Meeting Agenda

Date & Time: 10/6/2025 | 10:00 AM
Location: SLDMWA Boardroom

Notice of Water Resources Committee Regular Meeting / Joint Water Resources Committee Regular Meeting-Special Board Workshop

842 6th Street, Los Banos
(List of Member/Alternate Telephonic Locations Attached)

Public Participation Information

Join Zoom Webinar - https://us02web.zoom.us/j/89498752641?pwd=XaYUVnhl4ebBT7ITh4jAXaETbDSc6J.1

NOTE: Any member of the public may address the Water Resources Committee/Board concerning any item on the agenda before or during consideration of that item.

Because the notice provides for a regular meeting of the Water Resources Committee ("WRC") and a joint regular WRC Meeting/Special Board workshop, Board Directors/Alternates may discuss items listed on the agenda; however, only WRC Members/Alternates may correct or add to the agenda or vote on action items.

NOTE FURTHER: Meeting materials have been made available to the public on the San Luis & Delta-Mendota Water Authority's website, https://www.sldmwa.org, and at the Los Banos Administrative Office, 842 6th Street, Los Banos, CA 93635.

Agenda Item	Topic	Lead
1.	Call to Order/Roll Call	
2.	Water Resources Committee to Consider Additions and Corrections to the Agenda for the Water Resources Committee Meeting only, as Authorized by Government Code Section 54950 *et seq.*	
3.	Opportunity for Public Comment – Any member of the public may address the Water Resources Committee/Board concerning any matter not on the agenda, but within the Committee or Board's jurisdiction. Public comment is limited to no more than three minutes per person. For good cause, the Chair of the Water Resources Committee may waive this limitation.	
	ACTION ITEMS	
4.	**Approval of September 8, 2025 Meeting Minutes**	

5.	**Recommendation to Board of Directors to Authorize Execution of Professional Services Agreement for Public Affairs Services and Expenditures of up to $110,000**	Petersen
6.	**Recommendation to Board of Directors to Adopt Staff Recommendation for Positions on Legislation** **A. H.R. 3572 (Valadao), To make projects in certain counties eligible for funding under the rural surface transportation grant program, and for other purposes.**	Petersen

REPORT ITEMS

7.	Update on South and Central Delta Channel Maintenance/Siltation	Petersen McQuirk
8.	Executive Director's Report (May include reports on activities within the Water Resources Committee's jurisdiction related to 1) CVP/SWP water operations; 2) California storage projects; 3) regulation of the CVP/SWP; 4) existing or possible new State and Federal policies; 5) Water Authority activities)	Barajas
9.	Update on Water Policy/Resources Activities (May include reports on federal, state, and local agency regulatory, legislative, and administrative water policy/resources activities)	Petersen
10.	Update on Water Operations and Forecasts	Arroyave
11.	Committee Member Reports	
12.	Closed Session	Akroyd

CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Initiation of Litigation Pursuant to paragraph (4) of Subdivision (d) of Government Code Section
54956.9 – 2 potential cases

CONFERENCE WITH LEGAL COUNSEL – ANTICIPATED LITIGATION
Significant Exposure to Litigation Pursuant to Paragraph (2) or (3) of Subdivision (d) of Government Code Section 54956.9 – 2 potential cases

CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
Existing Litigation Pursuant to paragraph (1) of Subdivision (d) of Section 54956.9

A. Pacific Coast Federation of Fishermen's Associations (PCFFA), et al. v. Nickels, et al., U.S. District Court, E.D. Cal., Case No. 2:11-cv-02980; 9th Cir. Case No. 23-15599 (GBP Citizen Suit)
B. City of Fresno, et al. v. United States, U.S. Court of Appeals for the Federal Cir., Case No. 22-1994; U.S. Court of Federal Claims, Case No. 1:16-cv-01276 (2014 Friant Div. Operations)
C. PCFFA, et al. v. Lutnick, et al., U.S. District Court, E.D. Cal., Case No. 1:20-cv-00431 (2019 BiOps)
D. California Natural Resources Agency, et al. v. Lutnick, et al., U.S. District Court, E.D. Cal., Case No. 1:20-cv-00426 (2019 BiOps)

E. California Sportfishing Protection Alliance (CSPA), et al. v. State Water Resources Control Board (SWRCB), et al., Sac. Co. Superior Court, Case No. 34-2021-80003761 (2021 TUCP Order)
F. CSPA, et al. v. SWRCB, et al., Sac. Co. Superior Court, Case No. 34-2021-80003763 (2021 Temp. Mgmt. Plan)
G. Walsh v. Martin, et al., E.D. Cal., Case No. 1:23-CV-01774 (employment action)
H. SWRCB, Administrative Hearings Office, Petitions for Change of California Department of Water Resources (DWR) Water Right Permits, Delta Conveyance Project (DWR Change Petition)
I. Tehama-Colusa Canal Authority, et al. v. DWR, et al., Sacramento Co. Superior Court, Case No. 24WM000183 (SWP 2024 EIR Challenge)

13. Return to Open Session

14. Report from Closed Session, if any, Required by Government Code Section 54957.1

15. Reports Pursuant to Government Code Section 54954.2(a)(3)

16. ADJOURNMENT

Persons with a disability may request disability-related modification or accommodation by contacting Cheri Worthy or Sandi Ginda at the San Luis & Delta-Mendota Water Authority Office, 842 6th Street, P.O. Box 2157, Los Banos, California, via telephone at (209) 826-9696, or via email at cheri.worthy@sldmwa.org. Requests should be made as far in advance as possible before the meeting date, preferably 3 days in advance of regular meetings or 1 day in advance of special meetings/workshops.

This agenda has been prepared as required by the applicable laws of the State of California, including but not limited to, Government Code Section 54950 et seq. and has not been prepared with a view to informing an investment decision in any of the Authority's bonds, notes or other obligations. Any projections, plans or other forward-looking statements included in the information in this agenda are subject to a variety of uncertainties that could cause any actual plans or results to differ materially from any such statement. The information herein is not intended to be used by investors or potential investors in considering the purchase or sale of the Authority's bonds, notes or other obligations and investors and potential investors should rely only on information filed by the Authority on the Municipal Securities Rulemaking Board's Electronic Municipal Market Access System for municipal securities disclosures, maintained on the World Wide Web at https://emma.msrb.org/.

SLDMWA WATER RESOURCES COMMITTEE REGULAR MEETING TELEPHONIC LOCATIONS

OCTOBER 6, 2025

15671 W. Oakland Ave
Five Points, CA 93624

Meeting Minutes

Date & Time: 9/8/2025 | 10:00 AM
Location: SLDMWA Boardroom
842 6th Street, Los Banos

San Luis & Delta-Mendota Water Authority Water Resources Committee Regular Meeting and Joint Water Resources Committee Regular Meeting – Special Board Workshop Minutes

Attendance

Committee Members Present

Ex-Officio: Cannon Michael
William Bourdeau
Division 1: Anthea Hansen, Member
Division 2: Lon Martin, Alternate
Division 3: Chris White, Member
Division 4: Vince Gin, Member
Dana Jacobson, Alternate
Division 5: Absent

Board of Directors Present

Division 1: Anthea Hansen, Director
Division 2: Justin Diener, Director
William Bourdeau, Vice-Chair/Director
Lon Martin, Alternate
Division 3: Chris White, Alternate
Jarrett Martin, Director
Cannon Michael, Director
Division 4: Aaron Baker, Alternate
Dana Jacobson, Director
Brett Miller, Alternate
Division 5: Absent

Authority Representatives Present

Federico Barajas, Executive Director
Pablo Arroyave, Chief Operating Officer (ZOOM)
Rebecca Akroyd, General Counsel
Rebecca Harms, Deputy General Counsel
Scott Petersen, Water Policy Director
Ray Tarka, Director of Finance
Bob Martin, Facilities O&M Director
Eddie Reyes, Information Systems Technician
Stewart Davis, IT Officer

Others Present

Patrick McGowan, Panoche Water District
Chase Hurley, Pacheco Water District
Russ Freeman, Westlands Water District
Stephen Farmer, Westlands Water District
John Wiersma, Henry Miller Reclamation District
Aniruddha Bhattacharya (Babi), Reclamation
Ron Milligan, Water Authority Consultant (ZOOM)

Agenda Item	Topic	Lead
1.	**Call to Order/Roll Call** – The meeting was called to order by Chair William Bourdeau at approximately 10:20 a.m. and roll was called.	
2	**Additions or Corrections to the Agenda of Items, as authorized by Government Code Section 54950 et seq. -** No additions or corrections.	
3.	**Opportunity for Public Comment -** No public comment.	
4.	**Water Resources Committee to Consider Approval of the July 7, 2025 Meeting Minutes -** Chair William Bourdeau deemed the July 7, 2025 meeting minutes approved with a minor correction to page 3.	

5. **Recommendation to the Board of Directors to Adopt Staff Recommendation on Positions on Legislation** — Petersen

a. H.R. 4879 (Costa), Emergency Rural Water Response Act of 2025 (Support)

b. S.B. 707 (Durazo), Open Meetings: Meeting and Teleconference Requirements (Change Position to a Watch Position)

Water Policy Director Scott Petersen reviewed the staff recommendations for positions on legislation. Petersen reviewed outcomes of previous legislation that was brought to the Committee. Petersen answered questions from Committee members throughout the presentation.

M/S - Motion by Member Vince Gin, seconded by Alternate Lon Martin, the Committee adopted the staff recommendations for positions on H.R. 4879 (Costa), and S.B. 707 (Durazo). Vote: Ayes - Michael, Bourdeau, Hansen, Lon Martin, White, Gin; Nays – 0; Abstentions – 0.

6. **Executive Director's Report** — Barajas

a. Sites Reservoir Project – Executive Director Federico Barajas reported that Reclamation is holding public negotiations on the Sites Reservoir today, tomorrow, and next week, and the Authority is monitoring them.

b. North to South Water Transfers – Executive Director Federico Barajas reported that Reclamation put out a public notice on the Federal Register related to the transfers program, and scoping for an EIS.

c. South of Delta Drought Plan - Executive Director Federico Barajas reported that Reclamation is determining who will be taking over for Derya Sumer as project coordinator for the South of Delta drought plan program.

7. **Update on Water Policy/Resources Activities –** Water Policy Director Scott Petersen provided an update regarding Fall X2 Off Ramp, State Water Resources Control Board Activity, San Joaquin River Restoration Program, the Water Blueprint for the San Joaquin Valley, and the San Joaquin Valley Collaborative Action Program. Petersen answered questions throughout the presentation. — Petersen

8. **Update on Water Operations and Forecasts –** Chief Operating Officer Pablo Arroyave introduced consultant Ron Milligan, who provided information regarding CVP supply, reservoir storage, allocations, snowpack, and operations. Milligan and Arroyave answered Committee member questions throughout the presentation. — Arroyave

9. **Committee Member Reports** – No reports.

10. **Closed Session** – Chair William Bourdeau adjourned the open session to address the items listed on the Closed Session Agenda at approximately 11:07 a.m. Upon return to open session at approximately 11:44 a.m., Chair William Bourdeau reported that no reportable actions were taken in closed session. — Akroyd

11. **Reports Pursuant to Government Code Section 54954.2(a)(3)** – No reports.

12. **Adjournment** – The meeting was adjourned at approximately 11:45 a.m.

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY

Official Memorandum

PO Box 2157
Los Banos, CA 93635
sldmwa.org

To: SLDMWA Water Resources Committee Members and Alternates

From: Scott Petersen, Water Policy Director

Date: October 6, 2025

RE: Update on Water Policy/Resources Activities

Background

This memorandum is provided to briefly summarize the current status of various agency processes regarding water policy activities, including but not limited to the (1) Implementation of Long-Term Operations of the Central Valley Project and State Water Project, including environmental compliance; (2) State Water Resources Control Board action; (3) Central Valley Regional Water Board Action, (4) San Joaquin River Restoration Program; (5) Delta conveyance; (6) Reclamation action; (7) Delta Stewardship Council action; (8) San Joaquin Valley Water Blueprint, and (9) San Joaquin Valley Water Collaborative Action Plan.

Policy Items

Implementation of Executive Order 14181

On January 2024, President Trump issued Executive Order 14181, detailing analysis of potential changes to the operations in the 2024 ROD for consideration by the Administration. There is currently work underway to develop an implementation plan for the Executive Order and future action on project operations.

Implementation of 2024 Record of Decision on Long-Term Operations of the Central Valley Project and State Water Project

On December 20, Reclamation executed the Record of Decision and both the Fish and Wildlife Service and NOAA Fisheries issued their Final Biological Opinions, beginning operations under the new operations regime.

On January 2024, President Trump issued Executive Order 14181, detailing analysis of potential changes to the operations in the 2024 ROD for consideration by the Administration. There is currently work underway to develop an implementation plan for the Executive Order and future action on project operations.

Note: There are also Endangered Species Act consultations on the Trinity River and Klamath River that may have overlap/interactions with the operations of the CVP/SWP.

Adaptive Management Program

As part of implementation of the 2024 Record of Decision, state and federal agencies initiated and completed a structured decision-making process to assess alternatives to implement the Summer-Fall Habitat Action, including an analysis of summer and fall X2, for elevation to the agency directors to make a decision regarding summer-fall operations.

After completion of the analysis, the Directors elected to offramp Fall X2 operations for this water year and instead extended the operations of the Suisun Marsh Salinity Control Gates by 30 days.

State Water Resources Control Board (State Water Board) Activity

Bay Delta Water Quality Control Plan Update

Background

The State Water Board is currently considering updates to its 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary ("Bay Delta Plan") in two phases (Plan amendments). The first Plan amendment is focused on San Joaquin River flows and southern Delta salinity ("Phase I" or "San Joaquin River Flows and Southern Delta Salinity Plan Amendment"). The second Plan amendment is focused on the Sacramento River and its tributaries, Delta eastside tributaries (including the Calaveras, Cosumnes, and Mokelumne rivers), Delta outflows, and interior Delta flows ("Phase II" or "Sacramento/Delta Plan Amendment").

During the December 12, 2018 Water Board Meeting, the Department of Water Resources ("DWR") and Department of Fish and Wildlife presented proposed "Voluntary Settlement Agreements" ("VSAs") on behalf of Reclamation, DWR, and the public water agencies they serve to resolve conflicts over proposed amendments to the Bay-Delta Plan update.[1] The State Water Board did not adopt the proposed VSAs in lieu of the proposed Phase 1 amendments, but as explained below, directed staff to consider the proposals as part of a future Delta-wide proposal.

Phase 1 Status – San Joaquin River and its Tributaries

The State Water Board adopted a resolution[2] to adopt amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary and adopt the Final Substitute Environmental Document during its December 12, 2018 public meeting.

On July 18, 2022, the State Water Resources Control Board issued a Notice of Preparation (NOP)[3] and California Environmental Quality Act (CEQA) Scoping Meeting for the Proposed Regulation to Implement Lower San Joaquin River Flows (LSJR) and Southern Delta Salinity Objectives in the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta (Bay-Delta Plan).

