

CALIFORNIA DEPARTMENT OF WATER RESOURCES

San Joaquin Basin Watershed Studies

ADVANCING SUSTAINABLE WATER MANAGEMENT THROUGH FLOOD MANAGED AQUIFER RECHARGE

PLANNING TO IMPLEMENTATION

MAY 14TH, 2025



Objectives of the Watershed Studies

**ASSESS AND QUANTIFY
MULTI-SECTOR VULNERABILITY
TO CLIMATE CHANGE**

**ASSESS AND QUANTIFY
MULTI-SECTOR FLOOD-MAR
ADAPTATION PERFORMANCE**

**WATERSHED
STUDIES**

**REPORT RESULTS FROM THE
LOCAL-WATERSHED-
BASINWIDE SCALE**

**FOUNDATION TO SUPPORT
COORDINATION, ALIGNMENT,
AND IMPLEMENTATION**

San Joaquin Flood-MAR Watershed Studies Partners

Watershed	Groundwater Sub-basin	Local Partners	Regional Partners
Calaveras River	Eastern San Joaquin	<ul style="list-style-type: none"> • San Joaquin County Flood Control and Water Conservation District • Stockton East Water District • Calaveras County Water District • City of Stockton • San Joaquin Area Flood Control Agency 	<ul style="list-style-type: none"> • US Bureau of Reclamation (USBR) • United States Army Corps of Engineers (USACE) • Center for Western Weather and Water Extremes (CW3E)
Stanislaus River	Eastern San Joaquin & Modesto	<ul style="list-style-type: none"> • Oakdale Irrigation District • South San Joaquin Irrigation District • Stockton East Water District 	
Tuolumne River	Modesto & Turlock	<ul style="list-style-type: none"> • Turlock Irrigation District • Modesto Irrigation District 	
Merced River	Merced	<ul style="list-style-type: none"> • Merced Irrigation District 	
Upper San Joaquin River	Madera & Chowchilla	<ul style="list-style-type: none"> • Madera Irrigation District • Chowchilla Water District • Friant Water Authority • Pacific Gas and Electric • Southern California Edison 	

Speaking to ...

- Irrigation/Water Districts
- Operators
- Cities and counties
- Flood entities
- Fish & wildlife agencies
- Climate scientists
- Farmers
- Groundwater Sustainability Agencies
- Non-Governmental Organizations
- Decisionmakers
- FIRO
- Aligned Programs

