --
557 the timing and magnitude of the first major inflow event, Delta inflow, flow in Old and
558 Middle rivers, San Joaquin River flow, 2) abiotic conditions (turbidity, salinity, and water
559 temperature) and 3) biological factors (delta smelt life stage). The management challenge
560 in this case, where losses of the imperiled delta smelt occur with water exported, is not
561 limited simply to minimizing fish losses by recognizing influential factors. California's Delta
562 Reform Act mandates equal importance be given to enhancing the environment and

563 protecting water supplies. Achieving a reasonable balance among disparate management
564 mandates requires sensitive application of relevant data in appropriate spatial and
565 temporal context.

566
567 Here we have proposed and tested a risk-based system for managing water-project
568 operations based on empirical analysis of 22 years of data. We found that certain
569 conditions historically have preceded high levels of take, which can lead to population-level
570 impacts if water exports are not properly managed. Absent those conditions, the
571 abundance of delta smelt in the vicinity of project pumps is very low or non-existent and
572 pumping can continue at efficient levels.

573
574 The risk-based strategy illustrated in Figure 7 emerged from a conceptual ecological model
575 that identified environmental factors that potentially influence the abundance of delta
576 smelt at each life stage in the vicinity of the water-project pumps. Employing historical data
577 in an analysis of salvage rates of delta smelt allowed for identification of environmental
578 conditions that consistently precede high rates of delta smelt take – 1) the occurrence,
579 timing and magnitude of the first major inflow event, 2) salinity in a narrow range in the
580 vicinity of the pumps, 3) turbidity prior to the start of the spawning period, and 4) low
581 flows on the San Joaquin River during the juvenile period. With circumstances preceding
582 high rates of take identified, we developed predictive models for each delta smelt life stage
583 to estimate rates of take given prevailing environmental conditions. Those models can be
584 used to predict whether continuation of pumping at prevailing levels is likely to lead to
585 exceedance of take limits, and how pumping could be adjusted to prevent those levels of
586 take being reached. Of importance, flows in Old and Middle rivers have a non-linear impact
587 on salvage rates of all life stages once precedent conditions have manifested. Water-project
588 pumping levels have a direct impact on flows in Old and Middle rivers. Combined, those
589 factors suggest that a proportional decrease in pumping volumes will produce more than a
590 proportional decrease in the rate of delta smelt take.

591
592 Management of water-project operations to avoid losses of delta smelt during the first half
593 of each year requires conservation planners and water managers meet weekly to consider
594 the possible impact of project operations on listed species, including delta smelt. Those
595 decisions are made on the basis of fish survey data and prevailing conceptual models, but
596 they are subjective. The use of the findings and management guidance from this study
597 provides empirical support for decisions that provide increased protection for delta smelt,
598 while simultaneously providing an opportunity for increased water deliveries. The
599 thresholds identified here as differentiating high-risk and low-risk circumstances should
600 not at this point be interpreted as having fine precision. For example, a first major inflow
601 event having a magnitude of less than 65,000 cfs indicates that a high rate of delta smelt
602 take may follow. But flow volumes even approaching that level should be viewed with
603 caution and other real-time environmental factors influencing the rates of take should be
604 considered.

605
606 The results of this study indicate that a number of current regulations may be triggered at
607 inappropriate times. For example, current regulations require that pumping always be

608 restricted following a first major inflow event, but the analyses here suggest that very large
609 inflow events, those that peak above 65,0000 cfs, move delta smelt away from the pumps.
610 In that circumstance, pumping limitations to protect delta smelt are unnecessary. Similarly,
611 first major inflow events occurring after January 10 historically have produced low rates of
612 take, indicating that pumping restrictions from January 10 to February 14 in certain years
613 would not be warranted.

614
615 Current regulations are intended to prevent turbidity from the Sacramento River from
616 entering the south Delta during or following a first major inflow event. Review of historical
617 data indicates that turbidity in the San Joaquin River is usually higher than that in the
618 Sacramento River during those periods, making restrictions on project pumping ineffective
619 for turbidity management. Furthermore, in this study we found no consistent relationship
620 between turbidity during the pre-spawning period and rate of take. Delta smelt salvage
621 during the pre-spawning period was observed to occur in a number of years when
622 turbidity levels were low (less than 10 NTU). However, that was not the case during the
623 spawning period when mature adults appear to avoid clear water. Rates of take during the
624 spawning period were also low when the first major inflow event occurred after February
625 1, again indicating that pumping restrictions would not be warranted.

626
627 Alternative methods for reducing entrainment risk to delta smelt are not yet available.
628 Conventional vertical screen technologies that employ large physical barriers continue to
629 improve, but none that are currently available are capable of protecting especially small
630 fish, like early life stage delta smelt. Having minimal swimming abilities, the young fish are
631 likely to be impinged on screen structures, even at very low approach velocities. A solution
632 to the dilemma of diverting water without harming fish could involve the use of infiltration
633 galleries, which. Horizontal fish screens employ perforated pipes embedded in riverbed
634 gravel, taking advantage of the natural buoyancy properties of the fish to keep them
635 suspended in the water column away from the screens. These screens could be constructed
636 at strategic locations in the Delta to minimize delta smelt losses from predation losses.
637 Such screens have been developed for river applications, but not yet for tidally influenced
638 estuarine systems, such as the Sacramento-San Joaquin Delta. In the near-term then, best
639 management practices for the imperiled delta smelt are limited to strategically adjusting
640 export volumes in real time to reduce fish numbers subject to entrainment.

