

Welcome



Mark Monin
Chair, WACO
Director, El Toro Water District



WACO Meeting – June 7, 2024



I pledge allegiance to the flag
of the United States of
America, and to the republic
for which it stands, one nation
under God, indivisible, with
liberty and justice for all.

Reminders

- Participants will be muted during the presentation
- We will hear the reports, then from the program speakers
- Q&A will be conducted after the presentation
- To ask a question, please use the chat box or raise hand feature



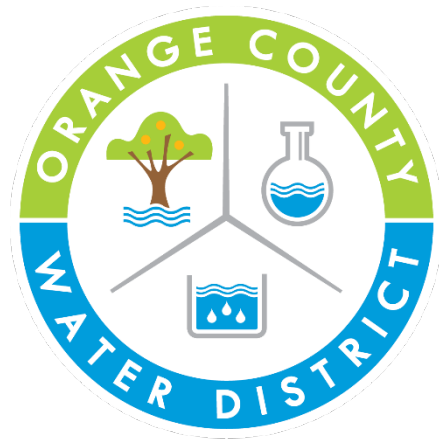
MET Report



Dennis Erdman, P.E.
MWDOC MET Director



ACWA Report



SINCE 1933



Cathy Green
President, OCWD
President, ACWA



CSDA Report

- **Legislative Updates**
 - Ballot Initiative 1935
 - HR 7525 – The Special District Grant Accessibility Act
 - Climate Resilience Bond – Request for Funding to Comply with CARB Advanced Clean Fleets/ZEV Mandates
- **Upcoming CSDA Conferences**
 - GM Leadership Summit: June 23-25 in Anaheim
 - Annual Conference: September 9-12 in Indian Wells
 - Board Secretary/Clerk Conference: October 21-23 in San Diego