Physical changes related to climate lead to vulnerabilities

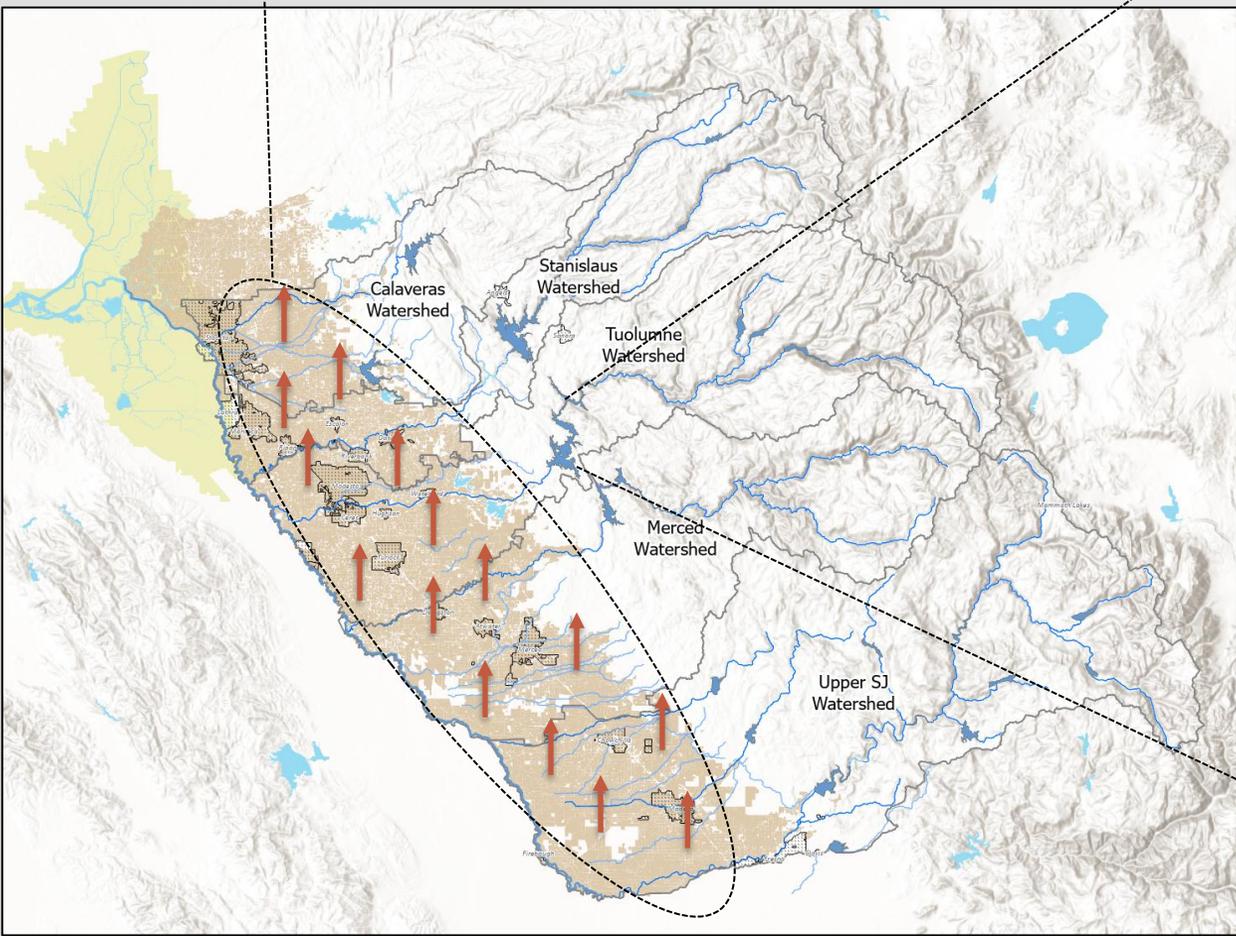
1) Increase in applied water demand

Current Climate

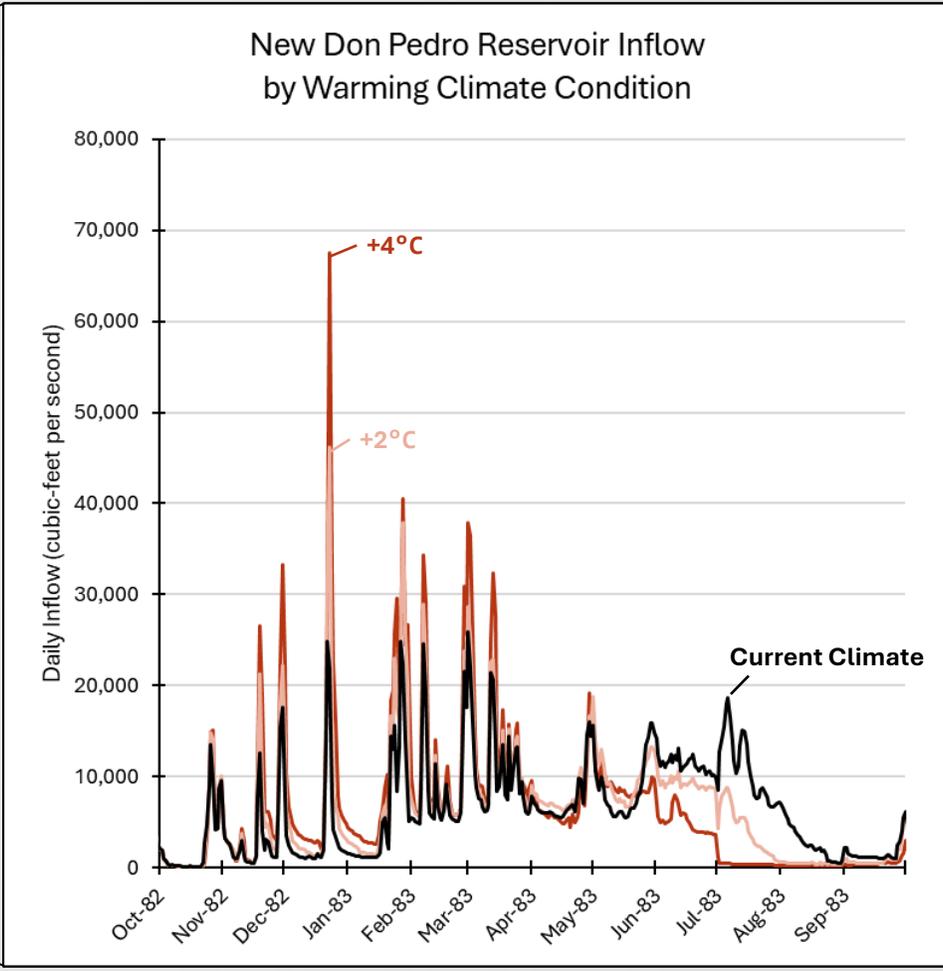
4,640 taf/y

Increase per °C:

≈ +120 taf/y (+2.5%)