In response to the release of the NOP, the Water Authority and member agencies provided scoping comments[4] and the State Water Board is working through a long-term process to address Phase 1 elements of the Water Quality Control Plan Update.

A long delay in Phase 1 action occurred as legal activity was undertaken.

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[1] Available at https://water.ca.gov/-/media/DWR-Website/Web-Pages/Blogs/Voluntary-Settlement-Agreement-Meeting-Materials-Dec-12-2018-DWR-CDFW-CNRA.pdf.

[2] Available at https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/rs2018_0059.pdf.

[3] Available at https://www.waterboards.ca.gov/public_notices/notices/20220715-implementation-nop-and-scoping-dwr-baydelta.pdf

[4] Request from Authority staff

Recently, on September 19, 2025, the State Water Resources Control Board (Board) has released a Notice of Opportunity for Public Comment and Workshop on the Draft Scientific Basis Report Supplement for the Tuolumne River Voluntary Agreement Proposal (Draft TVA Scientific Basis Report). A public workshop has been scheduled for November 5, 2025, where the Board will receive public oral comments. The public written comment submittal deadline is no later than 12:00 p.m. (noon) on Friday, November 7, 2025. Please see the Notice for additional information on how to submit written comments and participate in the public workshop.

Next Steps

- Final draft Staff Report for Tuolumne River VA
- Board workshop and consideration of Tuolumne River VA
- Final draft EIR and regulation implementing Lower SJR flows and South Delta Salinity
- Board consideration of regulation implementing Lower SJR flows and South Delta Salinity

Phase 2 Status – Sacramento River and its Tributaries and Bay-Delta

In the State Water Board's resolution adopting the Phase 1 amendments, the Water Board directed staff to assist the Natural Resources Agency in completing a Delta watershed-wide agreement, including potential flow and non-flow measures for the Tuolumne River, and associated analyses no later than March 1, 2019. Staff were directed to incorporate the Delta watershed-wide agreement as an alternative for a future, comprehensive Bay-Delta Plan update that addresses the reasonable protection of beneficial uses across the Delta watershed.

Revised Draft Sacramento/Delta Updates to the Water Quality Control Plan

Background

The July 2025 revised draft Bay Delta Plan (2025 revised draft) includes proposed changes to the draft Bay Delta Plan released in October 2024 (2024 draft) based on public input and comments received throughout the planning process, including comments on several options for possible changes to the plan identified in the 2024 draft. Specifically, the 2024 draft identified the possible inclusion of flow, cold water habitat and related provisions that were based on the proposed Plan amendments and alternatives identified in the 2023 draft Staff Report in support of updates to the Bay Delta Plan, as well as options for these provisions. The 2024 draft also identified the possible inclusion of Voluntary Agreements (VAs) to provide flows and non-flow habitat proposed by state and federal agencies and water users referred to as the Healthy Rivers and Landscapes proposal, as well as options associated with inclusions of VAs. The regulatory provisions would apply to all water right holders if the Board did not move forward with VAs, or in the event the Board moved forward with VAs would apply to water rights not participating in approved VAs. The 2025 revised draft proposes to move forward with the inclusion of VAs in the Bay Delta Plan for water rights included in approved VAs (VA pathway) and the regulatory provisions for water rights not included as part of approved VAs (regulatory pathway). The 2025 revised draft also includes proposals for addressing other options identified in the 2024 draft. The 2025 revised draft also proposes the designation of Tribal Tradition and Culture (CUL) beneficial use as part of the current Bay Delta Plan update.

The State Water Board is seeking public input on the 2025 revised draft updates to the Bay Delta Plan. Comments on this revised draft will inform development of a final draft of the Plan for Board consideration in the future.

Current Activity

On September 16, 2025, the State Water Resources Control Board (State Water Board or Board) rescinded the August 22, 2025 Second Revised Notice of Opportunity for Public Comment and Hearing on Revised Draft Sacramento/Delta Updates to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Watershed (Bay-Delta Plan or Plan). The Rescinded Notice is available on the Board's website. Accordingly,

the hearing previously scheduled for September 24-25, 2025, and the associated public comment period are cancelled and will be rescheduled to a future date.

Updating the Sacramento/Delta components of the Bay-Delta Plan is one of the State Water Board's top priorities, and the Board is working expeditiously to complete this update. Board staff anticipate a limited recirculation of the draft Staff Report/Substitute Environmental Document in support of the Sacramento/Delta updates to the Bay-Delta Plan together with the updated draft Plan in December 2025. New dates for a public hearing and comment period will be announced upon release.

The August 22, 2025 supplemental model results remain available for public review, but the Board is not soliciting comments on the supplemental model results at this time.

If you have any questions regarding this matter, please contact SacDeltaComments@waterboards.ca.gov.

Additionally, the State Water Board has received term sheets for additional voluntary agreements from Nevada Irrigation District (NID) and South Sutter Water District (SSWD) specific to the Bear River, Yuba River, and Auburn Ravine that are available to the public.

Water Rights

Water Accounting, Tracking, and Reporting System (CalWATRS) Launch

The State Water Resources Control Board is launching the California Water Accounting, Tracking, and Reporting System (CalWATRS) on October 7, 2025. A link to the new system and additional information will be posted on the CalWATRS webpage on October 7th.

What You Need to Know

- **You Can Create an Account on October 7th** You'll be able to create a CalWATRS account as soon as it opens, but you won't be able to begin reporting until you receive a personal identification number (PIN) from the State Water Board.
- **PINs Will Be Mailed in Mid-October** The State Water Board will begin mailing PINs in mid-October. If you manage multiple water rights, you may receive multiple PINs.
- **eWRIMS Usernames and Passwords Don't Work for CalWATRS** CalWATRS accounts require a new username and password. Your eWRIMS usernames and passwords will not work in CalWATRS.
- **Large & Complex Water Rights** If you manage a large or complex portfolio of water rights, please email CalWATRS-help@waterboards.ca.gov before creating your CalWATRS account. We will work with you directly to ensure your account is set up correctly.
- **Public Outreach** The State Water Board is planning a series of public events to help users navigate CalWATRS. It all kicks off with an Informational Item at the Board's public meeting on October 7th. Upcoming events will be posted on the CalWATRS webpage as they are scheduled.

If you have questions or would like the CalWATRS team to attend an event in your area, please email CalWATRS-help@waterboards.ca.gov.

Water Measurement and Reporting Regulation

On September 26, 2025, the Office of Administrative Law (OAL) approved and filed with the Secretary of State chapter 2 and 2.7 revisions, which are now in effect. Please note that the State Water Resources Control Board will release a notice with additional proposed revisions to the chapter 2.8 (water measurement) regulation text for public comment in the coming weeks; these changes will provide additional clarity and consistency in the proposed

regulation text. Because of these additional revisions, the updated water measurement regulation in chapter 2.8 will become effective at a later date.

The virtual measurement workshop that was scheduled for October 15, 2025, will be postponed until an updated chapter 2.8 is approved.

Additional Resources

For more information regarding the rulemaking process for this regulation, visit the Water Measurement and Reporting Regulation Rulemaking webpage. Subscribe to the Water Measurement list on the State Water Resources Control Board's Email Lists webpage for further updates about the water measurement regulations. For information regarding the existing regulation, and resources on how to measure, visit the general Water Measurement webpage.

San Joaquin River Restoration Program

Restoration Flows

On September 25, the Restoration Administrator, an independent body stipulated by the Settlement, has revised the river flow schedule[5] in response to Millerton Lake conditions. This schedule has now been approved by Reclamation.

To date, 106.6 TAF have been released to the San Joaquin River and 87.7 TAF has been removed from the Restoration Allocation as Unreleased Restoration Flows — sold or exchanged with Friant Contractors. Your schedule calls for the release of approximately 76.0 TAF additional water to the San Joaquin River, using the remainder of the Restoration Allocation.

Reclamation regularly monitors water temperatures in Millerton Lake. The data indicate that resuming Restoration Flows in late September would be beneficial to salmon. Restoration Flows will recommence in accordance with the approved schedule below. The public is encouraged to check Friant Dam releases before recreating near the San Joaquin River as conditions and flow schedules may change.

Additionally, the Program provided its 2024 Annual Report[6] to the Court.

Delta Conveyance Project

Petition for Change of Point of Diversion and Rediversion for the Delta Conveyance Project

The State Water Resources Control Board Administrative Hearings Office is holding a Public Hearing on the pending Petitions for Change of Water Right Permits 16478, 16479, 16481, and 16482 (Applications 5630, 14443, 14445A, and 17512, respectively) of the **Department of Water Resources.**

The evidentiary portion of the Public Hearing **will continue on May 1** (starting at 1:00 p.m.)**, 2, 5, 14, 15, 21-23, 27 & 28 and June 10 & 11, 2025,** and additional dates as necessary.

[5] See Attachments.

[6] Request from Authority Staff

Policy statements will be **heard in person and by Zoom Webinar on May 19, 2025, starting at 9:00 a.m.**, at Joe Serna Jr. CalEPA Building, Byron Sher Hearing Room, 1001 I Street, Second Floor, Sacramento, California.

The portion of the hearing for presentation of Protestants' cases-in-chief will begin on **August 12 and will continue on August 13, 14, 18 & 25, and September 2, 5, 9, 10, 11, 15, 29 & 30, and October 1, 6, 9 & 10, 2025**.

U.S. Bureau of Reclamation

Reclamation Manual

Documents out for Comment

Draft Policy

- There are currently no draft Policies out for review.

Draft Directives and Standards

- There are currently no draft Directives and Standards out for review.

Draft Facilities Instructions, Standards, and Techniques (FIST)

- There are currently no draft Facilities Instructions, Standards, and Techniques out for review.

Draft Reclamation Safety and Health Standards (RSHS)

- There are currently no Safety and Health Standards out for review.

Draft Reclamation Design Standards

- There are currently no Design Standards out for review.

San Joaquin Valley Water Blueprint

The Water Blueprint for the San Joaquin Valley (Blueprint) is a non-profit group of stakeholders, working to better understand our shared goals for water solutions that support environmental stewardship with the needs of communities and industries throughout the San Joaquin Valley.

Blueprint's strategic priorities for 2022-2025: Advocacy, Groundwater Quality and Disadvantaged Communities, Land Use Changes & Environmental Planning, Outreach & Communications, SGMA Implementation, Water Supply Goals, Governance, Operations & Finance.

Mission Statement: *"Unifying the San Joaquin Valley's voice to advance an accessible, reliable solution for a balanced water future for all.*

Water Blueprint Board Meeting

The September meeting covered the latest on the unified water plan, which quantifies these challenges and catalogs potential solutions - establishing the baseline understanding that will guide federal and state funding decisions for our region. The monthly board meeting is open to the public, and interested parties can register through the website.

Top 3 Key Takeaways:

- **Unified Water Plan Making Significant Progress with Tight Timeline:** The Water Blueprint's unified water plan is moving forward rapidly with chapters 1 and 2 already distributed for review. The plan quantifies the San Joaquin Valley's massive water supply gap at 2.5-3 million acre-feet by 2040, incorporating SGMA

compliance needs, climate change impacts, and environmental flow requirements. Comments on the initial chapters are due by October 6th, with the full administrative draft expected by year-end.

- **Major Supply-Demand Gap Identified Requiring Immediate Action:** Technical analysis reveals the valley faces a future water shortage of 2.5-3 million acre-feet by 2040, driven by SGMA compliance requirements (1.4-2 million acre-feet), environmental restoration needs, climate change impacts, and groundwater replenishment requirements. This massive gap demonstrates the critical need for comprehensive water infrastructure investments and management changes.
- **Recharge Projects Dominate Solutions:** The latest research points out that nearly 50% of all GSP projects are groundwater recharge projects, including on-farm recharge, injection wells, in-lieu recharge, and constructed basins, with injection wells being the most cost-effective option.

Additional Takeaways:

- GSA Project Lists Need Updating: Analysis of Groundwater Sustainability Plans revealed that less than half of the 800+ identified projects have both cost and yield information, necessitating outreach to GSA points of contact for more accurate data.
- Multiple Funding Sources Needed: Projects will require diverse funding streams including flood control, environmental restoration, and water supply funding to address the multi-benefit nature of proposed solutions.
- Water District Partnership Expanding: Blueprint is deepening its relationship with water districts outside the Central Valley. These growing partnerships can create significant opportunities for Valley water interests to tackle water banking and supply management.
- Speakers Bureau Approved: The board approved the creation of a speakers bureau to provide unified messaging about blueprint activities to community meetings, boards of supervisors, and other venues across the valley.
- Large Group Valley Meeting Planned: A major stakeholder meeting is being organized with Bureau of Reclamation's Acting Regional Director Adam Nickels as the headline speaker to discuss partnership opportunities and funding.

Unified Water Plan for the San Joaquin Valley

The purpose of the Unified Valley Plan for the San Joaquin Valley is to identify and present possible solutions for long-term water needs in the San Joaquin Valley by bringing together existing water plans, strategies, and knowledge from across the San Joaquin Valley into one coordinated, valley-wide planning framework.

Bureau of Reclamation Report to Congress:

- Chapter 1. Introduction
- Chapter 2. Overview of the water resource needs and opportunities in the San Joaquin Valley.
- Chapter 3. Overview of flood risks and management in the San Joaquin Valley and opportunities for improving flood management.
- Chapter 4. Illustration of an environmental vision for the San Joaquin Valley and estimates of the water supplies needed to implement that vision.
- Chapter 5. Evaluation of a range of potential solutions.
- Chapter 6. Recommendations for a path forward and a roadmap for implementation. Includes policy recommendations.

Authority staff continues to recommend that Authority member agencies increase their engagement with the Blueprint Technical Committee to ensure accuracy and support of the work product being developed for the westside of the San Joaquin Valley.

Chapters 1 and 2 of the Plan are out for review and comment and are attached herein.

San Joaquin Valley Water Collaborative Action Program (SJVW CAP)

Background

The CAP Plenary Group adopted work groups to implement the CAP Term Sheet[7], adopted on November 22, 2022. During Phase II, Work Groups are continuing to meet and discuss priorities and drafting various documents for their respective areas: Safe Drinking Water; Sustainable Water Supplies; Ecosystem Health; Land Use, Demand Reduction and Land Repurposing; Implementation.

The Bureau of Reclamation is currently funding the CAP. This funding supports its management and facilitation of the overall CAP process and the development of a prioritization tool. The tool is envisioned to be used by CAP participants, federal and state agencies, other stakeholders, and the public to evaluate policy recommendations, programmatic changes, and projects to achieve sustainable water management in the San Joaquin Valley.

The Steering Committee created a subgroup and will review several prioritization tools developed by other organizations and use those examples to craft a work plan and initial set of criteria for consideration.

On a parallel track, the subgroup recommends that each caucus develop up to three top-priority actions that will advance the outcomes of the Term Sheet.