641
642 Long-standing complications challenge those who seek to understand the response of delta
643 smelt to changing environmental conditions in the Sacramento-San Joaquin Delta – the
644 conditions that precede entertainment. First, with numbers of delta smelt decreasingly
645 small (see Polansky et al. 2019) and clustered, gauging the distribution of the fish and their
646 proximity to water-project pumps is challenging. Second, the number of delta smelt taken
647 at the water-project pumps is not knowable because it is not possible to estimate with any
648 accuracy the number of fish that die before reaching fish salvage facilities, nor the number
649 that manage to survive the salvage process. Third, the 22 years for which we have reliable
650 salvage data is relatively small, limiting the degrees of freedom in statistical analyses. More
651 importantly, precedent conditions have been identified in only a small proportion of those
652 years so the identification of precedent conditions could, in some cases, be coincidental
653 rather than reflecting enduring biological phenomena. Consequently, the results of these

654 analyses are constrained by the availability of data, and the risk-based strategy should be
655 implemented in an adaptive management framework, with rigorous monitoring.

656

657 Nevertheless, the consequences of management errors in the Sacramento-San Joaquin
658 Delta are potentially significant. The very survival of the delta smelt is at risk. At the same
659 time, California as the fifth largest economy in the world has millions of people and
660 industries that depend on Delta waters for their well-being. With both considered, here we
661 have presented a method that can provide empirical support for water-allocation decisions
662 necessarily made at critical times in the growth and reproduction of delta smelt, allowing
663 those decisions to be made with empirical defensibility.

664 **DATA AVAILABILITY STATEMENT**

665

666 The original contributions presented in the study are included in the article/Supplementary
667 Material, further inquiries can be directed to the corresponding author.

668

669 **AUTHOR CONTRIBUTIONS**

670

671 SH is an expert in quantitative modeling and delta smelt ecology; he developed and implemented
672 the modeling. DM is an ecologist and conservation biologist and with SH conceptualized the study
673 approach and shared in writing all text sections and approved the submitted version. EM provided
674 direction on the quantitative analyses.

675

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677

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682

683 **SUPPLEMENTARY MATERIAL**

684

685 **Supplementary Appendix A** | Delineating relevant periods for each life stage

686

687 **Supplementary Appendix B** | Supplementary Information on the Simulation Analysis
688 and Review of Management Actions in the Current Strategy (USBR 2019)

689

690

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808 **Using predictive models to manage risk of entrainment for delta smelt,**
809 **an imperiled estuarine fish**

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811 **Figures and Tables**

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814 Scott A. Hamilton

815 Dennis D. Murphy

816 Eduardo Montoya

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820 **TABLE 1** | The influence of precedent conditions on subsequent rates of take of delta smelt by life
 821 stage. Numbers in square brackets indicate the number of observations in each group (maximum of
 822 22). P-values provide the significance of the difference between the means of the two groups.

Life stage and precedent condition	Salvage Rate with Precedent Condition	Salvage Rate without Precedent Condition	P value
Pre-spawning period (November 21 to February 13)			
First major inflow event (Figure 3A)	4.77% [19]	0.03% [22]	0.014
First major inflow event occurs before January 10	6.39% [14]	0.26% [5]	0.119
Peak delta inflow during first major inflow event of flow of less than 65,000 cfs (Figure 3B)	6.41% [9]	0.18% [13]	0.115
South Delta salinity is between 550 and 600 μ S/cm after first major inflow event and is declining (Figure 3C)	13.24% [?]	1.29% [?]	0.018
7-day average salinity in the south Delta is in a range between 520 and 600 μ S/cm after the first major inflow event (Figure 4)	8.49% [14]	0.28% [5]	0.012
Spawning period February 14 to April 19)			
First major inflow occurs before February 1 (Figure 5A)	3.36% [18]	0.36% [4]	0.016
South delta turbidity greater than 10 NTU (Figure 5B)	3.37% [17]	0.49% [5]	0.011
Juvenile period (April 20 to July 7)			
Average San Joaquin River Flows are less than 15,000 cfs in the week preceding the juvenile period (Figure 6)	26.0% [17]	0.05% [5]	0.031

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825 **TABLE 2 |** Regression results for environmental factors affecting the abundance of delta
 826 smelt that are vulnerable to take at water project pumps.
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Predominate life stage			Pre-spawning period	Spawning period	Juvenile period
Salvage Period			First major inflow event to Feb 13	Feb 14 to Apr 19	Apr 20 to Jul 7
Precedent Conditions			EC between 550 and 600 $\mu\text{S}/\text{cm}$ and declining after FMEI	FMIE occurs before January 20	Average San Joaquin River flows less than 10,000 cfs
No. of annual observations			13	14	18
Degrees of freedom			5	8	10
R^2			0.933	0.902	0.926
Q^2			0.797	0.766	0.798
Covariates			P-values	P-values	P-values
	α	Intercept	+ 0.048	- 0.924	+ 0.854
Hydro-dynamic conditions $f(H)$	$f(H)$	Starting day of first inflow event	n.i.	- 0.015	- 0.015
		Starting day squared	- 0.025	+ 0.008	n.i.
		Max inflow (=1 if >65 tcfs)	n.i.	+ <0.001	+ 0.003
		Group 4 Dummy			- 0.093
Abiotic Conditions	$f(S)$	Salinity ($\mu\text{S}/\text{cm}$)	+ 0.150	n.i.	+ 0.006
		Salinity squared	- 0.314	n.i.	- 0.017
	$f(T)$	Water temperature ($^{\circ}\text{C}$)	- 0.030	n.i.	n.i.
		Water temp. squared	+ 0.026	n.i.	- 0.004
	$f(N)$	Turbidity (NTU)	n.i.	n.i.	n.i.
		Turbidity squared	+ 0.017		
River Flows	$f(R)$	OMR flows (tcfs)	+ 0.004	+ 0.004	+ 0.027
Delta Inflow	$f(I)$	Inflow (tcfs)	n.i.	+ 0.025	n.i.