2) Transition of snow → rain dominated



	35%	65%	Proportion of annual inflow
Current climate:	35%	65%	Proportion of annual inflow
+2°C:	50%	50%	
+4°C:	62%	38%	

Flood-MAR Strategies: Formulation Planning

- Watershed-scale
- Multi-sector
- Test and Exercise Components
- Reduce climate change vulnerabilities
- Diversify approaches
- Diversify outcomes

+ Reoperate Reservoirs

Recharge Using High Flows



MAR-90/20

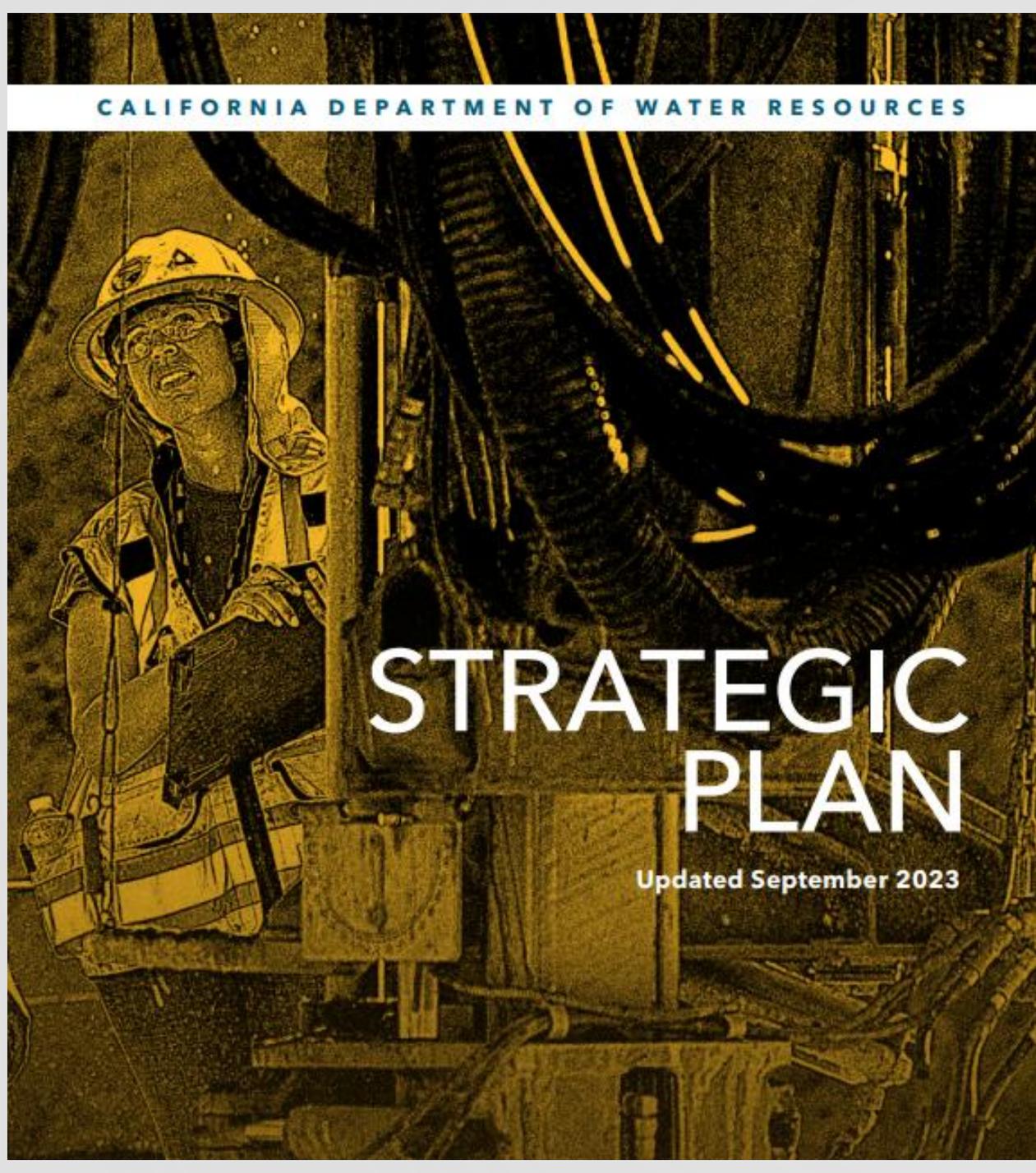
Requires partnership among local water managers and users