[7] Request from Authority staff

ATTACHMENTS

Restoration Administrator Flow Recommendation

To: Don Portz, Chad Moore, Regina Story

cc: Rain Emerson, Rufino Gonzalez, Gary Bobker, Steve Ottemoeller, Ian Buck-Macleod, TAC, FWC

Date: September 25, 2025

From: Tom Johnson, Restoration Administrator

Subject: Updated Recommendation for 2025 Restoration Flows

The following is a Restoration Flow Recommendation (Recommendation) by the Restoration Administrator (RA) for the 2025 Restoration Year Flows pursuant to the Restoration Flow Guidelines (RFG) Ver. 2.1, as amended, and Exhibit B of the Settlement.

Background

The SJRRP has issued a Final 2025 Restoration Allocation (Allocation) dated May 18, 2025, which designates 2025 as a **Normal-Dry** Water Year Type with an Unimpaired Inflow hybrid forecast of 1,346 thousand acre-feet (TAF) and provides an allocation of Restoration Flows of 269.355 TAF as measured at Gravelly Ford (GRF) based on the 50% exceedance forecast. The Allocation also specified certain contractual and operational constraints on Restoration Flow releases for 2025.

Since April, 448 Spring-Run Chinook salmon returned to the lower reaches of the Restoration Area and were captured in Program fyke nets. Of these captured salmon, 394 were successfully transferred to Reach 1 of the Restoration Area, by far the largest observed return under the SJRRP. As a result of this large return of salmon and the opportunity for observing reproductive success this fall, Restoration Flows were substantially reduced from early June through September to preserve cold water in Millerton Reservoir. At this time, water temperature modeling shows that there will be sufficient cold water to support the anticipated spawning and incubation periods in Reach 1 of the Restoration Area. Accordingly, Restoration Flows will resume forthwith.

Recommendation for the 2025 Restoration Year

At this time, I am recommending a flow schedule for the 2025 Restoration Year as shown in Table 1 and as described below. Restoration Flows will resume forthwith for the balance of the Restoration Year.

1. Increase flows at Friant Dam by 75 cfs per day on September 29, 30, and October 1st.
2. Adjust flows as required to achieve a target flow of 255 cfs (250 cfs of Restoration Flows plus 5 CFS of minimum flow) at GRF within 4 to 6 days, once flows have stabilized. Maintain the 255 cfs total flow target at GRF through November.
3. Increase flows to a target of 270 cfs of Restoration Flows/275 cfs total flows at GRF for December 1.
4. Increase flows to a target of 300 cfs of Restoration Flows/305 cfs total flows at GRF for December 16.
5. Reduce flows to 250 cfs of Restoration Flows/255 cfs total flows at GRF for December 29, and maintain 255 cfs total flow at GRF through February 28, 2026.

No Restoration Flow recapture other than de-minimus amounts are planned in the Restoration Area. All Restoration Flow releases are to flow through the entirety of the Restoration Area. If there are operational or other constraints that preclude Restoration Flows traveling the entire length of the Restoration Area, the Restoration Flow Recommendation will be adjusted to reduce Restoration Flow releases to the level of the controlling operational constraint.

I have consulted with the TAC and the FMWG on this Recommendation, and this Recommendation reflects the best use of the Allocation of Restoration Flows for the fisheries resources at this time.

Table 1. Summary of Restoration Flow Recommendations for September 29, 2025, through February 28, 2026.

Restoration Flow Period	Date Range	Objective	Friant Release (est., varies due to Holding Contracts)	Restoration Flows at Gravelly Ford	Total Flow at Gravelly Ford[1]	Target Restoration Flow at Sack Dam (est.)
September Flow Increase	September 29 – October 1, 2025	Ramp up flows	Increase flows at Friant Dam 75 cfs/day for 3 days	As occurs	As occurs	As occurs
Enhanced Base Flow	Once stabilized at GRF, hold flows through November	Spring run spawning and egg incubation	As necessary, est. 440 cfs	250 cfs	255 cfs	As occurs
Enhanced Base Flow+ Fall Pulse	December 1 – 15, 2025	Spring run egg incubation.	As necessary, est. 450 cfs	270 cfs	275 cfs	175 cfs
Enhanced Base Flow+ Fall Pulse	December 16–28, 2025	Juvenile rearing	As necessary, est. 480 cfs	300 cfs	305 cfs	195 cfs
Base Flow	January 1– February 28, 2026	Juvenile rearing	As necessary, est. 400 – 410 cfs	250 cfs	255 cfs	157 cfs

[1] Total Flow includes the minimum Holding Contract flows of 5 cfs required at Gravelly Ford

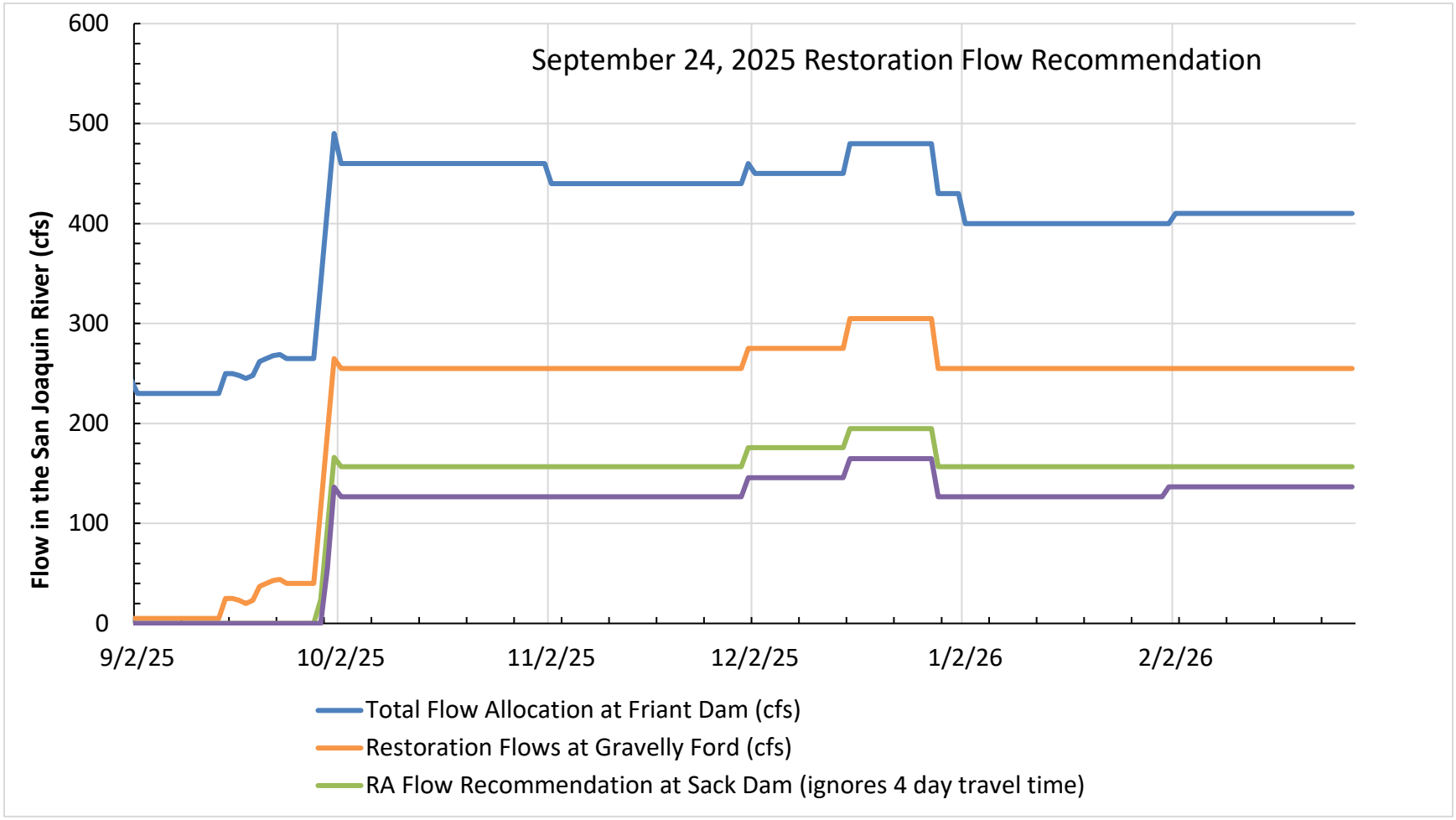
Additional Elements of this Recommendation

This Recommendation anticipates the release of the balance of Restoration Flows to the river. No additional URF's are anticipated this Restoration Year.

Depending on changing hydrologic and operations conditions, I will adjust or revise this Recommendation as necessary.

Additional Consultation

I will continue to coordinate with the TAC, Program Office, and Implementing Agencies to monitor hydrologic conditions, fish population conditions, uncontrolled season releases, operational conditions, and other factors, and will update the Restoration Flow Recommendation as conditions change.


September 24, 2025 Restoration Flow Recommendation
Flow in the San Joaquin River (cfs)
600
500
400
300
200
100
0
9/2/25
10/2/25
11/2/25
12/2/25
1/2/26
2/2/26
Total Flow Allocation at Friant Dam (cfs)
Restoration Flows at Gravelly Ford (cfs)
RA Flow Recommendation at Sack Dam (ignores 4 day travel time)

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Abbreviations and Acronyms

AF	acre-feet
cfs	cubic feet per second
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
Delta	Sacramento and San Joaquin Rivers / San Francisco Bay-Delta
DMC	Delta-Mendota Canal
FKC	Friant-Kern Canal
FWA	Friant Water Authority
MAF	million acre-feet
MOU	Memorandum of Understanding
NRDC	Natural Resources Defense Council
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
Restoration Flow	SJRRS Restoration Flow
SGMA	Sustainable Groundwater Management Act
SJRRP	San Joaquin River Restoration Program
SLC	San Luis Canal
State	State of California
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAF	thousand acre-feet
USFWS	United State Fish and Wildlife Service

<update>

Chapter 1 Introduction

Background

The San Joaquin Valley in California, one of the most productive agricultural regions in the world, is an important contributor to the state and national economies and a cornerstone of national food security. The eight-county region includes seven of the top 10 agricultural producing counties in the nation. Agricultural production in the San Joaquin Valley depends almost exclusively on irrigation, which requires reliable and sustainable water supplies. Over the past century, significant coordinated local, state, and federal investments have been made to develop a complex water supply and flood management system that enabled the development of expansive agriculture. Water supplies include groundwater, local surface water, imported surface water, that are captured and managed through an extensive network of water storage and conveyance facilities.

During the 20th century, the development of water supply facilities was coordinated with the construction of flood management infrastructure to provide the dual benefits of water reliability and flood protection for farms and cities. Today, it is evident that existing uses of water far exceed the sustainability of existing supplies for a variety of reasons. Over the past few decades, much of the developed water supply has become subject to a complex regulatory framework that constrains supply availability, triggering changes in agricultural practices and growing patterns. Hydrologic conditions that exceed the variability anticipated at the time of facility design have occurred and are projected to become more variable, further limiting the ability to develop reliable water supplies with existing facilities. Simultaneously, the importance of a healthy ecosystem has become more widely recognized and communities throughout the Valley are seeking opportunities to develop sustainable habitats. To address the inter-related needs of this vibrant region, bold and creative solutions, including significant new investments in water infrastructure, are needed to adapt and expand water systems in the San Joaquin Valley for today and future generations. This Unified Water Plan (Plan) evaluates water resources problems and needs and proposes a vision for prioritized investments.

Study Authorization and 2016 Report

Authorization to prepare this Plan is provided in Public Law (PL) 111-11, also known as the Omnibus Public Land Management Act of 2009, which included the San Joaquin River Restoration Settlement (Settlement) and related items. Part II of the Settlement, titled "Study to Develop Water Plan", authorized the United States Department of the Interior, Bureau of Reclamation (Reclamation) to provide funding to the California Water Institute at California State University, Fresno (CWI) to "conduct a study regarding the coordination and integration of sub-regional integrated regional water management plans into a unified Integrated Regional Water Management Plan … [addressing] issues related to (A) water quality; (B) water supply; (C) water conveyance; (D)

water reliability; (E) water conservation and efficient use; (F) flood control; (G) water resource-related environmental enhancement; and (H) population growth." The legislation specified a study area for the San Joaquin River and the Tulare Lake hydrologic regions including the counties of Kern, Tulare, Kings, Fresno, Madera, Merced, Stanislaus, and San Joaquin. The objective of study is to "address and solve long-term water needs in a sustainable and equitable manner." At the time of the legislation, the dominant mechanism for reginal water planning in the San Joaquin Valley was based on the preparation of Integrated Regional Water Management (IRWM) plans.

In 2016 CWI prepared a preliminary draft Integrated Regional Water Management Plan for the San Joaquin Valley of California (2016 Report) in response to PL 111-11. The 2016 Report summarized the IRWM that has been prepared by regional groups covering the study area, and identified other water management actions that involve the San Joaquin Valley in the topics identified in PL 111-11. The 2016 preliminary draft Plan also made several recommendations to expand regional collaboration in support of water management throughout the San Joaquin Valley. Some key findings in the 2016 preliminary draft Plan highlight the needs for greater integrated water management, clear and achievable goals, consideration of environment water needs, and to identify what is possible. The 2016 preliminary draft Plan concluding that the region was beginning to collaborate water management planning and offered the following findings and recommendations:

- The greatest issue throughout the San Joaquin Valley is water supply reliability, from both surface water and groundwater sources, which varies depending on the location.

- Lack of information and integration of management plans for water sources impedes the development of comprehensive water budgets for the regions. Without water source management and water budgets, uncertainty will likely continue, and water sustainability will remain an elusive goal.

- The introduction of integrated regional water management planning fostered significant improvements in water management by aggregating partners in sub-regions and implementing activities that provide lasting improvements.

- Future efforts need increased technical, legal and institutional investigation efforts on water sources and the landscapes that provide the sources. The entire watershed areas, their terrestrial and aquatic ecosystems and other critical portions of the landscape represent a gap that must be included in future organizational schemes inasmuch as the lack of clear and achievable goals with measurable outcomes for natural water uses will likely continue to add to the uncertainty of water availability for direct uses.

- CWI recommends augmenting integrated regional water management planning needs with integrated basin watershed planning and management that includes advanced system oversight and professional management structures that can accomplish the work of holistically assessing and managing all of the natural landscapes, the water sources and all the uses with an institutional arrangement that includes the entire watershed system.

- The San Joaquin Valley could benefit from additional institutional mechanisms to fairly administer the findings and recommended management strategies of that assessment.

- The greatest challenge for the San Joaquin Valley is to determine what the Valley watershed systems can support after all the water sources, needs and uses are calculated and management strategies optimized.

The 2016 Report does not provide specifics on what the needs are for the San Joaquin Valley in the topic areas identified. Rather it suggests "almost all of the new (project) additions are in the early stages of their implementation and need to develop further to assess their management impacts. Therefore, developing a more comprehensive strategy for the entire San Joaquin Valley remains only a goal at this time." Recognizing these earlier findings, this Unified Valley plan seeks to develop an integrated water plan for the Valley that identifies what is possible thereby reducing uncertainty and enabling resources to be focused on where they can provide the greatest benefit. This report endeavors to present a comprehensive water management strategy for the entire San Joaquin Valley.