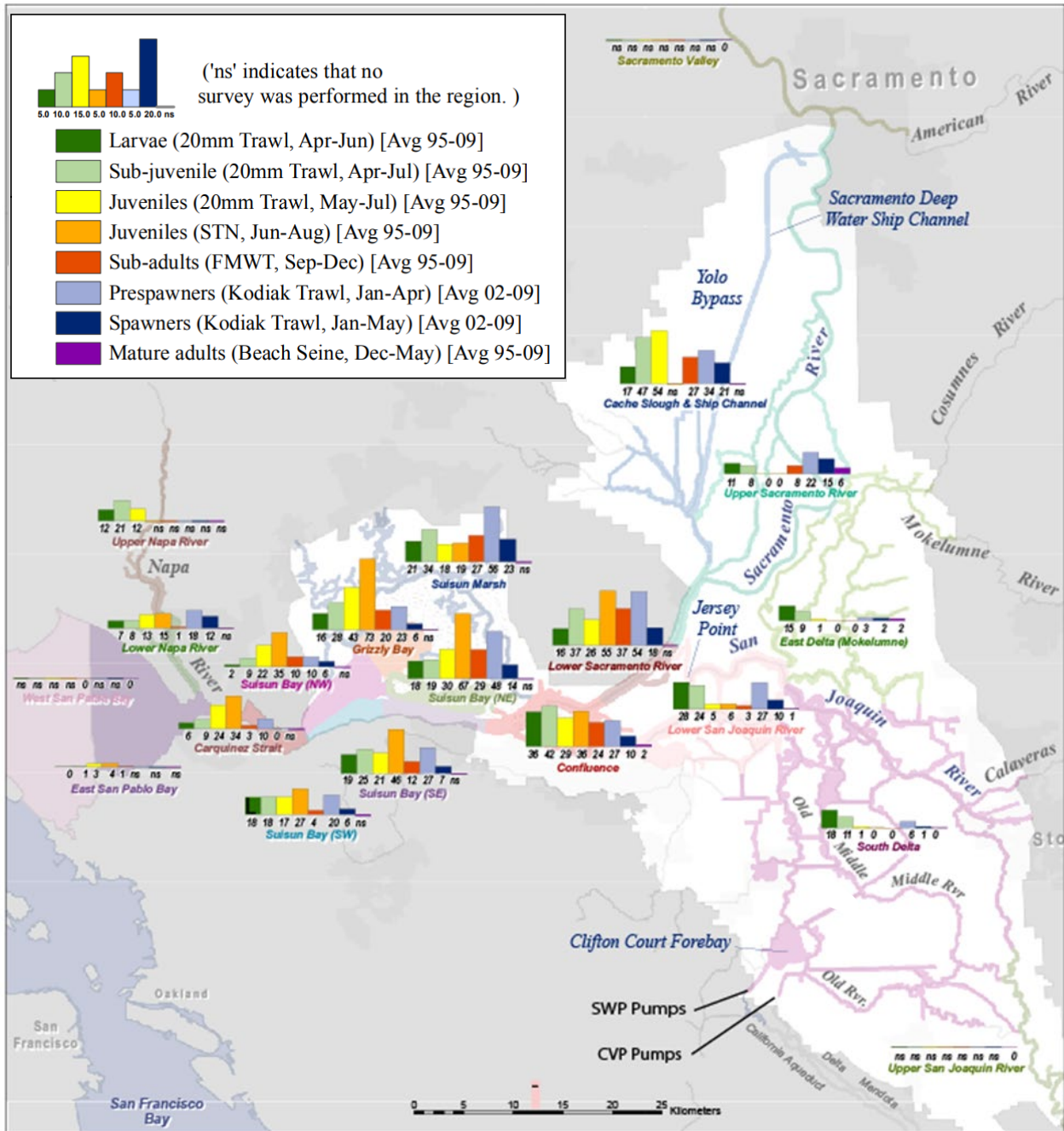
828 “FMIE” denotes first major inflow event, “n.i.” indicates the inclusion of the covariate did not improve
 829 adjusted R^2 , “--” indicates the covariate was not a candidate for the equation, “NTU” -
 830 nephelometric turbidity units, “OMR” – flows in Old and Middle rivers, “tcfs” - thousand cubic feet
 831 per second.

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833 **TABLE 3** | Simulated average annual impacts from under historical, current regulations,
 834 and risk-based strategy scenarios.