Chris Palmer
*Senior Public Affairs
Field Coordinator*



**California Special
Districts Association**
Districts Stronger Together

Program

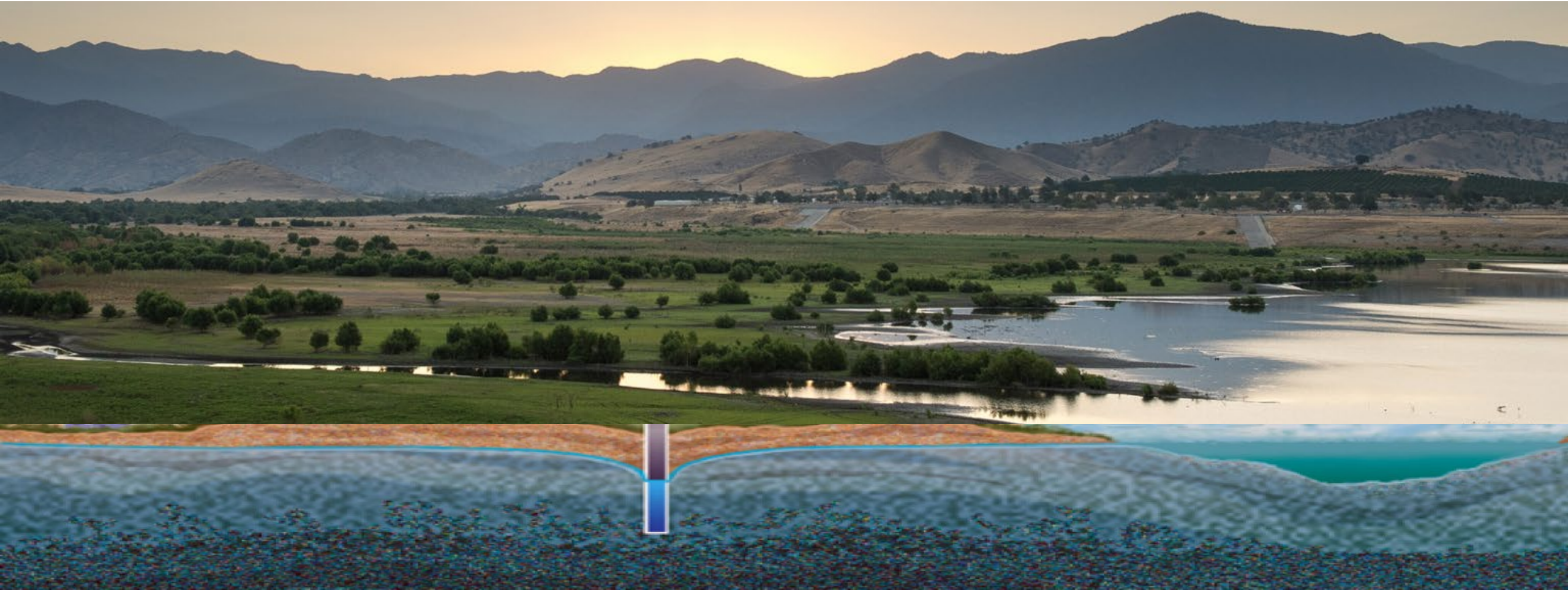


Steven Springhorn, P.G.
*Supervising Engineering Geologist
Department of Water Resources
Sustainable Groundwater
Management Office*



Balancing Sustainability Amid Extremes

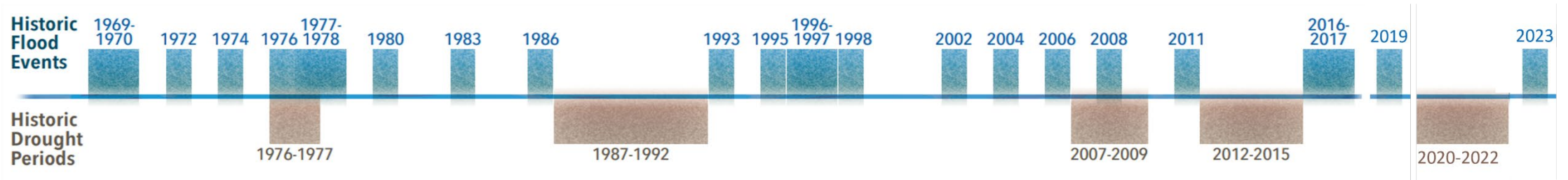
A Decade of SGMA Progress, Yet Work Remains on the Journey to Sustainability



CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER
MANAGEMENT OFFICE

Water Advisory Committee of Orange County
June 7, 2024

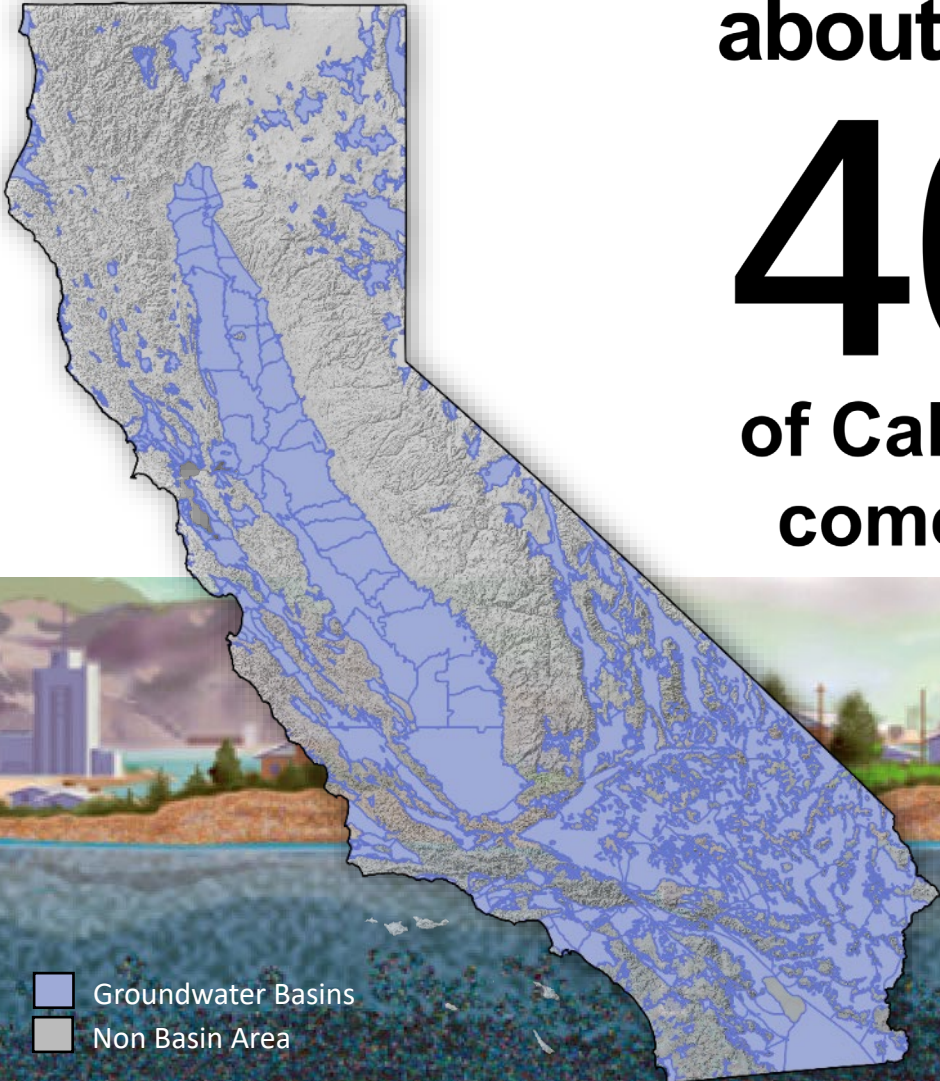
California's Water Extremes



TOO IMPORTANT NOT TO FULLY UNDERSTAND & UTILIZE SUSTAINABLY

California's Groundwater Overview

515 GW Basins



In an average year,
about

40%

**of California's water supply
comes from groundwater**

In dry years,
up to

60%

Over
80%
**of Californians
rely on groundwater**