Need for a Unified Water Plan

During the years since the enactment of PL 111-11 and preparation of the 2016 preliminary draft Plan, important developments occurred that significantly affect water management and planning in the San Joaquin Valley, necessitating an update to the 2016 preliminary draft Plan, including:

- A severe drought from 2012-2016 resulted in unprecedented water delivery reductions to water users throughout the San Joaquin Valley and elsewhere in California. The effects of this historic drought were not addressed in the 2016 preliminary draft Plan.

- The California Sustainable Groundwater Management Act (SGMA) was enacted in 2014. SGMA requires the formation of local Groundwater Sustainability Agencies (GSAs) that are responsible for developing and implementing Groundwater Sustainability Plans (GSPs) to achieve long-term groundwater sustainability. Achievement of sustainable groundwater management in the San Joaquin Valley will require significant reductions in groundwater use.

- Reclamation prepared the Sacramento and San Joaquin River Basins Study in 2016, which identified the potential consequences of forecasted climate change to water supply reliability in the Central Valley. The Basin Study recommended several strategies to improve the development and management of local water supplies to meet water demands, however it did not anticipate the long-term effects of SGMA compliance.

- Reclamation prepared the San Joaquin River Restoration Program Water Management Goal Investment Strategy, which identified local projects that would be beneficial in reducing or avoiding water supply impacts resulting from the release of Restoration Flows to the San Joaquin River.

- GSAs throughout the San Joaquin Valley submitted initial GSPs in 2020 that describe long-term groundwater sustainability objectives and identified potential projects and management actions that may be implemented to achieve those objectives. Most GSAs reviewed projects specified in the IRWM plans and made modifications and supplements in developing the GSPs. While SGMA now elevated water planning to the subbasin level, coordination, and integration between subbasins in the San Joaquin Valley is still lacking.

- Some IRWM plans were updated since 2016, however most updates pre-date the submission of initial GSPs.

- The California Department of Water Resources (DWR), in partnership with State Water Project contractors, is evaluating the Delta Conveyance Project, which would alter the timing and volume of water exported from the Delta to the San Joaquin Valley and Southern California.

- DWR prepared the Central Valley Flood Protection Plan update in 2022.

- The California Water Commission authorized funding for the public benefits to be provided by proposed water storage projects that may affect water supply availability in the San Joaquin Valley, including the Sites Project (Sites Reservoir), the Kern Fan Groundwater Storage Project, and the Willow Springs Water Bank Conjunctive Use Project (CWC 2025).

- The Water Blueprint for the San Joaquin Valley (the Blueprint) was formed to identify water resource policies and projects that maximize accessible, affordable, and reliable supplies for sustainable and productive farms and ranches, healthy communities, and thriving ecosystems in the Valley. The Blueprint comprises community leaders, businesses, water agencies, local governments, and agricultural representatives working together to advance a common vision of water solutions for the region. The Blueprint encompasses the eight counties listed in the authorizing legislation and serves as a united voice to champion water resource policies and projects that can maximize accessible, affordable, and reliable supplies for sustainable and productive farms and ranches, healthy communities, and thriving ecosystems in the San Joaquin Valley.

- The Blueprint prepared preliminary technical studies on potential new infrastructure including new fish-friendly diversions in the Delta and conveyance facilities for the distribution of additional Delta water supplies.

- Numerous other studies on water supply availability, economic conditions, and potential land retirement implications of SGMA compliance were prepared by the Public Policy Institute of California (PPIC) and other entities, including Federal, State, and local agencies.

Objectives of the Unified Water Plan

The purpose of this Plan is to build on the 2016 preliminary draft Plan to meet the requirements of the PL 111-11 authorization and recognize the important recent developments listed above. The goal of the Plan is to identify current and future water resources problems, needs and opportunities in the San Joaquin Valley, and present possible solutions and a potential path towards implementation of various solutions. This Plan is being developed to help communities, farmers, and public agencies collaborate to solve shared water challenges - including groundwater overdraft, water quality degradation, flood risk, and environmental stress - while preparing for changing conditions. Specific objectives of the Plan are to:

- Identify the current and projected water related problems, needs and opportunities in the San Joaquin Valley related to the topics specified in PL 111-11.
- Identify and evaluate possible solutions to address the identified problems, needs and opportunities.
- Identify a road map for implementation.

The Study Area for this Plan is defined as the San Joaquin River Hydrologic Region and Tulare Lake Hydrologic Region, with a focus on the 8 counties identified in PL 111-11: Kern, Tulare, Kings, Fresno, Madera, Merced, Stanislaus, and San Joaquin (Figure 1-1). For the purposes of this report, the Study Area is further delineated into subbasins consistent with the groundwater basins defined in California's Groundwater (Bulletin 118). These subbasins represent areas that must be sustainable (i.e., in groundwater balance) for compliance with SGMA. This organizational approach aligns this Plan with content of the GSPs.

Organization of the Unified Water Plan

This Plan includes the following chapters:

Chapter 1 – Introduction

Chapter 2 – Water Supply Problems, Needs, and Opportunities

Chapter 3 – Flood Management Problems, Needs, and Opportunities

Chapter 4 – Environmental Problems, Needs, and Opportunities

Chapter 5 – Potential Projects

Chapter 6 – Project Portfolios and Implementation

Chapter 7 – References

Figure 1-1: Study area of the Unified Water Plan.

Chapter 2 Water Supply Problems, Needs, and Opportunities

Setting and Historical Context

The San Joaquin Valley in California is bound by the Sacramento-San Joaquin River Delta (Delta) on the north, the Tehachapi Mountains on the south, the Coastal Range on the west, and the Sierra Neveda Mountains on the east (Figure 2-1). Prior to European settlement, the San Joaquin Valley was comprised primarily of grasslands and aquatic features like wetlands, riparian corridors, floodplains, ponds, and lakes, which were fed by rivers and streams originating in the Sierra Nevada Mountains and the Coastal Range. The region included diverse environmental features dominated by rivers and floodplains that supported salmon spawning and rearing, extensive bird habitat along the Pacific Flyway, and upland habitat. A key feature was Tulare Lake, which was the largest natural lake west of the Mississippi River. Early inhabitants included Native Americans and Spanish settlers. European settlement accelerated in the mid-19th century primarily driven by westward migration following the California Gold Rush.

Large-scale agricultural development in the San Joaquin Valley began in the late 19th century with European settlement and relied principally on groundwater. At the time of early development, groundwater flowed through artesian wells in some areas. As development progressed, groundwater levels began to decline and extraction was accelerated by the use of deep well turbines. Groundwater use was supplemented by surface water diverted from local streams and rivers under both riparian and appropriative water rights. Land was leveled and cultivated as agricultural development expanded. Local irrigation districts were formed to manage water resources and finance water supply projects. Despite local investments to develop projects for the conjunctive managing of surface and groundwater resources, groundwater remained the primary water supply source in the San Joaquin Valley through the early 20th century.

The cumulative effects of groundwater extraction in the San Joaquin Valley became apparent by the early 20th century and included declining groundwater levels and regional land subsidence. Subsidence occurs when the water suspending fine-grained sediments is extracted faster than it is replenished and the sediments compact, resulting in lowering of the land surface. In response, beginning in the early 20th century, significant local, state, and federal investments were made to develop infrastructure projects that capture, store, and convey in-valley surface water supplies, provide flood protection, and provide access to imported water supplies. Investments continued through the mid- to late-20th century and resulted in the construction of major water supply and flood control projects including the Central Valley Project (CVP) operated by the United States Bureau of Reclamation (Reclamation), the California State Water Project (SWP) operated by the California Department of Water Resources (DWR), and numerous flood control reservoirs operated by the Army Corps of Engineers (Army Corps) (Figure 2-1).

The Friant Division was constructed in the 1940s and 50s as initial features of the CVP to increase surface water deliveries on the eastside of the San Joaquin Valley, and includes Friant Dam, the Madera Canal, and the Friant-Kern Canal (FKC). Friant Dam created Millerton Lake, which has a storage capacity of 0.5 million acre-feet (AF), on the San Joaquin River. Water is conveyed north from Millerton Lake to Chowchilla via the Madera Canal, and south from Millerton Lake to Bakersfield via the FKC. The FKC has a design capacity at its headworks of 5,300 cubic feet per second (cfs) and reduces to 2,500 cfs at its terminus to accommodate conveyance for downstream water. Other initial features of the CVP included Shasta Dam and Reservoir on the Sacramento River, the Delta Cross-Channel, the Jones Pumping Plant, the Delta-Mendota Canal (DMC) and the Contra Costa Canal. The DMC is used to delivery water supplies exported through the Delta to senior water right holders along the San Joaquin River downstream from Friant Dam.

New Melones Dam, constructed on the Stanislaus River on the eastside of the San Joaquin Valley in 1980, created New Melones Lake with a storage capacity of 2.4 MAF. New Melones Lake is the principal feature of the New Melones Unit, which provides flood control and water supply benefits on the Stanislaus River and is operated for water quality objectives in the San Joaquin River as it enters the Delta.

On the westside of the San Joaquin Valley, CVP and SWP facilities were constructed to increase the delivery of Sacramento Valley surface water supplies exported through the Delta. The DMC, San Luis Reservoir, and the San Luis Canal are features of the CVP on the westside of the San Joaquin Valley. The DMC was constructed in the 1940s and 50s to convey water from the Delta to Mendota Pool on the San Joaquin River. San Luis Reservoir (SLR) and the San Luis Canal (SLC) were constructed in the 1960s as joint use facilities of the SWP and CVP. SLR has a storage capacity of 2.0 MAF and stores water delivered from the Delta via the DMC and the California Aqueduct. San Luis Reservoir. The SLC delivers water directly to CVP contractors in the San Joaquin Valley and conveys SWP water supplies to the California Aqueduct for delivery to SWP contactors in the San Joaquin Valley, along the Central Coast, and in Southern California.

During approximately the same time as Reclamation developed the CVP and the State developed the SWP, significant federal investments were made to construct flood control reservoirs on the eastside of the San Joaquin Valley. Several reservoirs constructed by the Army Corps provide water supplies to local water agencies. Pine Flat Reservoir (1.0 MAF) was constructed on the Kings River, Lake Kaweah (0.18 MAF) was constructed on the Kaweah River, Lake Success (0.08 MAF) was constructed on the Tule River, and Isabella Lake (0.57 MAF) was constructed on the Kern River. The Kings, Kaweah, and Tule Rivers all flow into Tulare Lake, which has been drained, cultivated, and only fills in the wettest of years. The Fresno Slough and James Bypass were developed to convey flood water from the Kings River to the San Joquin River. The Kern River drains into the southern San Joaquin Valley towards Buena Vista Lake and Kern Lake, which have also been drained and cultivated.

The establishment of local irrigation districts began in the late 19th century and expanded in scope and extent over time. These districts developed locally owned storage and conveyance projects to provide surface water supplies that in many cases supplement groundwater resources. As a result of the complex overlay of water supply development projects, many areas of the San Joaquin Valley

have access to multiple sources of water supply including local, CVP, and/or SWP water supplies, while other areas are fully reliant on groundwater. Some locally-owned projects are also used to convey regional water supplies. For example, the Cross Valley Canal was constructed by the Kern County Water Agency to provide conveyance between the California Aqueduct and the city of Bakersfield in Kern County. It flows bidirectionally and includes an intertie with the Friant-Kern Canal. In addition, Patterson Irrigation District and Banta Carbona Irrigation District have locally owned water distribution systems that are be used to convey water supplies from the San Joaquin River to the DMC.

By the mid- to late-20th century, the major local, state, and federal water supply facilities used to deliver local and imported water supplies to the San Joaquin Valley were largely in-place and helped establish the San Joaquin Valley as one of the strongest agricultural regions in the world. This coincided with the dawn of emerging social values that recognized the environmental value of water resources and enacted laws and regulations to allocate water supplies in consideration of environmental needs. The application of environmental protections to existing water supply projects reduced the availability of water supplies for agricultural, municipal and industrial uses in the San Joaquin Valley. A summary of key environmental protection actions that have affected water supply reliability to the San Joaquin Valley include:

- 1978 – the California State Water Board issued Decision D-1485, the first Bay-Delta Water Quality Control Plan, to regulate and protect water quality in the Delta.
- 1989 – the Sacramento River winter-run chinook salmon was listed as endangered under the federal Endangered Species Act (ESA) of 1973.
- 1992 – The Central Valley Project Improvement Act (CVPIA) was enacted to protect fish and wildlife species in the Central Valley. The CVPIA allocates 800,000 acre-feet of CVP water supply annually for anadromous fish restoration, requires delivery of water supplies to wildlife refuges in the Central Valley, and specifies flows to be met on the Trinity River that reduce supplies available for transfer to the Central Valley.
- 1993 – the Delta Smelt was listed as endangered under the federal ESA, and its critical habitat was designated in 1994.
- 1994 – The Bay-Delta Accord was signed the California State Water Board issued Decision D-1641, an updated Bay-Delta Water Quality Control Plan, which established water quality standards and operational constraints in the Delta (State Water Board 2020).
- 2006 – The San Joaquin River Restoration Settlement, an agreement between U.S. Departments of the Interior and Commerce, the Natural Resources Defense Council (NRDC), and the Friant Water Users Authority (FWUA), was approved by the court. The Settlement, which followed an 18-year lawsuit, is based on two goals: (1) restore and maintain fish populations in the San Joaquin River below Friant Dam, and (2) reduce or avoid adverse water supply impacts to Friant Division contractors.

- 2009 – Congress authorized the San Joaquin River Restoration Program (SJRRP) to implement the provisions of the SJRRS Since 2009, the SJRRP, has implemented habitat restoration and fish reintroduction activities in the San Joaquin River, but channel capacity constraints have limited the implementation of Restoration Flows (which are sourced from water that would otherwise be delivered to Friant Division contractors).

- 2009 – The update to the Bay-Delta Water Quality Control Plan initiated the Healthy Rivers and Landscapes Program (also referred to as "Voluntary Agreements"), a collaborative effort between water users and state agencies to enhance ecological conditions and water supply reliability in California's major river systems. Key goals relevant to the San Joaquin Valley include increasing environmental flows in the Delta watershed by over 800,000 acre-feet in wet years and restoring 45,000 acres of aquatic habitat. A 2022 memorandum of understanding (MOU) formalized commitments from several agencies, including Reclamation and the Friant Water Authority (which operates and maintains the FKC and Madera Canal), though some San Joaquin River tributary water rights holders, such as those on the Merced and Tuolumne Rivers, did not sign (HRLP 2022). As a result, contributions from these tributaries remain uncertain, and the update to the Bay-Delta Plan Water Quality Control Plan is under litigation.