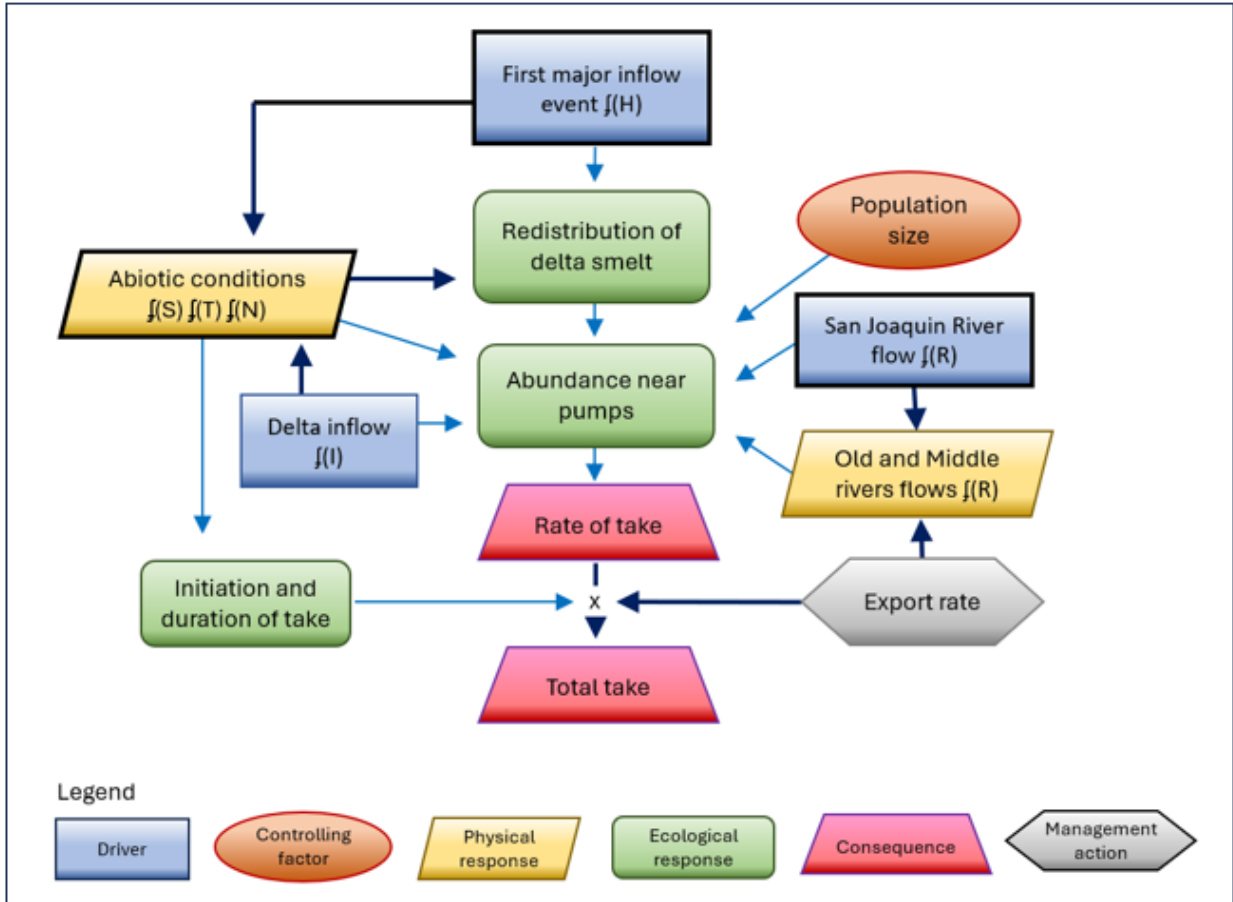
Period	Actual Average	Current Strategy	Risk-Based Strategy	Difference
Total Take (% of salvage limit)				
Adults	64%	39%	44%	+5%
Juvenile	134%	124%	76%	-48%
Average water deliveries during entrainment period (thousand acre feet)				
Adults	1,980	1,772	2,305	+533
Juvenile	652	615	623	+8
Total	2,632	2,387	2,928	+541
Percentage of years salvage limits are exceeded				
Adults		5%	0%	-5%
Juvenile		32%	0%	-32%

835 ITL denotes incidental take level, - a salvage limit for management purposes.
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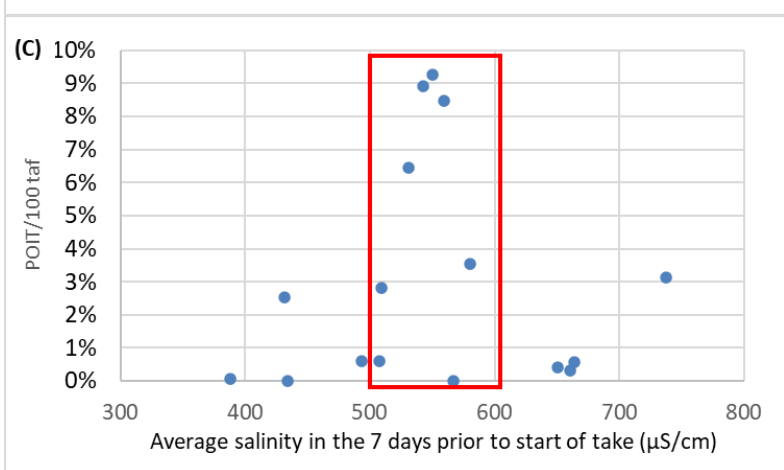
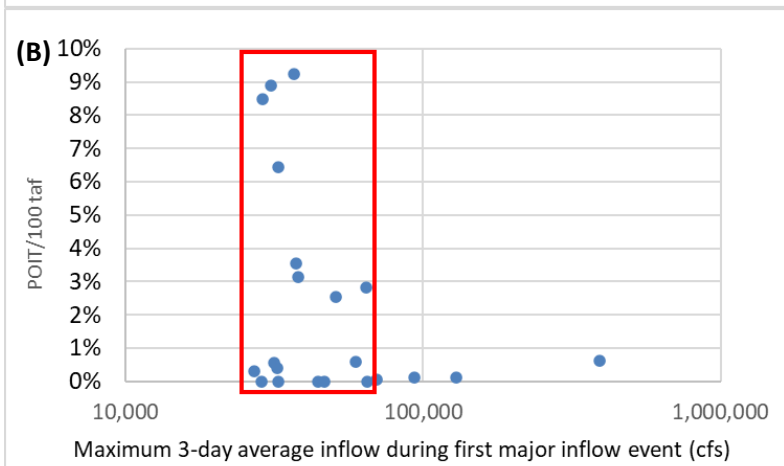
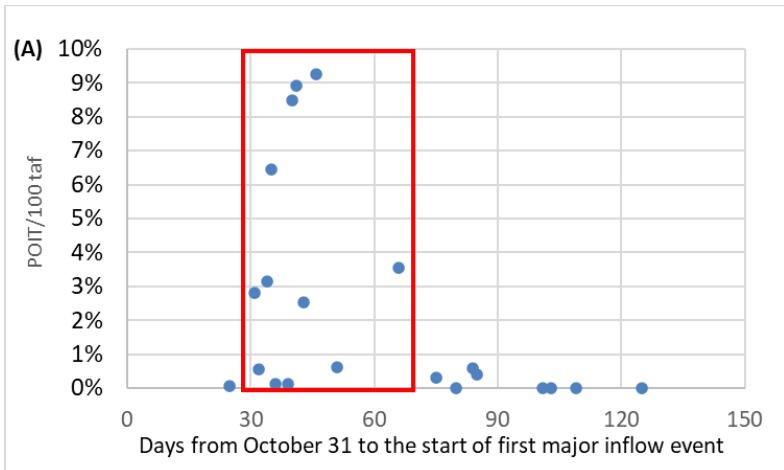
FIGURE 1 | Map of the Sacramento-San Joaquin Delta and Suisun Marsh (white background) showing average frequency of detection of delta smelt by life stage and subregion (adapted from Merz et al. 2011). The numbers underneath the columns represent the percentage of times delta smelt have been observed in trawl surveys in each subregion from 1995 through 2009. “ns” indicated that no surveys were conducted for that given life stage in the subregion. Waters generally flow through the Delta from east to west but disrupted by flows in Old and Middle rivers to the pumps in the south Delta.