Groundwater Basins
Non Basin Area

California's Groundwater Overview

High/Med Basins,
Account for

Add Adj. Areas,
Goes up to

Includes

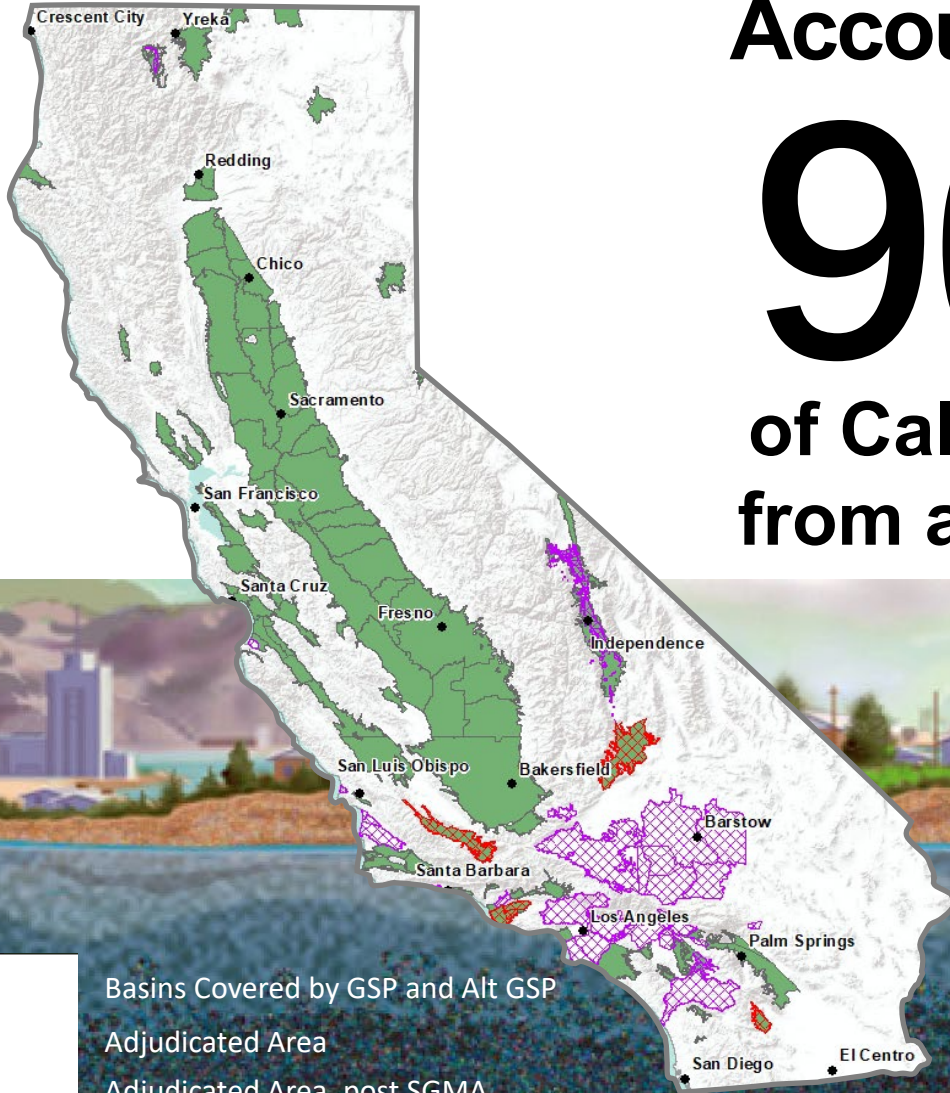
90%

98%

83%

of California's GW pumping
from all groundwater basins

of California's
population



California's Water Storage – Current Conditions

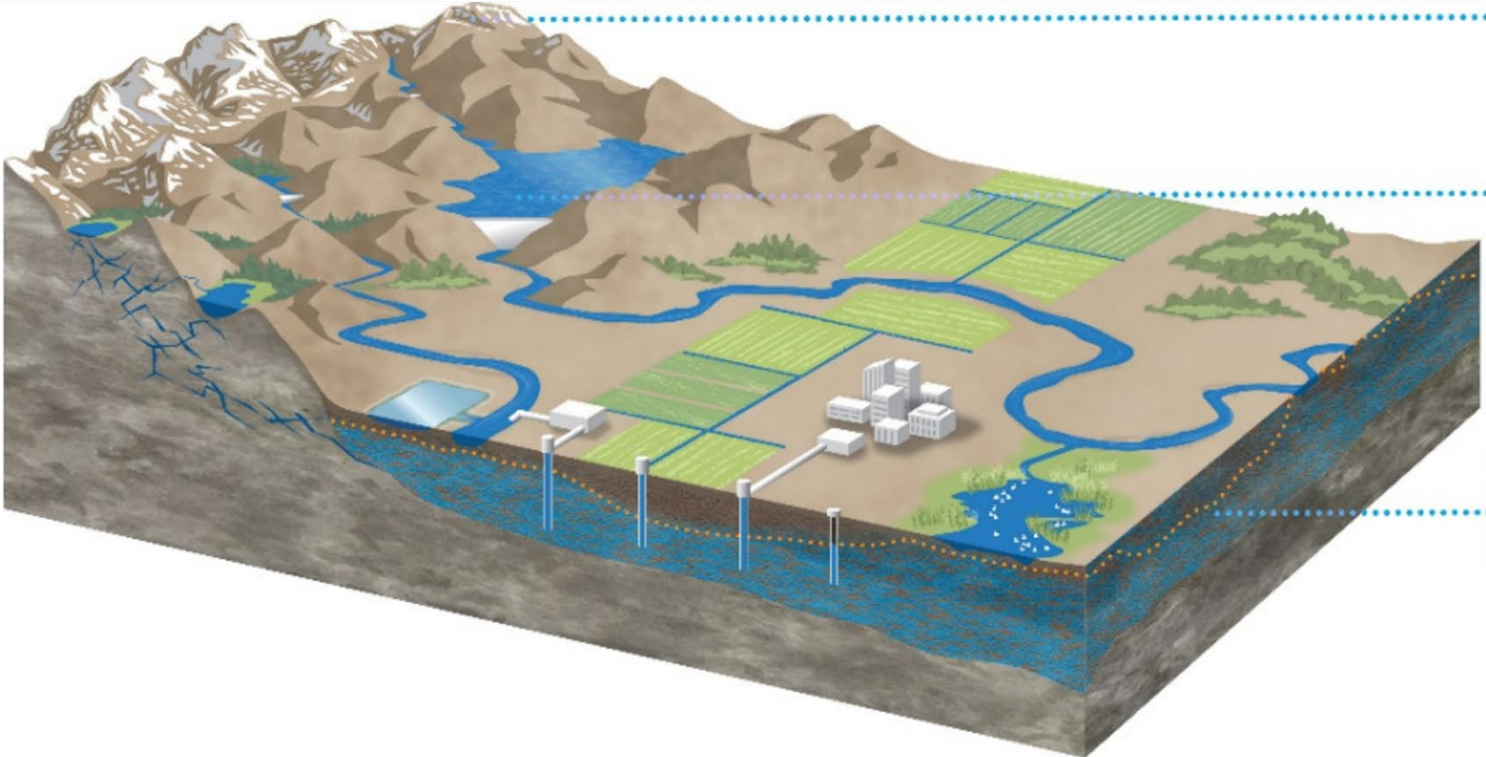
Statewide Status – WY 2024

Total Storage	WY2024 Storage (March 11, 2024)	Percent Normal (March 11, 2024)