The regulation of local streams. rivers and the Delta through actions described above resulted in progressive reductions in water supply reliability to agricultural water users in the San Joaquin Valley. As water supplies became more scarce, the value of water increased, particularly during dry periods. This trend coincided with advancements in irrigation technology and the growth of global markets, which incentivized agricultural investments to plant a greater percentage of permanent crops, such as trees and vines, that further hardened water demand and increased reliance on groundwater supplies. Continued unsustainable groundwater extraction in the late 20th and early 21st centuries resulted in additional adverse effects like increases in regional land subsidence, dewatering of domestic and small community wells, and degraded groundwater quality, which significantly impact disadvantaged communities in the San Joaquin Valley. In recognition of the adverse effects of groundwater overdraft throughout California and particularly in the San Joaquin Valley, the State of California enacted the Sustainable Groundwater Management Act (SGMA) in 2014. SGMA requires that critically over-drafted groundwater subbasins (including most subbasins in the San Joaquin Valley) achieve sustainable groundwater management by 2040.

Today, despite the regulatory constraints identified above, the San Joaquin Valley boasts a vibrant economy based largely on agriculture. Seven of the top 10 highest producing agricultural counties in the United States are in the San Joaquin Valley (which represent 7 of the 8 counties of this Plan). Many of the farms grow high value permanent crops like citrus, grapes, tree nuts, and stone fruits. Residents live in urban areas, such as Bakersfield, Fresno, Stockton, and many smaller towns and communities.

Figure 2-1: San Joaquin Valley Map Showing Hydrologic Regions, Counties, Groundwater Subbasins, Communities and Major Water Supply Infrastructure.

Existing and Projected Future Conditions

This section describes the existing and projected future conditions for each of the three major water supply sources in the San Joaquin Valley: (1) in-valley surface water supplies from rivers and streams; (2) local groundwater supplies; and (3) imported water supplies from the Delta. It then describes existing demands and how those are forecasted to change in the future. This information is then used to quantify the projected future water supply-demand gap (i.e., shortage of supplies to meet existing demands) in the San Joaquin Valley. Later chapters present opportunities to address flood management and environment water resources issues, while implementing water supply projects to address the water supply-demand gap.

In-Valley Surface Water Supplies

In-valley surface water supplies are sourced primarily from rivers and streams that originate in the Sierra Nevada Mountains. The major rivers (from north to south) in the San Joaquin Hydrologic Region are the: Mokelumne, Calaveras, Tuolumne, Merced, Chowchilla, Fresno and San Joaquin, and the major rivers (from north to south) in the Tulare Lake Hydrologic Region are the: Kings, Kaweah, Tule and Kern (Figure 2-1). The average annual full natural flow for each major river, as well as the 90 and 10 percent exceedance, and the downstream-most storage facility are shown in Table 2-1. It is important to note that smaller streams originating in the Sierra Nevada Mountains and Coastal Range supplement water supplies from these major rivers. In addition, storage facilities upstream from locations listed in Table 2-1 provide storage capacity that is used to regulate flows into reservoirs listed in Table 2-1. Water on the major rivers originating in the Sierra Nevada Mountains is of generally high quality with the exception of elevated levels of suspended sediments during high flow events.

Management of the San Joaquin Valley's rivers and streams is accomplished through a cooperative system involving some or all the following entities: Reclamation, Army Corps, State Water Resources Control Board (State Water Board), local agencies, and other entities. Most of the major rivers on the eastside of the San Joaquin Valley listed in Table 2-1 are managed jointly for flood control, water supply, and other benefits (e.g., recreation and power generation). Local water agencies and irrigation districts hold water rights and contracts, and flows are managed jointly by locals and Reclamation or the Army Corps. The San Joaquin River is unique because of Reclamation's ownership of the Friant Division of the CVP, which provides in-valley surface water supplies to multiple basins. The Friant Division supplies approximately 2.2 million acre-feet (MAF) of contracted water from the San Joaquin River via Millerton Lake to water districts and municipalities from Madera County to Kern County (FWA 2013, Table 2-2). Reclamation owns Friant Dam, Madera Canal, and FKC, but the Friant Water Authority (FWA) operates and maintains the FKC. FWA is made up of local water agencies and districts with CVP contracts, which are responsible (in part) to pay operations and maintenance costs. Changes to existing management and operations of in-valley surface water supplies in the future will be driven by three primary sources: implementation of the SJRRP, the Healthy Rivers and Landscapes Program, and long-term hydrologic variability.

Table 2-1: Major Rivers of the San Joaquin Valley and the Downstream-Most Reservoir, With Subbasins Served.

River	Full Natural Flow (TAF)			Reservoir	Storage Capacity (TAF)	Subbasins Served
	Average Annual	90% Exceed.	10% Exceed.			
Mokelumne	736	271	1417	Camanche	417	East San Joaquin
Calaveras	167	33	387	New Hogan	317	East San Joaquin
Stanislaus	1,178	408	2,250	New Melones	2,400	Modesto East San Joaquin
Tuolumne	1,910	820	3,620	New Don Pedro	2,030	Turlock Modesto
Merced	974	325	1,971	McLure	1,025	Merced
Chowchilla	75	6	197	Eastman	150	Chowchilla
Fresno	83	16	212	Hensley	90	Madera
San Joaquin	1,804	743	3,403	Millerton	520	Chowchilla Madera Kings Kaweah Tule Kern
Kings	1,699	681	3,293	Pine Flat	1,000	Kings Tulare Lake
Kaweah	447	149	931	Kaweah	186	Kaweah
Tule	146	33	364	Success	82	Tule
Kern	727	220	1,550	Isabella	568	Kern
Total	**9,945**	**3,704**	**19,595**	**Total**	**8,785**	

Notes:

Full natural flow statistics calculated from data available via the California Nevada River Forecast Center (NOAA 2025).

Table 2-2: Friant Division Contractors, Contract Amounts, Subbasins, and Delivery Points.

Water District	Class 1 (TAF)	Class 2 (TAF)	Total Contract (TAF)	Subbasin	Delivery Point
Chowchilla WD	55.00	160.00	215.00	Chowchilla	Madera Canal
Madera ID	85.00	186.00	271.00	Madera	Madera Canal
Gravelly Ford WD	0.00	14.00	14.00	Madera	San Joaquin River
Madera County - M&I	0.20	0.00	0.20	Madera	Millerton Reservoir
Fresno CWWD #18 - M&I	0.15	0.00	0.15	Kings	Millerton Reservoir
Garfield WD	3.50	0.00	3.5	Kings	Friant-Kern Canal
City of Fresno - M&I	60.00	0.00	60.00	Kings	Friant-Kern Canal
International WD	1.20	0.00	1.2	Kings	Friant-Kern Canal
Fresno ID	0.00	75.00	75.00	Kings	Friant-Kern Canal
Tri Valley WD	0.40	0.00	0.40	Kings	Friant-Kern Canal
Orange Cove ID	39.20	0.00	39.20	Kings	Friant-Kern Canal
Hills Valley ID	1.25	0.00	1.25	Kings	Friant-Kern Canal
City of Orange Cove - M&I	1.40	0.00	1.40	Kings	Friant-Kern Canal
Stone Corral ID	10.00	0.00	10.00	Kaweah	Friant-Kern Canal
Ivanhoe ID	6.50	0.50	7.00	Kaweah	Friant-Kern Canal
Tulare ID	30.00	141.00	171.00	Kaweah	Friant-Kern Canal
Kaweah Delta WCD	1.20	7.40	8.60	Kaweah	Friant-Kern Canal
Exeter ID	11.10	19.00	30.10	Kaweah	Friant-Kern Canal
Lewis Creek WD	1.20	-	1.20	Kaweah	Friant-Kern Canal
Lindsay Strathmore ID	27.50	-	27.50	Kaweah	Friant-Kern Canal
City of Lindsay - M&I	2.50		2.50	Kaweah	Friant-Kern Canal
Lindmore ID	33.00	22.00	55.00	Kaweah	Friant-Kern Canal
Porterville ID	15.00	30.00	45.00	Tule	Friant-Kern Canal
Lower Tule River ID	61.20	238.00	299.20	Tule	Friant-Kern Canal
Pixley ID	0.00	0.00	0.00	Tule	Friant-Kern Canal
Saucelito ID	21.50	32.80	54.30	Tule	Friant-Kern Canal
Tea Pot Dome WD	7.20	-	7.20	Tule	Friant-Kern Canal
Terra Bella ID	29.00	-	29.00	Tule	Friant-Kern Canal
Delano-Earlimart ID	108.80	74.50	183.30	Tule	Friant-Kern Canal
Kern - Tulare ID	0.00	5.00	5.00	Tule	Friant-Kern Canal
Southern San Joaquin MUD	97.00	45.00	142.00	Kern	Friant-Kern Canal
Shafter-Wasco ID	50.00	39.60	89.60	Kern	Friant-Kern Canal
Arvin-Edison WSD	40.00	311.68	351.68	Kern	Friant-Kern Canal
Total	**800.00**	**1,401.48**	**2,201.48**		
Total served by FKC	**659.65**	**1,041.48**	**1,701.13**		

Key:

CWWD- County Water Works District, FKC – Friant, Kern Canal, ID- Irrigation District, TAF- thousand acre feet, WSD- Water Storage District, WCD – Water Conservation District, WD – Water District, M&I – Municipal & Industrial

San Joaquin River Restoration Program

The SJRRP was codified in 2009 and is a collaborative effort that seeks to restore flows and fish populations to the San Joaquin River. However, channel capacity constraints in the San Joaquin River have limited the implementation of Restoration Flows, which are sourced from water that would otherwise be delivered to local agencies and irrigation districts within the Friant Division that hold CVP contracts (herein referred to as Friant Division Contractors). Restoration Flow requirements are defined in a flow hydrograph in Exbibit B of the Settlement and average 320,000 acre-feet per year but vary by water year type (NRDC et al. 2006). The current SJRRP flow hydrograph, referred to as the funding constrained hydrograph, differs from the hydrograph in Exhibit B because it reduces peak flows and spreads flows over longer periods to meet existing channel capacity constraints. Increased releases of Restoration Flows consistent with Exhibit B will occur as channel capacity improvements are implemented by the SJRRP.

Even though full implementation of the SJRRP has not been realized, Restoration Flow releases have impacted water supplies available to the Friant Division. As these impacts have occurred, per the SJRRP objectives, Reclamation has actively helped reduce water delivery impacts by facilitating and/or participating in the following activities: recapture, recirculation, exchange, transfer, and reuse of Restoration Flows; delivery of wet year water supplies based on quantified impacts of reduced deliveries as recorded in the Recovered Water Account; construction of groundwater recharge facilities; and other activities. Additional projects will be needed to advance and expand these activities in the future to minimize water delivery impacts, especially with full implementation of the SJRRP. The average annual decrease in available water supplies to Friant Division contractors is estimated to be 254 TAF per year at full implementation of the SJRRP including a 39 TAF per year reduction to Class 1 supplies and a 215 TAF per year reduction to Class 2 supplies (Reclamation 2011). The impacts to future water supplies were allocated to each subbasin using the percentage of Class 1 and Class 2 contract amounts in each subbasin (Table 2-3).

Table 2-3: Estimated Water Supply Impacts of the San Joaquin River Restoration Program By Subbasin.

Subbasin	Class 1 (TAF)	Class 2 (TAF)	Class 1 (% of Total Class 1)	Class 2 (% of Total Class 2)	Full Implementation of SJRRP* (TAF/yr)
Chowchilla	55.00	160.00	6.88%	11.42%	27
Madera	85.20	200.00	10.65%	14.27%	35
Kings	107.10	75.00	13.39%	5.35%	17
Kaweah	123.00	189.90	15.38%	13.55%	35
Tule	242.70	380.30	30.34%	27.14%	70
Kern	187.00	396.28	23.38%	28.28%	70
Total	**800.00**	**1401.48**	**100%**	**100%**	**254**

Notes:

* Assumes long-term average annual contribution of 39 TAF per year from Class 1 supplies and 215 TAF per year from Class 2 and 215 supplies. Rounded to the nearest 1 TAF per year

Key:

TAF- thousand acre-feet, TAF/yr- thousand acre-feet per year, SJRRP- San Joaquin River Restoration Program

Healthy Rivers and Landscapes Program

The Healthy Rivers and Landscapes Program is currently being negotiated. However, the MOU signed in 2022 outlines the terms and obligations including flow contributions from the San Joaquin River Basin, Friant Division, and other sources (HRLP 2022; Table 2-4). As mentioned previously, the MOU includes placeholders for contributions for the San Joaquin tributaries because water rights holders on those rivers did not sign the MOU. Here, the projected water supply impacts of the Healthy Rivers and Landscapes program are estimated for each subbasin using several assumptions (Table 2-5). Friant's obligation of 50 thousand acre-feet (TAF) per year in dry, below normal and above normal water year types was allocated to contractors using the same allocation as for the SJRRP and then aggregated to the subbasin level. The contribution of the SWP and CVP to Healthy Rivers and Landscapes is an export reduction of 125 TAF in dry and below normal years and a reduction of 175 TAF in above normal years. For modeling purposes, these reductions have been allocated equally among the SWP and CVP. The San Joaquin River Basin obligation to Healthy Rivers and Landscapes was allocated to the Stanislaus River but with reservoir reoperation on the Tuolumne and Stanislaus Rivers to regulate water historically leaving the subbasin to achieve a desired release schedule. The estimated water supply impacts for entities in the San Joaquin Valley average 68 TAF acre-feet/year.

Table 2-4: Contributions by Participant to the Healthy Rivers and Landscapes Program.

	Water Year Type & Frequency						
Water Source	**C**	**D**	**BN**	**AN**	**W**	**Weighted Average**	**Obligation**
	15%	22%	17%	14%	32%		
	[TAF]	[TAF]	[TAF]	[TAF]	[TAF]	[TAF]	
CVP/SWP Export Reduction	0	125	125	175	0	73.25	50/50 SWP/CVP
Friant	0	50	50	50	0	26.50	Friant Contractors

Source: https://resources.ca.gov/-/media/CNRA-Website/Files/NewsRoom/Voluntary-Agreement-Package-March-29-2022.pdf

Table 2-5: Estimated Contributions by Subbasin to the Healthy Rivers and Landscapes Program.

Subbasin	**Contributions [TAF]**				
	SJR Tributaries	**Friant**	**SWP**	**CVP**	**Total**
Eastern San Joaquin	0	0	0	0	0
Tracy		0	0	1	1
Delta-Mendota		0	0.05	8.09	8
Modesto	0	0	0	0	0
Turlock	0	0	0	0	0
Merced	0	0	0	0	0
Chowchilla		2.82	0	0	3

Madera		3.61	0	0	4
Westside		0	0	18.53	19
Pleasant Valley		0	0	0	0
Tulare Lake		0	1.36	0	1
Kings		1.73	0	0.85	3
Kaweah		3.76	0	0.08	4
Tule		7.27	0	0.99	8
Kern		7.32	8.88	0.85	17
White Wolf		0	0	0	0
Total		**26.51**	**10.29**	**30.39**	**68**

Notes:

SWP is 50% of the 73.25 and then allocated to contractors by Table A contract amounts, of which approximately 25% are in the San Joaquin Valley

CVP is 50% of the 73.25 and then allocated to contractors by South of Delta amounts, of which approximately 83% are in the San Joaquin Valley

*Total rounded to nearest 1 TAF.