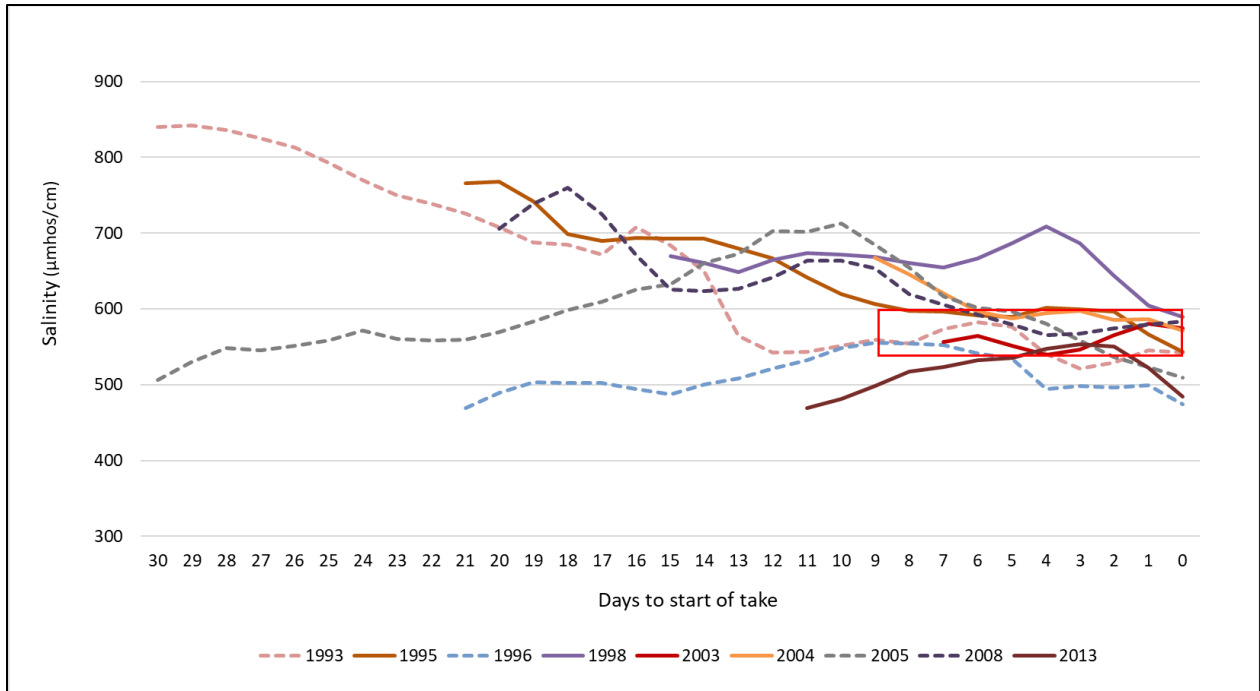
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847 **FIGURE 2 |** Conceptual ecological model of entrainment of delta smelt. Blue arrows reflect
 848 biological relationships that vary by life stage. Thick black outlines indicate sources of potential
 849 precedent conditions. The function symbols (f) link to equation [1].

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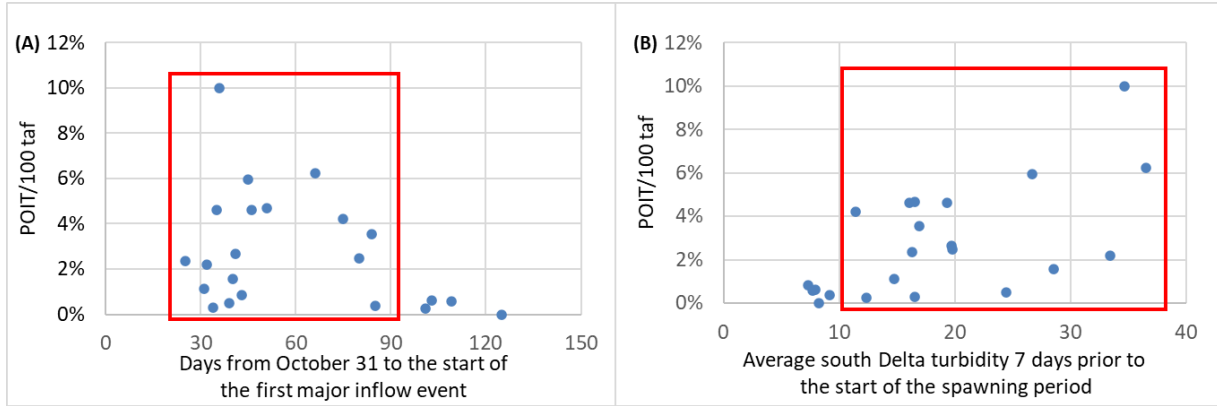