Provides some water supply benefits, but limited flood risk reduction

I-FIRM

Requires local, state, and federal partnership

Provides significant water supply, flood, and ecosystem benefits



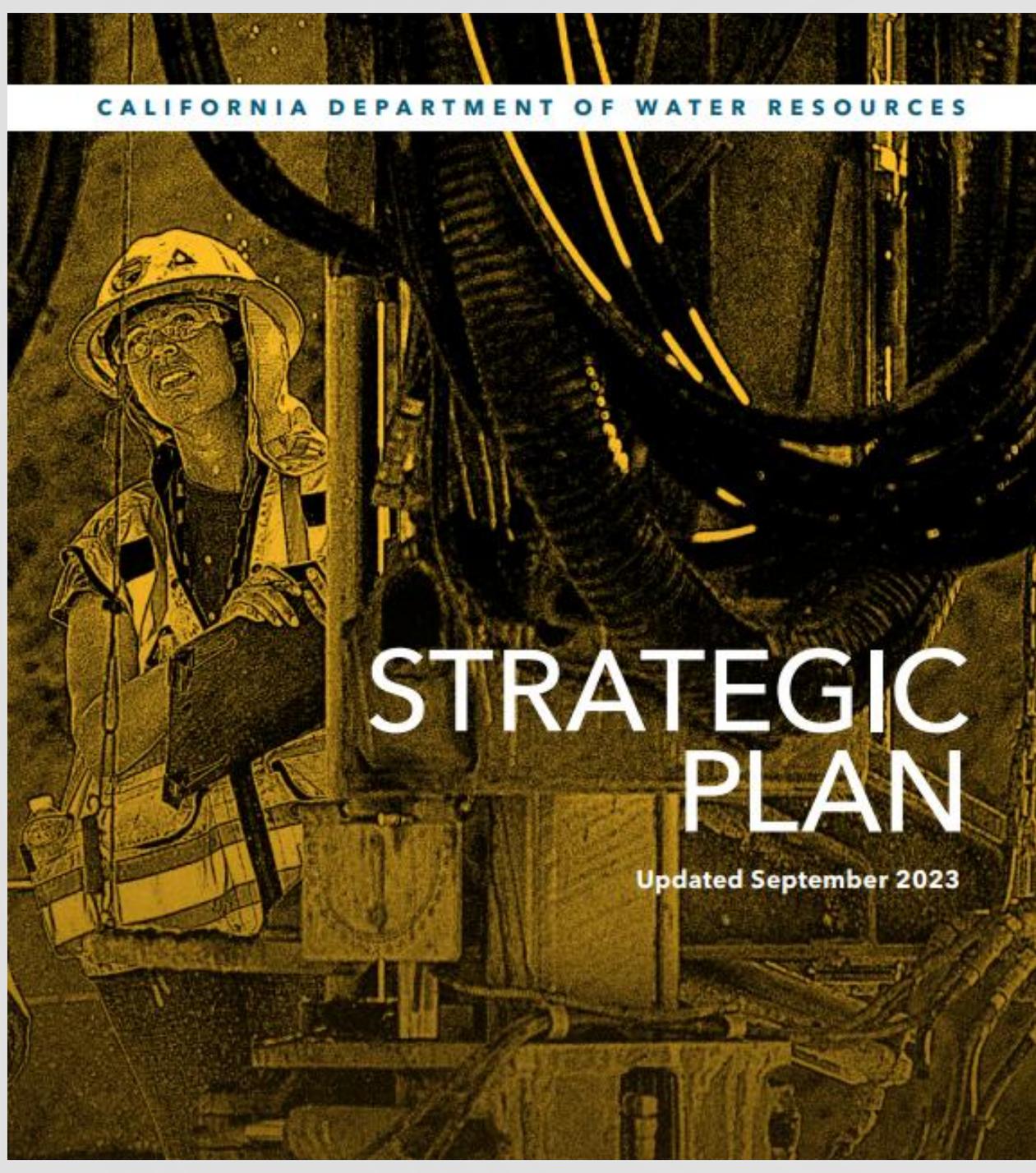
STRATEGIC PLAN

Updated September 2023

Goal 3: Pursue Innovative Infrastructure Solutions

Objective 1: Modernize Infrastructure and Integrate Nature-Based Solutions

Action 6. Incorporate results and modeling from the **San Joaquin Watershed Studies** into major planning and project implementation actions to ensure consistent and cutting-edge approaches to multi-benefit project design, investment decisions, and local agency engagement



STRATEGIC PLAN

Updated September 2023

GOAL 5: Integrate and Transform California Water Management

ACTION 3.

Empower cross-divisional groups reflecting the talent, diversity, and experience of our staff, to pilot integrated solutions in collaboration with tribes, local agencies, NGOs, philanthropy, and the federal government.

→FIRO-MAR Pilot Implementation Initiative

Implementation Challenges

- **Water Rights, and other regulatory**
- **Local (including landowner) participation**
- **Flood Management – Federal and State**
- **Groundwater Management**
- **Ecosystem Management**
- **Delta Exports**

Engagement and Alignment

- Partners
- Central Valley Flood Protection Plan
- San Joaquin Water Management Strategy
- DWR Executive
- Corps of Engineers and CW3E

Schedule: Publish five watershed reports Fall 2025

-Thanks-



San Joaquin County
Flood Control & Water
Conservation District



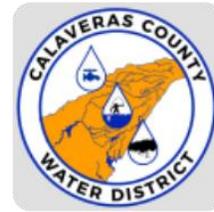
MID Modesto
Irrigation
District
The Power to Grow



WATER & POWER
Serving Central California since 1887



CENTRAL SAN JOAQUIN
WATER CONSERVATION
DISTRICT



MID MERCED
IRRIGATION
DISTRICT
WATER & POWER

CHOWCHILLA
WATER DISTRICT



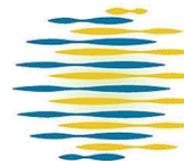
MBK
ENGINEERS


Woodard
& Curran


US Army Corps
of Engineers®


MADERA
IRRIGATION DISTRICT


Sustainable Conservation


theEARTH
GENOME
REVEALING THE POSSIBLE


cbec
eco engineering


ESA


— BUREAU OF —
RECLAMATION


Friant
WATER AUTHORITY