Hydrologic Variability

Forecasted warmer temperatures and associated changing precipitation patterns will affect water demands and in-valley surface water supplies. Forecasted warmer temperatures will directly increase evapotranspiration and, consequently, irrigation demand. In addition, forecasted warmer temperatures will cause winter precipitation to fall as rain (as opposed to snow). In addition to this directly increasing the likelihood of flooding (DWR 2024), it could conflict with the designed operation of many flood control facilities. This includes the reservoirs in the San Joaquin Valley designed to provide flood control during the winter months and to manage snowmelt during the late spring and summer months to meet irrigation and other demands. It is possible that increased winter precipitation falling as rain will result in increased flood releases necessary to maintain storage capacity for flood protection. This, and a decrease in snowmelt, could result in a net decrease of regulated water necessary to meet demands in the San Joaquin Valley.

Imported Surface Water Supplies

The Delta is the keystone of California's water system because it is where major rivers in the Central Valley converge and because it is the largest source of imported surface water supplies for many areas south of the Delta. Water from the Delta, the majority of which is sourced from the Sacramento River in the northern portion of the state, is diverted into the CVP and SWP for conveyance to areas south of the Delta. The Delta is the focus of a complex local, state, and federal regulatory framework that manages deliveries to the Delta, exports from the Delta, and water quality in the Delta. The management of the Delta involves multiple state and federal agencies including Reclamation, California Department of Water Resources, Delta Stewardship Council, State Water Board, Reclamation, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and others.

The CVP and SWP include storage and conveyance facilities north and south of the Delta. Facilities north of the Delta are used, in part, to manage water and make deliveries to the Delta. CVP facilities south of the Delta include the DMC and the San Luis Canal. The California Aqueduct supplies

water to South-of-Delta SWP contractors (Table 2-6, from DWR (2024a) Bulletin 132-2021). The CVP units south of the Delta provide water to 37 contractors with contracts exceeding 3.5 MAF/year (Table 2-7, from USBR [2016]).

Table 2-6: South-of-Delta State Water Project Contractors and Contract Amounts.

Water District	Contract Amount (TAF)	Subbasin with Study Area
Alameda County Flood Control & WCD, Zone 7	80.62	-
Alameda County WD	42.00	-
Santa Clara Valley WD	100.00	-
County of Kings	9.31	Tulare Lake
Dudley Ridge WD	50.34	Tulare Lake
Empire West Side ID	2.00	Tulare Lake
Kern County Water Agency	982.73	Kern
Oak Flat WD	5.70	Delta-Mendota
Tulare Lake Basin WSD	88.92	Tulare Lake
San Luis Obispo County Flood Control & WCD	25.00	-
Santa Barbara County Flood Control & WCD	45.49	-
Antelope Valley-East Kern Water Agency	141.40	-
Castaic Lake Water Agency	92.50	-
Coachella Valley WD	138.35	-
Crestline-Lake Arrowhead Water Agency	5.80	-
Desert Water Agency	55.75	-
Littlerock Creek ID	2.30	-
Mojave Water Agency	82.80	-
Palmdale WD	21.30	-
San Bernadino Valley Municipal WD	102.60	-
San Gabriel Valley Municipal WD	28.80	-
San Gorgonio Pass Water Agency	17.30	-
Metropolitan WD of Southern CA	1,911.50	-
Ventura Country Flood Control District	20.00	-
South of Delta Total	**4,055.21**	

Table 2-7: South of Delta Central Valley Project Contractors and Contract Amounts.

Contractor	Contract Amount (TAF)	Subbasin within Study Area
Refuge Level II	325.00	Various
Central California ID	532.40	Delta-Mendota
Firebaugh Canal WD	85.00	Delta-Mendota
San Luis Canal Company	163.60	Delta-Mendota
Columbia Canal Company	59.00	Delta-Mendota
Fresno Slough WD	4.87	Delta-Mendota
Grassland WD	53.50	Delta-Mendota (Refuge)
James ID	45.00	Kings
Reclamation District 1606	0.57	Kings
Tranquility ID	34.00	Delta-Mendota
Contra Costa WD	195.00	-
Banta-Carbona ID	20.00	Tracy
City of Tracy	17.50	Tracy
Del Puerto WD	140.21	Delta-Mendota
Patterson ID	22.50	Delta-Mendota
Byron-Bethany ID	20.60	Tracy
West Side ID	5.00	Tracy
West Stanislaus ID	50.00	Delta-Mendota
Panoche WD	94.00	Delta-Mendota
San Luis WD	125.08	Delta-Mendota
Westlands WD	1,168.38	Westside
Panoche Drainage District	-	Delta-Mendota
Pleasant Valley	-	Pleasant Valley
San Benito County WD	43.80	-
Santa Clara Valley WD	154.07	-
Pajaro Valley	-	
Broadview WD	27.00	Delta-Mendota
Eagle Field WD	4.55	Delta-Mendota
Laguna WD	0.80	Kings
Mercy Springs WD	2.84	Delta-Mendota
Oro Loma WD	0.00	Delta-Mendota
Pacheco WD	10.08	Delta-Mendota
Turner Island WD	-	Delta-Mendota
FT Land LLC	0.60	
County of Fresno	3.00	Kings
Hills Valley ID	3.35	Kings
Kern-Tulare WD	53.30	Kern
Lower Tule River ID	31.10	Tule
Pixley ID	31.10	Tule
Tri-Valley WD	1.14	Kings
County of Tulare	5.31	Kaweah
Total	**3,533.25**	

Hydrologic Variability

Future warmer temperatures and associated hydrologic variability are expected to have a significant and adverse impact on Delta exports by the CVP and SWP. Sea level rise will increase the potential intrusion of high salinity water into the Delta, requiring more Delta outflow to meet water quality standards, leaving less water for export. In addition, more precipitation is expected to fall as rain, as opposed to snow, and will occur earlier in the water year. Scenarios were simulated in CalSim under various future climate scenarios. For the purposes of this Plan, a 50% level of concern (a median scenario) was used to simulate potential impacts on future Delta exports. Simulated average annual impacts to south of Delta CVP and SWP supplies are estimated to be 174,000 acre-feet and 273,000 acre-feet respectively, which includes exports to areas outside of the San Joaquin Valley. The impacts for San Joaquin Valley subbasins were estimated by allocating shortages for each project to contractors in proportion to the contract quantity, and aggregating contractor shortages to the subbasin level and total 241 TAF for the San Joaquin Valley (Table 2.16).

Table 2-8: Estimated Annual Decrease in CVP and SWP Delta Imports by Subbasin due to Climate Change.

Subbasin	Decrease in Delta Imports* (TAF)
Tracy	4
Delta-Mendota	48
Westside	94
Tulare Lake	10
Kings	5
Kaweah	1
Tule	7
Kern	72
Total	**241**

*Simulated in CalSim and rounded to nearest 1 TAF.

Groundwater Supplies

Vast quantities of groundwater accumulated in the aquifers of the San Joaquin Valley over centuries. The primary input was the natural recharge of surface water sourced primarily from snowmelt runoff from the Sierra Nevada Mountains. As described previously, groundwater extraction began in the late 19th century and continues today. The rate of extraction over time has largely exceeded the rate of recharge due to the reduction of natural recharge due to development of surface water resources, and a general reliance on groundwater resources. As reported in GSPs submitted to DWR and made available on DWR's website, based on data from approximately the mid- to late- 20th century to the mid-2010s, around 8.5 million acre-feet per year of groundwater is extracted from aquifers of the San Joaquin Valley (Table 2-9). The estimated total reduction in groundwater storage is 1.5 million acre-feet per year (i.e., the amount by which extractions exceed inputs). Similar estimates have been developed by the Public Policy Institute of California (PPIC 2023) (Table 2-9).

Table 2-9: Estimated Historical Groundwater Extraction and Overdraft.

Subbasin	Average Annual Extraction (TAF)	Average Annual Reduction in Storage (TAF)	Average Annual Reduction in Storage (TAF)
	GSPs*	GSPs*	PPIC^
Eastern San Joaquin	732	48	55
Modesto	311	43	13
Turlock	404	64	96
Merced	735	130	130
Chowchilla	265	29	108
Madera	472	34	150
Delta-Mendota	409	92	88
Tracy – Non-Delta Area	167	3	0
Kings	1,374	217	198
Westside	324	19	28
Pleasant Valley		36	NA
Kaweah	154	28	141
Tulare Lake	381	86	92
Tule	712	160	167
Kern	1,590	277	578
White Wolf	??	??	5
Total	**8,031**	**1,224**	**1,840**

Notes:

* Data compiled from the most recent version of GSPs submitted to DWR.

^ Data from the Public Policy Institute of California (2023).

All volumes rounded to nearest 1 TAF.

The quality of the San Joaquin Valley's groundwater is compromised by both natural and human-induced contaminants. Common pollutants include nitrates, pesticides, heavy metals, solvents, and disease-causing organisms, along with naturally occurring elements like arsenic and uranium. Salinity is a major concern, particularly on the Valley's west side, where oceanic influences have led to higher salt concentrations (Figure 2-2). Agricultural practices, water imports, and long-term land use have exacerbated salt accumulation, impairing over 1.5 million acres and causing significant economic losses including approximately 250,000 acres being taken out of agricultural production (CV SALTS 2025). Reducing groundwater levels also can adversely affect groundwater quality as contaminants accumulate in the aquifers. Groundwater quality is monitored through sampling wells, with data collected on total dissolved solids (TDS), nutrients, pesticides, trace elements, and radionuclides. Regulatory oversight is provided by the State Water Board and the Central Valley Water Quality Control Board, primarily through the SAFER program, to ensure safe drinking water access.

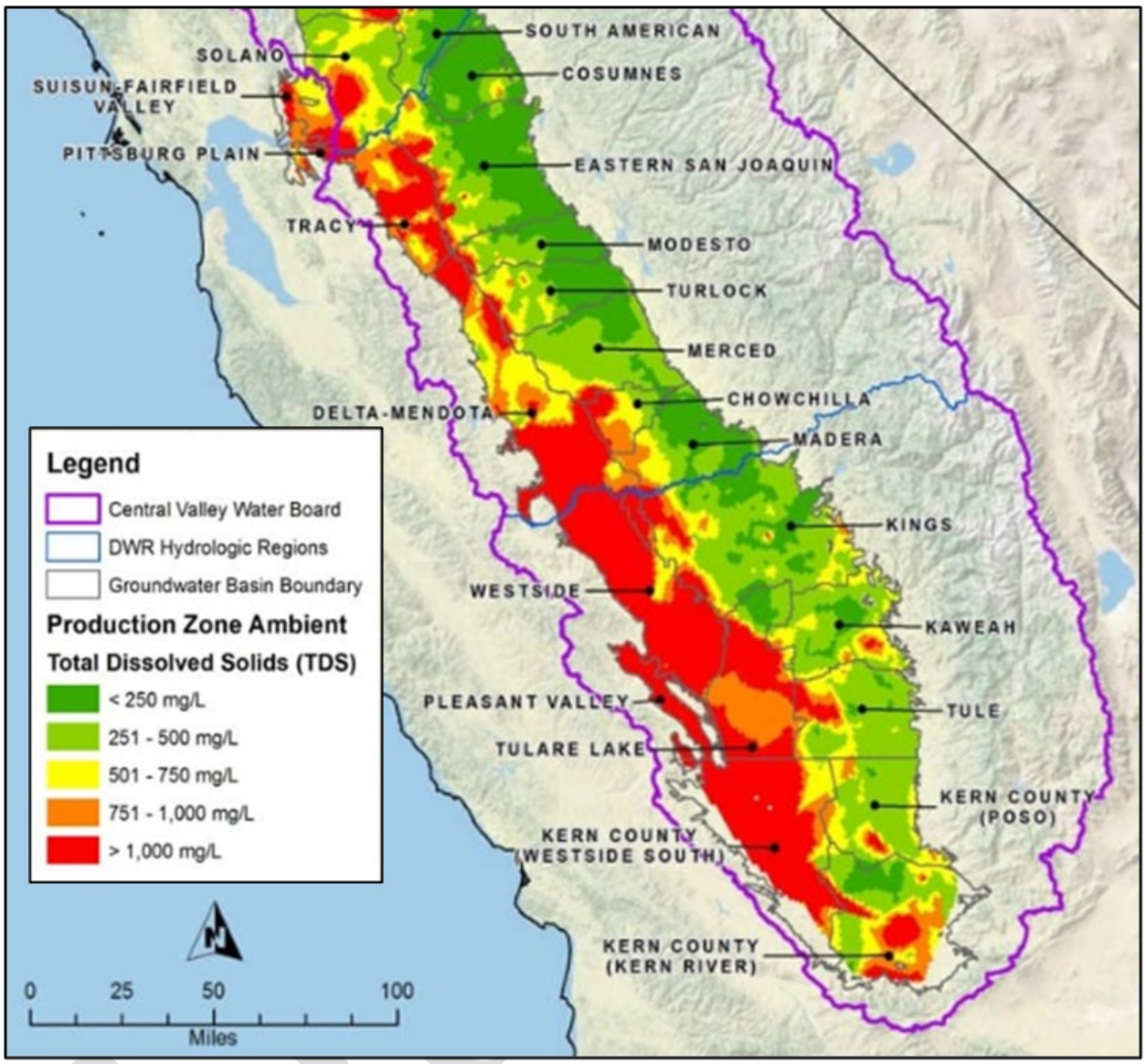

Figure from CV-SALTS 2025.

Figure 2-2: Total Dissolved Salt Concentrations in the San Joaquin Valley.

Sustainable Groundwater Management

The Sustainable Groundwater Management Act was passed in 2014 and requires critically overdrafted subbasins be brought to sustainability by 2040. It is the first region-wide groundwater management regulatory program governing the San Joaquin Valley, where water users have historically avoided a groundwater adjudication process. Subbasins, as defined in California's Groundwater (Bulletin 118), are required to develop groundwater sustainability plans (GSPs) that avoid adverse effects of groundwater overdraft including: persistent lowering of groundwater levels, significant and unreasonable reductions in groundwater storage, significant and unreasonable saltwater intrusion, significant and unreasonable degradation of water quality, significant and

unreasonable land subsidence, surface water depletion having significant and unreasonable effects on beneficial uses.