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855 **FIGURE 3** | Environmental conditions prior to the start of take during the delta smelt pre-spawning
856 period. The red rectangles indicate ranges of environmental factors (horizontal axis) associated
857 with high rates of take of adult delta smelt related to (A) the start of the first major inflow event (in
858 days from October 31), (B) maximum flow during the first major inflow event, and (C) average
859 salinity in the south Delta in the seven days prior to the start of take. The vertical axis is rate of take
860 (percent of incidental take level per hundred thousand acre foot pumped).
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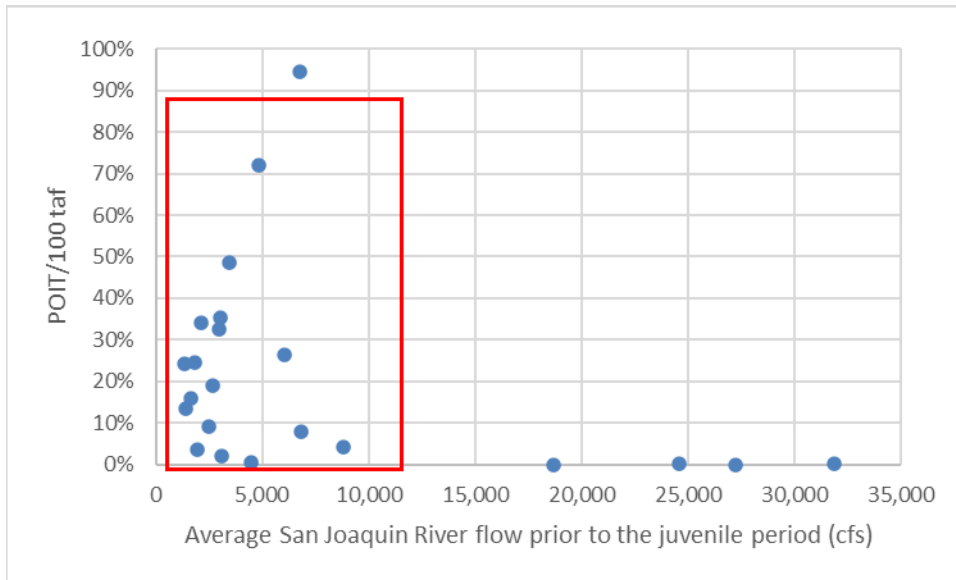
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863 **FIGURE 4** | Salinity conditions between the start of the first major inflow event and the start of adult
 864 delta smelt salvage for years with high salvage rates of pre-spawning adults (the 9 years with
 865 precedent hydrologic conditions identified in Figure 3; 2002 is excluded because of missing sensor
 866 data.). The vertical axis is electrical conductivity near the entrance to Clifton Court Forebay
 867 ($\mu\text{S}/\text{cm}$). Solid lines indicate years when salvage started in December. Dashed lines indicate years
 868 when salvage started in January. The red rectangle indicates an apparent precedent condition(s)
 869 prior to the start of salvage. Salinity for each of these years passed through a window putting
 870 salinity at Clifton Court Forebay in a range of 550 to 600 $\mu\text{S}/\text{cm}$ and declining for at least three
 871 consecutive days.
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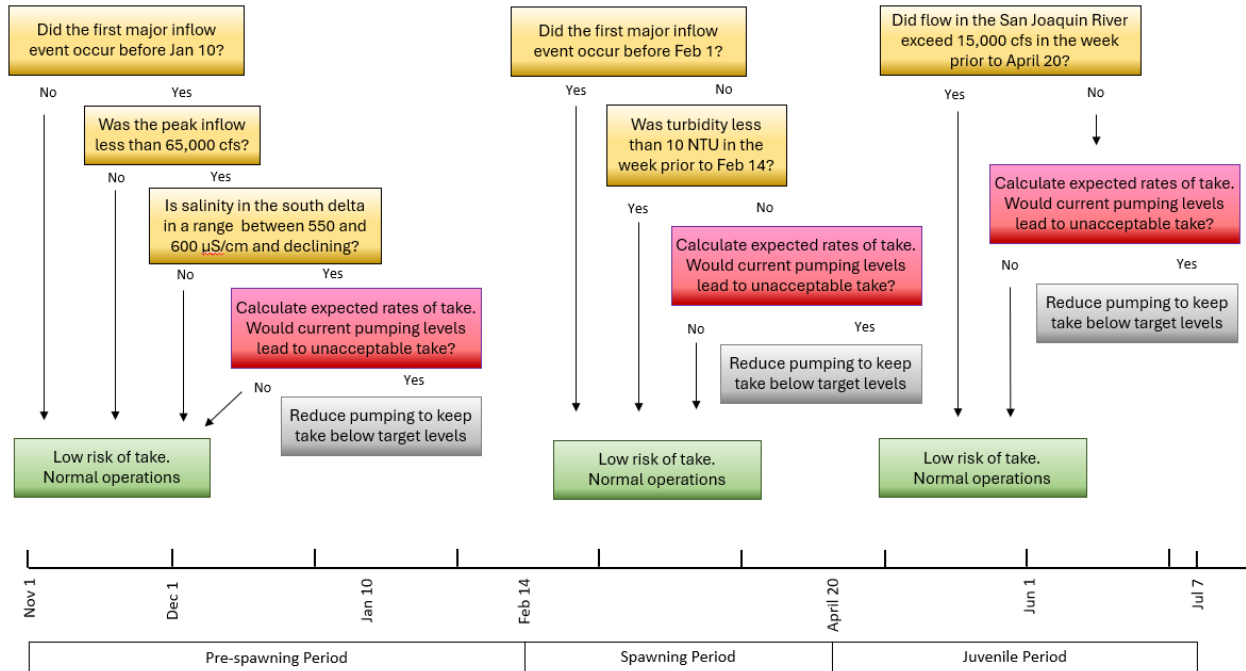
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FIGURE 5 | Environmental conditions prior to the start of the delta smelt spawning period. The red rectangles indicate ranges of environmental factors (horizontal axis) associated with high rates of delta smelt take during the spawning period. The vertical axis is rate of take (percent of incidental take level per hundred thousand acre-feet pumped).