GSPs were submitted to DWR for review in 2020. After rounds of reviews by DWR and revisions by the GSAs, GSPs for all subbasins in the San Joaquin Valley have been accepted by DWR except for Delta-Mendota, Chowchilla, Pleasant Valley, Tulare Lake, Kaweah, Tule and Kern. If these the revised GSPs in these subbasins are deemed inadequate by DWR, they could be referred to the State Water Board (State Water Board). The Board could put the subbasin on probation and take over management of the subbasin. Regardless, all subbasins are required to be sustainable by 2040. For water supply, this means that the reduction in groundwater storage values in Table 2-9 need to be brought to zero and, to ensure that groundwater levels rebound beyond critical threshold, aquifers need to be replenished (i.e., the rate of recharge needs to exceed the rate of extraction). For the purposes of this Plan, it is assumed that replenishment rates need to be 50% of the average annual reduction reported in Table 2-9.

Land Subsidence

Subsidence is an ongoing regional issue and has been observed throughout the San Joaquin Valley as far back as the 1920s (Figure 2-3). Land subsidence in the region has been attributed to several activities including oil and gas extraction, but the dominant cause of subsidence has been groundwater overdraft (DWR 2024b). As mentioned, subsidence was one of the drivers of the CVP and SWP to allow for an increase in surface water deliveries in the San Joaquin Valley and elsewhere. However, the expansion of agricultural development and the reduction in availability of surface water supplies have increased reliance on groundwater in certain areas. As a result, groundwater overdraft continues to drive subsidence in many areas of the San Joaquin Valley (Figure 2-4). Subsidence occurs where the overdraft takes place and often cross geopolitical lines defining counties, communities, and local agencies and districts, including GSAs. As a result, subsidence is observed within geopolitical boundaries that are not causing it to occur.

Regional land subsidence adversely affects communities, infrastructure, and natural systems. For example, at the community level, a recent study shows that regional land subsidence in the San Joaquin Valley adversely impacts home sale values (Mehdi et al. 2025). At a regional level, linear features, such as roads and canals, are affected by differential subsidence are most susceptible to damage, experience loss of function and other negative impacts (USGS 2013, DWR 2017, Reclamation 2020). For example, subsidence in Tulare County decreased the capacity of the FKC by more than 50% through a portion known as the "Middle Reach". Over $300M in local, state and federal investments were made through the Friant Kern Canal Phase 1 Middle Reach Capacity Correction Project to restore capacity to historical delivery capability, however additional actions are needed to address remaining capacity reductions. Subsidence has also decreased the capacity of the Delta Mendota Canal, San Luis Canal and California Aqueduct. Restoring design capacity to the FKC, DMC, SLC and California Aqueduct to address historical and projected future subsidence will require several billions of dollars in corrective actions.

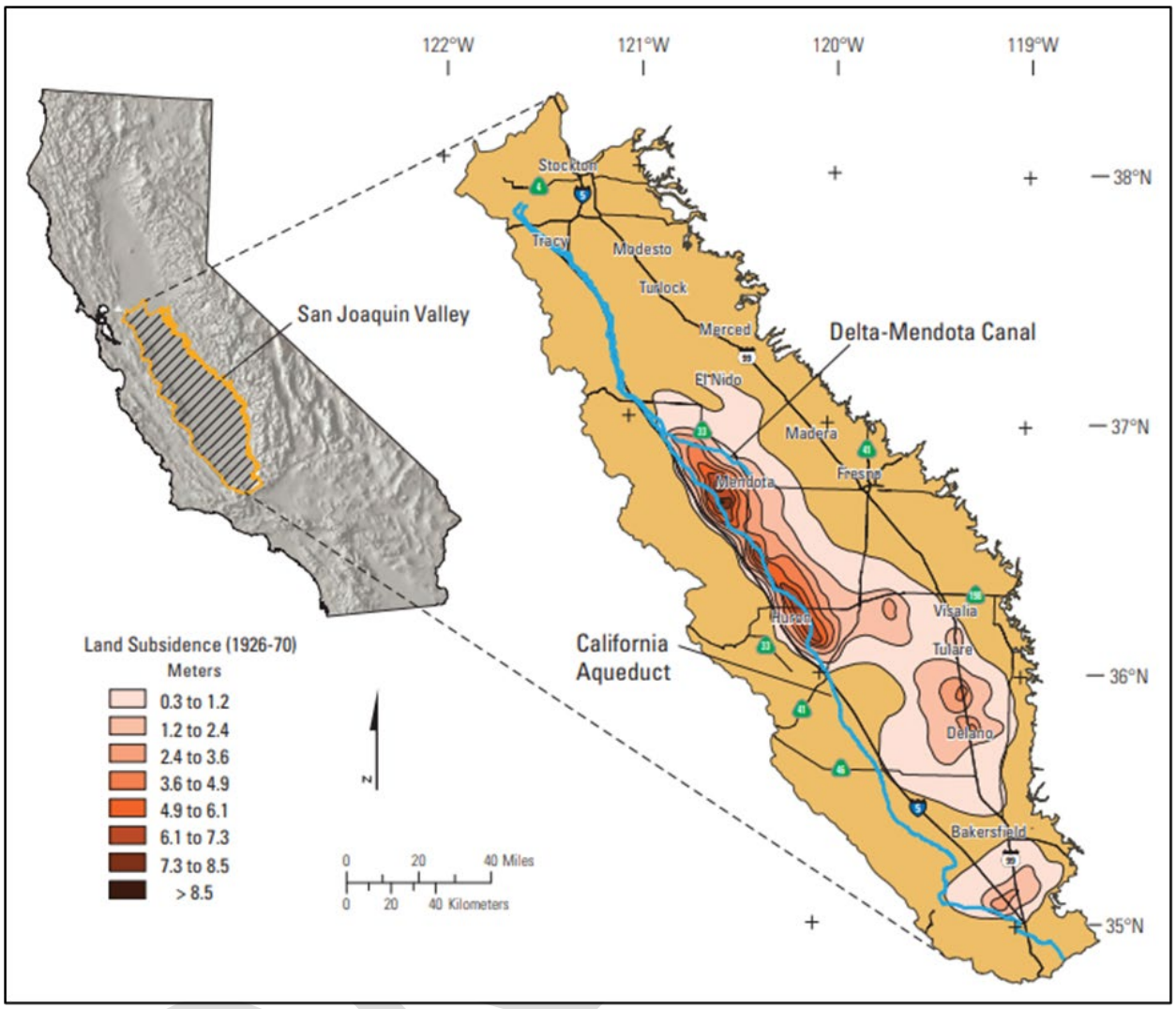

Figure from USGS 2018.

Figure 2-3: Land Subsidence in the San Joaquin Valley from 1926 to 1970.

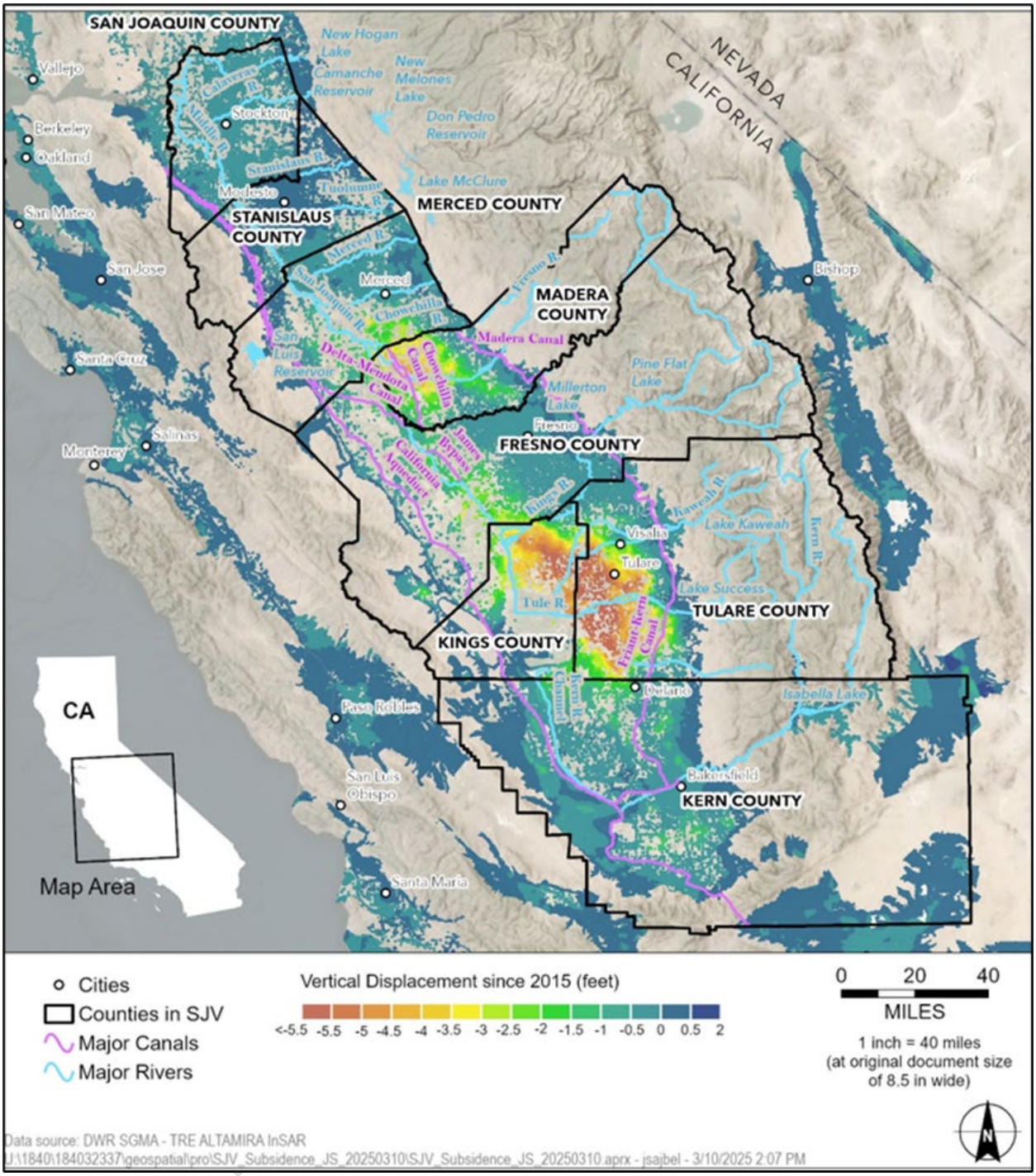

Figure 2-4: Land Subsidence in the San Joaquin Valley from 2015 to Present.

Existing Demands

Water demands in the San Joaquin Valley are influenced by the evolving regulatory environment and hydrologic variability, as well as land use changes. For the purposes of this Plan, water demands are described in-terms of their relative difference to water supplies. The relative difference, or water supply-demand gap is estimated in this section for existing conditions. Projected future changes to the existing water supply-demand gap are also estimated in this section based only on demand changes. Later in this chapter, projected future changes to water supplies are combined with these projected future changes to only demands to project a total future water supply-demand gap.

Unmet Incremental Level 4 Refuge Supplies

The San Joaquin Valley is home to 18 federal and state wildlife refuges that are required to receive water supplies as stipulated in the CVPIA. These water supplies, managed by Reclamation, are comprised of Level 2 and Level 4 supplies. The demand for full Level 4 supplies is 376.5 TAF (CVJV 2020). The CVPIA stipulates that a portion of those demands, referred to as Level 2 supplies, be delivered by Reclamation to the wildlife refuges annually and are subject to reductions during dry periods. Total Level 2 demand is about 271.0 TAF. The remaining demand of 105.5 TAF is referred to as Incremental Level 4 and is to be acquired through purchase from willing sellers. Conveyance losses add 17.2 TAF (or 15%) and require that 122.7 TAF be purchased. However, due to state and federal budget constraints, increased prices of spot market water and variability of supplies, Incremental Level 4 demands for refuges are not met consistently (CVJV 2020). Unmet water needs for wildlife refuges have been estimated to be 92.6 TAF, including 12.1 TAF for conveyance losses (CVJV 2020).

Existing Supply-Demand Gap

The Sustainable Groundwater Management Act (SGMA) requires that subbasins in the San Joaquin Valley be brought to sustainability by 2040. Assuming that groundwater has been used to meet demands that are unable to be met by surface water supplies (either in-valley or imported), it can be assumed that the existing gap between available water supplies and water demands in the San Joaquin Valley is represented by groundwater overdraft. The estimated groundwater overdraft for each subbasin is presented in Table 2-9. The total overdraft across all subbasins ranges from 1.2 to 1.8 MAF/yr as calculated from the GSPs and the PPIC, respectively. These overdraft volumes can be combined with the estimated unmet water needs for wildlife refuges to define the existing supply-demand gap, which varies from 1.3 to 1.9 MAF/yr (Table 2-10).

Table 2-10: Existing Annual Water-Supply Demand Gap in the San Joaquin Valley.

Subbasin	GSP Overdraft (TAF)	PPIC Overdraft (TAF)	Unmet IL4 Demands (TAF)	GSP Based Existing Gap (TAF)	PPIC-Based Existing Gap (TAF)
Eastern San Joaquin	48	55	0	48	55
Tracy	3	0	0	3	0
Delta-Mendota	92	88	31	123	119
Modesto	43	13	0	43	13
Turlock	64	96	0	64	96

Merced	130	130	13	143	143
Chowchilla	29	108	0	29	108
Madera	34	150	0	34	150
Westside	19	28	0	19	28
Pleasant Valley	36	--	0	36	--
Tulare Lake	86	92	0	86	92
Kings	217	198	0	217	198
Kaweah	28	141	0	28	141
Tule	160	167	5	165	172
Kern	277	578	7	284	585
White Wolf	5	5	0	0	5
Total	**1271**	**1,849**	**56**	**1,327**	**1,905**

Future Demand Changes

Future changes to water demand in the San Joaquin Valley will be driven by climate change and demands for wildlife refuges. It is assumed that projected future population growth will not increase water demands because urban growth will occur via conversion of agricultural land. Climate change will increase water demands in the San Joaquin Valley due to warmer temperatures and increased evapotranspiration (ET). The PPIC (2023) estimates that ET demands will increase approximately 70.0 AF/yr across the San Joaquin Valley (or a uniform increase of approximately 1.55% when allocated across the subbasins based on irrigated acreage) (Table 2-11). Additionally, it is possible that Incremental Level 4 demands will be more difficult to acquire due to increases in the cost of acquiring supplies. As such, the difference between the full Incremental Level 4 Supplies and Unmet Level 4 supplies, referred to as the "at-risk" Incremental Level 4 supplies are assumed in changes to future demands (Table 2-11). These projected demand increases are added to the existing supply-demand gap to estimate the demand-only projected future change to the supply-demand gap (Table 2-11). In the next section, these demand changes are combined with supply changes to define the total supply-demand gap.

Table 2-11: Projected Future Changes to Existing Annual Demands.