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FIGURE 6 | Flows in the San Joaquin River in the week prior to the start of the entrainment period for juvenile delta smelt. The red rectangle captures ranges of San Joaquin River flows (horizontal axis) associated with high rates of take of delta smelt. The vertical axis is rate of take (percent of incidental take level per hundred thousand acre-feet pumped).



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890 **FIGURE 7 |** Risk-based management strategy. For each delta smelt life stage, certain conditions
 891 (yellow rectangles) precede potentially high rates of take (red rectangles). When those conditions
 892 manifest, water-project operations may need to be adjusted (grey rectangles) if predictive models
 893 (see Table 2) suggest population level impacts are likely, otherwise water deliveries can continue
 894 (green rectangles).
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SUPPLEMENTARY MATERIAL

Appendix A

Delineating Relevant Periods for Each Life Stage

Since spawning and pre-spawning adults respond differently to abiotic conditions (Hamilton and Murphy 2020), it is necessary to determine when delta smelt in each of those life stages are most abundant in order to quantify the influence of abiotic conditions on patterns of landscape occupancy. The Spring Kodiak Trawl (SKT) survey shows on average that more than 75% of pre-spawning adults are sampled in January and February (Figure S-1a). Spawning adults are most frequently observed in the SKT in March and April with a decline in May (Figure S-1b). However, beach seine data show that catch per unit effort (CPUE) is similar in March through June (Figure S-1c). These survey data indicate that as delta smelt mature, they become less abundant in mid-channel situations and more abundant closer to the shore in May and June. Salvage records that include length data show that adults are rarely salvaged after 20 April. That observation, combined with beach seine data, indicate that adult delta smelt in littoral habitats are less vulnerable to entrainment.

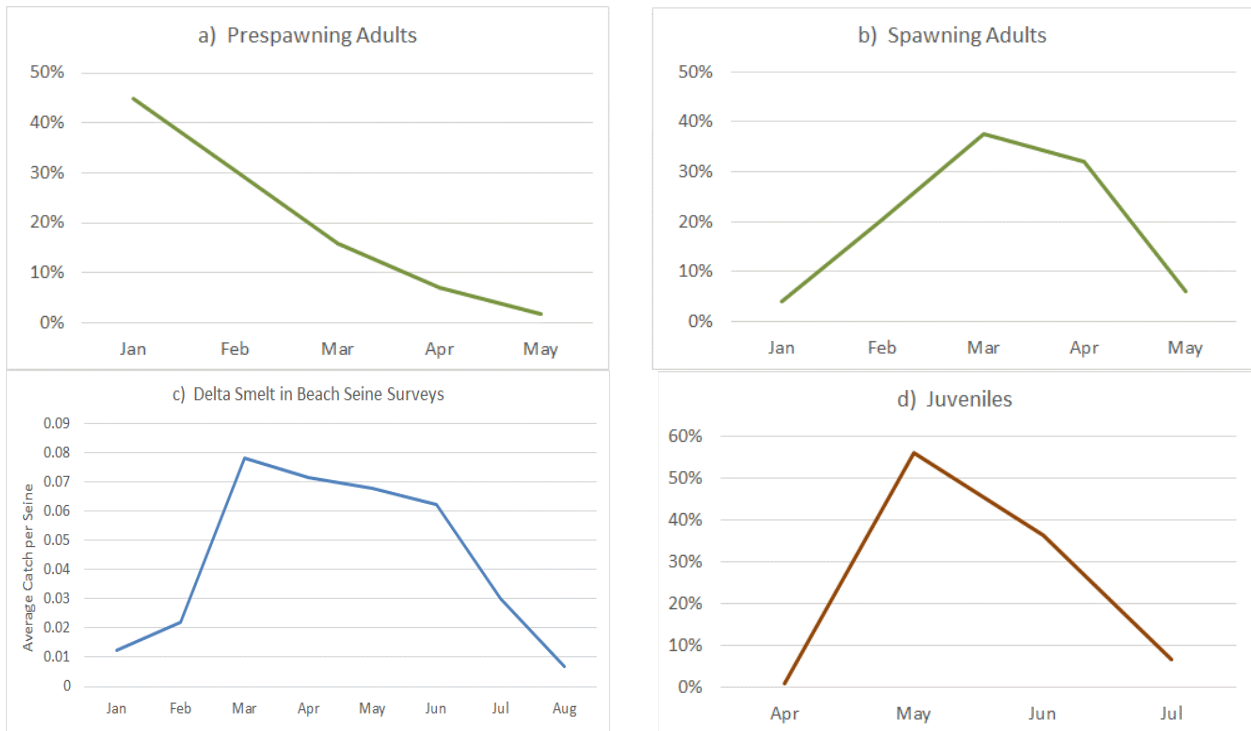


FIGURE S-1 | Relative distributions of delta smelt by month for a) pre-spawning adults in the spring Kodiak trawl 2002-2013, b) spawning adults in the spring Kodiak trawl 2002-2013, c) adults in the beach seines 1992-2012, d) juveniles (>20 mm) salvaged at water-project facilities 1993-2013.

Appendix B
Supplementary Information on the Simulation Analysis
and Review of Management Actions in the Current (USBR 2019) Strategy

A simulation model was developed to compare the effects of current regulations with a risk-based strategy. The simulation was conducted for a thirty-year period, using historic hydrology from 1988 to 2017. The model needed to identify when regulations should be initiated, their duration, their impact on salvage, and their effects on water deliveries. The model has two components – a daily time-step sub-model and a life-stage time-step sub-model.

DWR’s Dayflow database provided the foundation of the daily sub-model. That database has daily information on river flows into the Delta, estimated runoff from in-Delta precipitation, in-Delta water diversions, water-project pumping, Delta outflow and the estimated average location of X2. Daily information was supplemented with temperature, turbidity, and salinity data at a monitoring station near the entrance to Clifton Court Forebay (DWR CDEC Station “CLC”). Where monitoring data were provided in a finer time step than one day, it was averaged for the day. Missing data were interpolated from surrounding data points. Data on flows in Old and Middle rivers were obtained from USGS (USGS NWIS). Daily salvage data were obtained from CDFW website. Incidental take levels were calculated by multiplying the previous FMWT Index by 8 for adults and by 23 for juveniles (USFWS 2008, as revised).