	Increase in ET Demand (TAF)	At Risk IL4 Demands (TAF)	GSP Based Future Gap from Only Demand Changes (TAF)	PPIC Based Future Gap from Only Demand Changes (TAF)
Eastern San Joaquin	6	-	54	61
Tracy	2	-	5	2
Delta-Mendota	7	44	174	170
Modesto	2	-	45	15
Turlock	3	-	67	99
Merced	4	-	147	147

Chowchilla	2	-	31	110
Madera	3	-	37	153
Westside	6	-	25	34
Pleasant Valley	-	-	36	
Tulare Lake	4	-	90	96
Kings	10	-	227	208
Kaweah	5	-	33	146
Tule	4	-	169	176
Kern	12	8	304	605
White Wolf	1	-	6	6
Total	**71**	**52**	**1,450**	**2,028**

Problems and Needs

The water supply-demand gap in the San Joaquin Valley is influenced by changes to both supplies and demands. This section of the report takes the existing water-supply demand gap defined previously with projected future changes to demand, and combines it with projected future changes to water supplies to estimate the projected future total water-supply demand gap. Water supply effects on disadvantaged communities are also addressed.

Future Water Supply-Demand Gap

The existing water supply-demand gap in the San Joaquin Valley was defined previously as ranging from 1.3 to 1.9 MAF/yr (Table 2-10) by combining estimates for groundwater overdraft with current unmet demands for wildlife refuges. Projected future changes to demands only would increase the gap to 1.4 to 2.0 MAF/yr (Table 2-11). However, as detailed in the above sections, the availability of groundwater and surface water supplies in the San Joaquin Valley is expected to decrease due to regulatory programs (e.g., SGMA, SJRRP, and HRL) and hydrologic variability. Estimated reductions from each of those sources are provided in Table 2-12, as is the projected future total water supply-demand gap, which is 2.4 to 3.0 MF/yr. This is the estimated water supply need in the San Joaquin Valley to bring each of the subbasins into balance.

Table 2-12: Total Projected Future Water Supply-Demand Gap in the San Joaquin Valley.

	Demand Changes		Groundwater	Surface Water			Supply-Demand Gap	
Subbasin	GSP Future Gap from Only Demand Changes (TAF)	PPIC Future Gap from Only Demand Changes (TAF)	Provision for Replenishment[1] (TAF)	SJRRP Contribution (TAF)	HRL Contribution (TAF)	Reduced Delta Imports[2] (TAF)	PPIC Total Supply-Demand Gap[3] (TAF)	GSP Total Supply-Demand Gap[4] (TAF)
Eastern SJ	54	61	13	-	-	-	67	74
Tracy	5	2	0	-	1	4	10	7
Delta-Mendota	174	170	23	-	8	48	253	249
Modesto	45	15	7	-	-	-	52	22
Turlock	67	99	20	-	-	-	87	119
Merced	147	147	33	-	-	-	180	180
Chowchilla	31	110	17	27	3	-	78	157
Madera	37	153	23	35	4	-	99	215
Westside	25	34	6	-	19	94	144	153
Pleasant Valley	36	-	9	-	-	-	45	-
Tulare Lake	90	96	22	-	1	10	123	129
Kings	227	208	52	17	3	5	304	285
Kaweah	33	146	21	35	4	1	94	207
Tule	169	176	41	70	8	7	295	302
Kern	304	605	107	70	17	72	570	871
White Wolf	6	6	1	-	-	-	7	7
Total*	1,450	2,028	395	254	68	241	**2,408**	**2,977**

Notes:

1. Provision for the future replenishment of groundwater supplies in addition to eliminating overdraft. Calculated as 25% of the average GSP and PPIC-based overdraft.
2. Includes climate change effects of local supplies on the east side of the San Joaquin Hydrologic Region and on exports from the Delta. <currently working on updates>
3. Total supply-demand gap using the GSP estimates of groundwater overdraft.
4. Total supply-demand gap using the PPIC estimates of groundwater overdraft.

Key:

Eastern SJ = Eastern San Joaquin
GSP = Groundwater sustainability plan
HRL = Healthy Rivers and Landscapes Program
PPIC = Pacific Policy Institute of California
SJRRP = San Joaquin River Restoration Program
TAF = Thousand acre-feet

Water Supply Effects on Disadvantaged Communities

Over 300 disadvantaged communities (DACs) in California's San Joaquin Valley—defined as areas with a median household income less than 80% of the statewide average—face persistent water supply challenges due to environmental burdens, limited institutional capacity, and historical disenfranchisement. Nearly all rely on groundwater for domestic use, with around 130 disadvantaged unincorporated communities (DUCs) representing the most vulnerable, totaling approximately 200,000 residents. These communities often contend with groundwater that fails to meet drinking water quality standards, lacks reliability, or is accessed through shallow wells prone to drying during droughts.

Various projects, programs, plans and other resources have been implemented to support DACs. The Safe and Affordable Funding for Equity and Resilience (SAFER) program is being implemented by the State Water Board. SAFER has made progress in identifying at-risk water supply systems and water quality issues for disadvantaged communities and implementing solutions. GSPs vary in their approaches with addressing supply needs of disadvantaged communities, with some plans proposing mitigation strategies and water level thresholds, while others lack specific programs – at least initially (PPIC 2020). Additionally, non-profit organizations like Self-Help's Community Engagement & Planning (CEP) team play a vital role by empowering community representatives to engage with GSAs, water districts, and state agencies, helping bridge the gap between technical planning and community advocacy.

To support DACs, water supply projects must promote long-term solutions that improve groundwater levels and water quality. Projects that increase surface water supplies to communities, subbasins, and regions will decrease reliance on groundwater and improve groundwater conditions for DACs. Other projects could target recharge of high-quality water near community wells and enhance drinking water over time, while setting recovery targets for groundwater levels. Additionally, the gap between water management agencies and DACs can continue to be bridged through various means such as community members serving on GSA advisory boards, providing public comments on policies and plans, attending and participating in public meetings, and advocating for themselves with various stakeholders such as water districts, GSAs, water management agencies and governing bodies. Non-profit organizations like CEP continue to support these objectives to bridge gaps.

Catastrophic Risks

Water resources in the San Joaquin Valley face critical risks from both natural and human-induced threats. Natural disasters such as earthquakes and floods can severely damage infrastructure like canals, reservoirs, and levees, which is evident in events like the 2017 Oroville Dam spillway failure caused by excess rain and high runoff. Levee failures in the Delta, including the 2004 Jones Tract flood, have caused extensive damage and pose a serious risk of saltwater intrusion, which could compromise water supplies for Southern California. Extended droughts, including the 2020–2022 event, have led to severe water rationing and threaten the reliability of water banking programs and other dry-year supplies when reservoir levels are too low to support exchanges. Anthropogenic risks further compound these challenges. Land subsidence, driven by excessive groundwater pumping, undermines infrastructure and long-term water availability. Contamination from agricultural runoff

and accidental spills has negatively affected groundwater quality. These combined risks highlight the urgent need for resilient water supply projects to protect both infrastructure and water quality in the region.

Economic Considerations

Water affordability is an increasing concern in the San Joaquin Valley, especially during drought years when surface water deliveries are low and farmers must turn to expensive spot markets to sustain crops. In such conditions, water prices can exceed $1,000 per acre-foot. Even under long-term contracts like those of the State Water Project (SWP), fixed costs remain constant regardless of how much water is delivered. Anecdotally, for example, a 20% SWP allocation can cause per-acre-foot costs to quadruple, making water unaffordable for many growers. While a project may be economically feasible over its lifetime, fluctuating commodity prices can make annual payments unsustainable for farmers, especially during prolonged downturns.

The broader economic consequences of unreliable water supplies are substantial. If groundwater sustainability is achieved primarily through land fallowing without new water supplies, up to one million acres could be taken out of production, resulting in an estimated $7.2 billion annual loss in farm revenue (Sunding and Roland-Holst 2020). This would lead to an average loss of 42,000 agricultural and service sector jobs, with total employment impacts (including related industries like transportation and food processing) reaching 85,000 jobs and $2.1 billion in lost employee compensation annually. These figures underscore the urgent need for affordable, reliable water supplies to sustain the Valley's agricultural economy and communities.

Opportunities

Water supply projects in the San Joaquin Valley offer a unique opportunity to address not only the region's chronic supply-demand imbalance but also a range of interconnected flood, environmental and social challenges. Investments in new and aging water infrastructure can improve the flexibility and reliability of surface water deliveries, support groundwater recharge, reduce flood risks, and support wildlife refuges and other environmental needs. A multi-sector approach to constructing new facilities and making upgrades to aging facilities can simultaneously replenish aquifers, restore domestic wells, and enhance ecosystem health, particularly in the face of climate-driven extremes like drought and flooding (DWR 2023). As outlined in Chapters 3 and 4 of this report, potential investments could address environmental and flood control problems and needs, as well. Furthermore, potential investments can advance water equity by improving access to water for disadvantaged communities and improving groundwater levels for municipal and domestic wells that serve disadvantaged communities and other rural communities.

Opportunities also exist for regional and statewide partnerships that could be used to address the cost of large investments. Exploring potential partnership opportunities with water supply agencies around the region and state could lead to the development of projects that provide multiple benefits to multiple regions. For example, investments into surface and groundwater storage projects in the San Joaquin Valley could provide benefits to water agencies that are able to access supplies through the CVP, SWP, and other conveyance systems.

Chapter 7 References

California Natural Resources Agency (CNRA) et al. 2022. Memorandum of Understanding Advancing at Term Sheet for the Voluntary Agreements to Update and Implement the Bay-Delta Water Quality Control Plan, and other Related Items. Accessed 2025. Available at: https://resources.ca.gov/-/media/CNRA-Website/Files/NewsRoom/Voluntary-Agreement-Package-March-29-2022.pdf

California Water Commission (CWC). 2025. Proposition 1 Water Storage Investment Program: Funding the Public Benefits of Water Storage Projects. Accessed on September 15, 2025. Available at: https://cwc.ca.gov/Water-Storage

Central Valey Joint Venture (SVJV). 2020. 2020 Implementation Plan. Accessed August, 2025. Available at: https://www.centralvalleyjointventure.org/our-science/implementation-plans/

Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS). 2025. Salt Control Program Overview. Accessed August 2025. Available at: https://www.cvsalinity.org/salt-program/

Department of Water Resources (DWR). 2024. Merced River Watershed Flood-MAR Reconnaissance Study Report, Statewide Infrastructure Investigations Branch, California Department of Water Resources, Sacramento. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Flood-Management/Flood-MAR/230410_Merced-R_FloodMAR-Reconnaissance-Study_Division-Report_v7.pdf

Departments of Water Resources (DWR) 2024b. Probabilistic Subsidence Forecast Model for the California Aqueduct Subsidence Program, San Joaquin Valley, California: Revision 1. Accessed August 2025. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Engineering-And-Construction/Files/Subsidence/CASP_SSHAC_Rept_Rev1_241010-3_ADA_combined.pdf

DWR. 2023. San Joaquin Valley Conveyance Study: Multi-Sector Conveyance for a Resilient San Joaquin Valley. Accessed on September 15, 2025. Available at: https://water.ca.gov/-/media/CWC-Website/Files/Documents/2023/08_August/August2023_Item_12_Attach_3_SJVHandout_Final.pdf

DWR. 2017. California Aqueduct Subsidence Study. Accessed August 2025. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Engineering-And-Construction/Files/Subsidence/Aqueduct_Subsidence_Study-Accessibility_Compatibility.pdf?la=en&hash=8B822EF535EACA58D36F2E65624AD5CF393E0BE7

Mehdi, Sneed and Dinar. 2025. Impact of Land Subsidence on Housing Sale Values. Land Economics, Jul 2025, 092324-0083R. Accessed August 2025. Available at: https://le.uwpress.org/content/early/2025/07/22/le.102.1.092324-0083R

National Oceanic and Atmospheric Administration (NOAA). 2025. California Nevada River Forecast Center. Accessed on August 14, 2025. Available at: https://www.cnrfc.noaa.gov/water_resources_update.php

Natural Resources Defense Council (NRDC), et al. v. Kirk Rodgers, et al. 2006. No. CIV S-88-1658 LKK/GGH (E.D. Cal. Sept. 13, 2006) (Stipulation of Settlement), filed as Document 1341-1 in the United States District Court for the Eastern District of California: Accessed on September 11, 2025. Available at: https://www.restoresjr.net/wp-content/uploads/2015/01/Settlement_Stip_Final_As_Lodged_091306.pdf

Public Policy Institute of California (PPIC). 2023. The Future of Agriculture in the San Joaquin Valley – Technical Appendix. Accessed August 2025. Available at: https://www.ppic.org/wp-content/uploads/0223aeb-appendix.pdf

Public Policy Institute of California (PPIC). 2020. Will Groundwater Sustainability Plans End the Problem of Dry Drinking Water Wells? Public Policy Institute of California, Sacramento, California. Accessed on September 15, 2025. Available at: https://www.ppic.org/blog/will-groundwater-sustainability-plans-end-the-problem-of-dry-drinking-water-wells/

State Water Resources Control Board (State Water Board). 2000. Revised Water Right Decision 1641. Accessed August 2025. Available at: https://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/d1600_d1649/wrd1641_1999dec29.pdf

United States Bureau of Reclamation (Reclamation). 2020. Friant Kern Canal Middle Reach Capacity Correction Project Final EIS/R, United States Bureau of Reclamation, Sacramento, California. Accessed August 2025. Available at:

Reclamation. 2011 (Reclamation). Draft Programmatic Environmental Impact Statement for the San Joaquin River Restoration Program, San Joaquin Valley, California (CEQ #20110131), Surface Water Supplies and Facilities Operations Appendix. Accessed 2025. Available at: https://www.epa.gov/sites/default/files/documents/deis-comment-sjv-restore.pdf#:~:text=The%20Draft%20PEIS%20examines%20actions%20to%20implement%20a,the%20Central%20Valley%20Project%20Friant%20Irrigation%20District%20contract

United States Geological Survey (USGS). 2018. Land Subsidence in the San Joaquin Valley. Accessed August 2025. Available at: https://www.usgs.gov/centers/land-subsidence-in-california/science/land-subsidence-san-joaquin-valley

USGS. 2013. Land subsidence along the Delta-Mendota Canal in the northern part of the San Joaquin Valley, California, 2003–10: U.S. Geological Survey Scientific Investigations Report 2013–5142. Accessed August 2025. Available at: http://dx.doi.org/10.3133/sir20135142

SAN JOAQUIN VALLEY WATER
Collaborative Action Program

Plenary Group Meeting

Agenda

Tuesday, September 30, 2025 | 3:00-5:00

Meeting Link:
https://fresnostate.zoom.us/j/82667330959?pwd=skXMBx8KdaPovwtamnpfe5qGfLnNyN.1
Meeting ID: 826 6733 0959 **Passcode:** 12346

Time	Item	Description
3:00	1	**Call to Order – Sarah Woolf** a. Review Agenda - Sarah b. Updates – All
3:10	2	**Prop 4 – 2025-26 Funding Levels and Next Steps for the CAP**
3:30	3	**California Natural Resources Agenda Guidance for Prop 4 Programs – Julie Alvis, CNRA Deputy Director**
4:15	4	**CAP Prioritization Tool – Jim Kramer**
4:45	5	**October 6 – 7 In-person Meeting – Jim Kramer**
5:00	5	**Adjourn – Sarah Woolf**