This daily information was used to construct covariates to aid the analysis: the start date of first flush, the peak flow during first flush, the rate of take (the salvage per thousand-acre-foot of water pumped), and the pre-spawning, spawning and juvenile periods.

The daily sub-model was useful for considering historic conditions. In addition to historic conditions was the need to impose regulations to simulate water-project operations consistent with existing regulations. The primary regulations impacting water deliveries were enacted through SWRCB D-1641 which impose operating criteria on the water-project operations, including minimum levels of outflows in certain months on certain rivers, and pumping limitations to a percentage of delta inflow, the percentage varying by season. Additional regulations were added to the model to simulate the impacts of the 2009 Biological Opinions (USFWS 2019) and the Incidental Take Permit (CDFW 2020); that is, all of the regulations were simulated at the daily level.

Estimates of factors influencing salvage rates were developed and reported in equations for the predictive rate-of-take for each life-stage period (Tables S-1 to S-3). The equations were developed for life-stage periods, not from daily data. Therefore, to assess the impacts of regulations and consequently water-project operations on salvage, a second sub-model was developed with a life-stage time step. This second sub-model used the daily hydrologic and abiotic data from the first sub-model, but aggregated covariates into averages for each life-stage period in each year. This sub-model was only concerned with assessing impacts on salvage of regulated operations. Specifically, given modified exports and OMR levels, it estimated rates of take for each life-stage period in each year. The two sub-models

990 collectively compared operations and salvage with full regulations to operations and
 991 salvage with risk-based modifications to OMR flows.

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994 **Table S-1 | Regression Results for Rate of Take During the Pre-spawning Period**

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Goodness of fit statistics (POIT/100taf):

Observations	13
Sum of weights	13
DF	5
R ²	0.933
Adjusted R ²	0.839
MSE	0.000
RMSE	0.017
MAPE	61.272
DW	2.224
Cp	4.841
AIC	-101.937
SBC	-97.417
PC	0.282
Press	0.005
Q ²	0.797

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Source	Value	Standard error	t	Pr > t	Lower bound (95%)	Upper bound (95%)
Intercept	3.386	1.301	2.603	0.048	0.042	6.730
CLC Turbidity	0.000	0.000				
CLC EC	0.00241	0.001	1.702	0.150	-0.001	0.006
CLC Temp	-0.916	0.304	-3.015	0.030	-1.698	-0.135
Dummy 1 for Mag of Ir	0.000	0.000				
FF Days into Season	0.000	0.000				
FF Days Sqrd	0.000	0.000	-3.171	0.025	0.000	0.000
Turbidity Sqrd	0.000058	0.000	3.531	0.017	0.000	0.000
EC Sqrd	-0.00166	0.001	-1.119	0.314	-0.005	0.002
Temp Sqrd	0.050	0.016	3.114	0.026	0.009	0.091
Inverse OMR	0.154	0.030	5.095	0.004	0.076	0.231
Log Inflow (cfs)	0.000	0.000				

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FF= First flush (first major inflow event)

1003 **Table S-2** | Regression results for rate of take during the spawning period
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Observations	14
Sum of weights	14
DF	8
R ²	0.902
Adjusted R ²	0.840
MSE	0.000
RMSE	0.011
MAPE	67.554
DW	1.661
Cp	6.000
AIC	-121.966
SBC	-118.132
PC	0.246
Press	0.002
Q ²	0.766

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Source	Value	Standard error	t	Pr > t	Lower bound (95%)	Upper bound (95%)
Intercept	-0.006	0.060	-0.098	0.924	-0.144	0.132
Log Inflow	0.033	0.012	2.759	0.025	0.005	0.061
Inverse OMR	0.050	0.012	4.022	0.004	0.021	0.079
FF Days into Season	-0.007	0.002	-3.079	0.015	-0.013	-0.002
FF Days Sqrd	0.092	0.026	3.533	0.008	0.032	0.152
Group 1 Dummy	0.000	0.000	7.194	<0.0001	0.000	0.000

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FF= First flush (first major inflow event)
 Group 1 is years when magnitude of first flush exceeded 65,000 cfs.

1013 **Table S-3** | Regression results for rate of take during the juvenile period
 1014

Observations	18
Sum of weights	18
DF	10
R ²	0.926
Adjusted R ²	0.874
MSE	0.008
RMSE	0.089
MAPE	107.764
DW	2.133
Cp	4.849
AIC	-81.753
SBC	-74.630
PC	0.192
Press	0.216
Q ²	0.798

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Source	Value	Standard error	t	Pr > t	Lower bound (95%)	Upper bound (95%)
Intercept	0.068	0.361	0.189	0.854	-0.736	0.872
CLC Temp	0.000	0.000				
CLC Turbidity	0.000	0.000				
CLC EC	0.007	0.002	3.475	0.006	0.003	0.012
FF Days Into Season	-0.003	0.001	-2.913	0.015	-0.005	-0.001
Turbidity Sqrd	0.000	0.000				
EC Sqrd	-0.007	0.002	-2.873	0.017	-0.013	-0.002
Temp Sqrd	-0.003	0.001	-3.697	0.004	-0.005	-0.001
Log Inflow	0.000	0.000				
Inverse OMR	0.519	0.200	2.592	0.027	0.073	0.965
FF Day Sqrd	0.000	0.000				
Group 1 Dummy	0.347	0.088	3.921	0.003	0.150	0.544
Group 4 Dummy	-0.121	0.065	-1.859	0.093	-0.266	0.024

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FF= First flush (first major inflow event)
 Group 1 is years when magnitude of first flush exceeded 65,000 cfs.
 Group 4 is years when the first flush occurred after February 1.