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Snowpack 15 MAF	16 MAF	109% of average <i>Above Normal</i>
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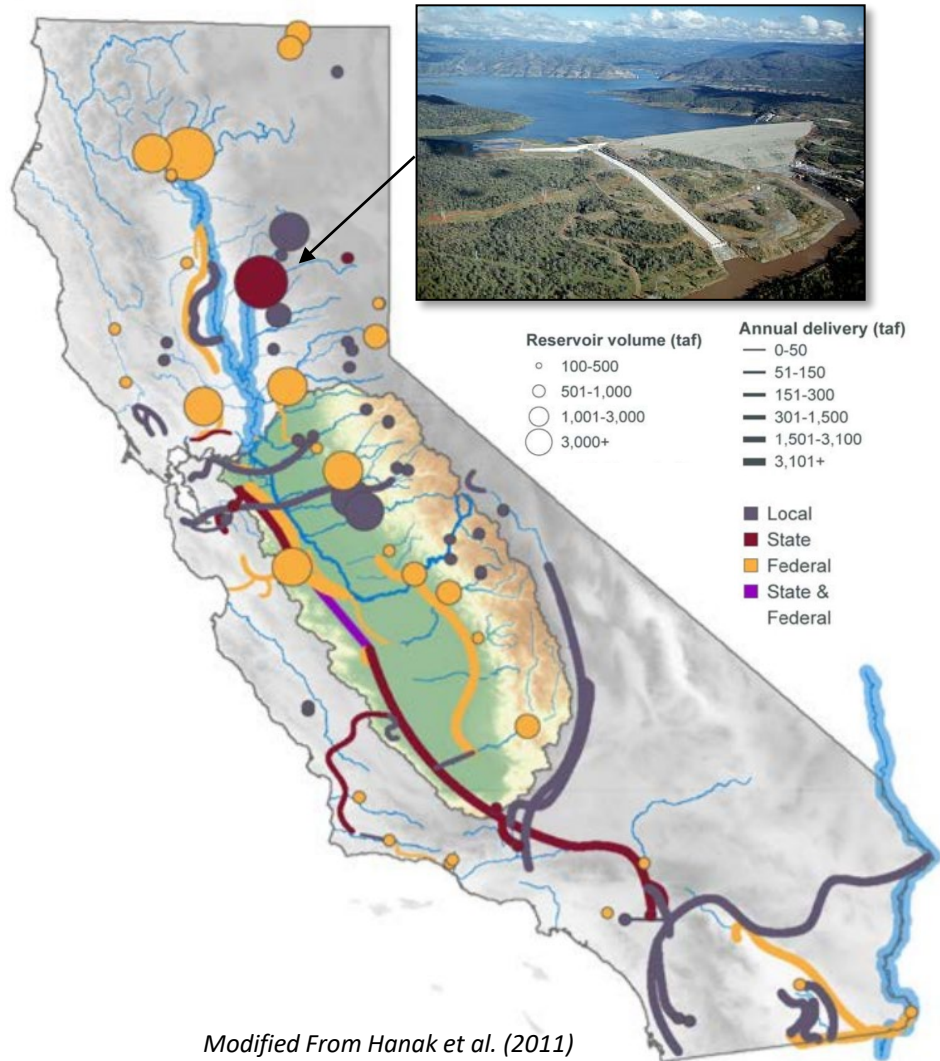
Reservoirs 30 MAF	24 MAF	114% of average <i>Above Normal</i>
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Groundwater 850 MAF to 1,300 MAF	+9 MAF Increase in Groundwater Storage in Central Valley (WY 2023) -17 MAF Decline in Groundwater Storage in Central Valley (WYs 2020, 2021, 2022) >50 MAF Decline in Groundwater Storage in Central Valley (1970's to 2022)	<i>Much Below Normal</i>
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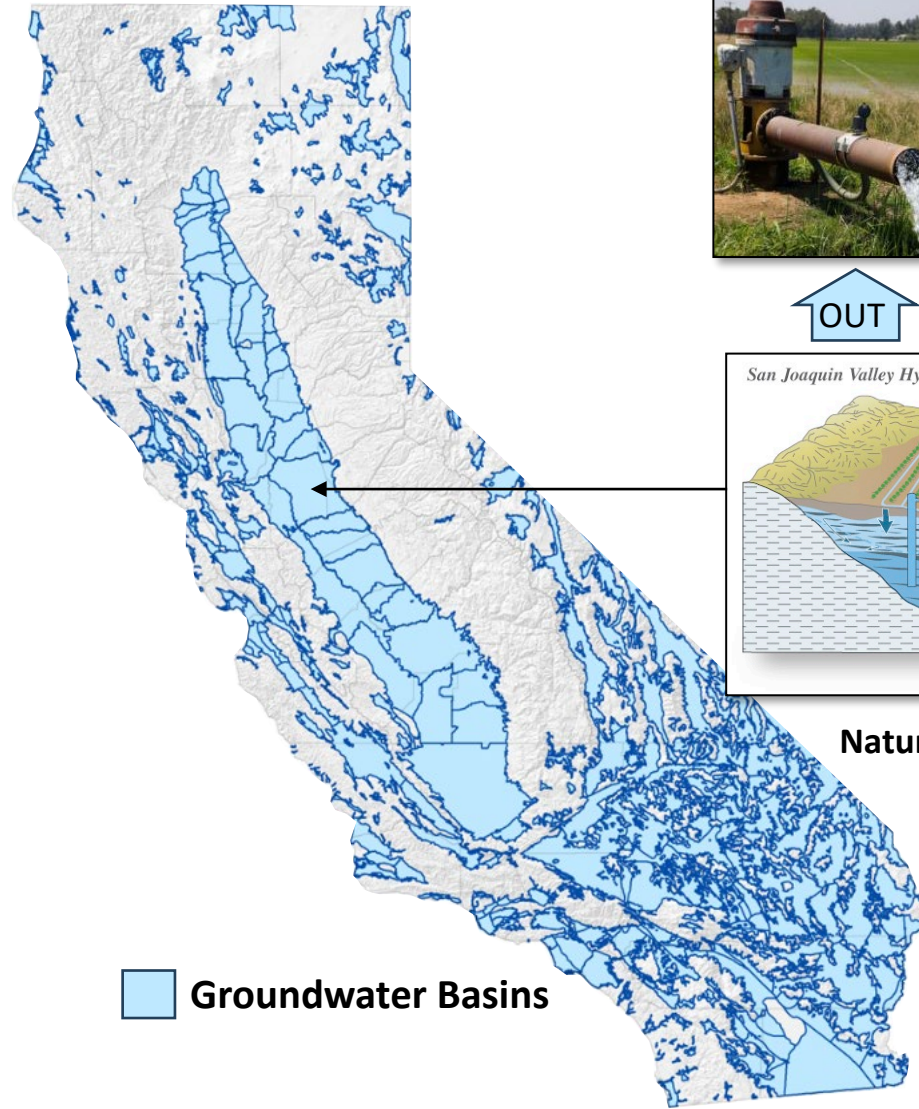


California's Water Storage Infrastructure

Natural and Built Surface Water Infrastructure

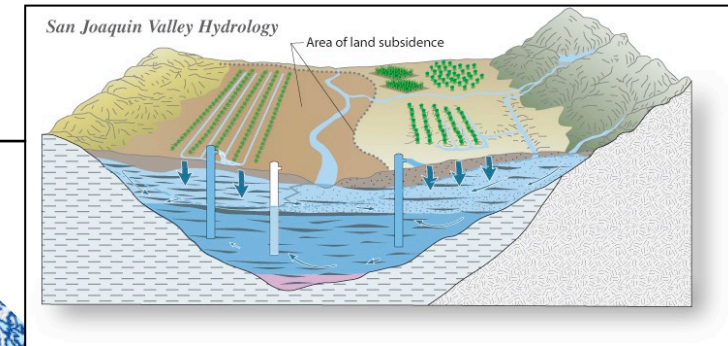


Natural and Built Groundwater Infrastructure



Built Groundwater Infrastructure

300K Production Wells 100's of Recharge Basins

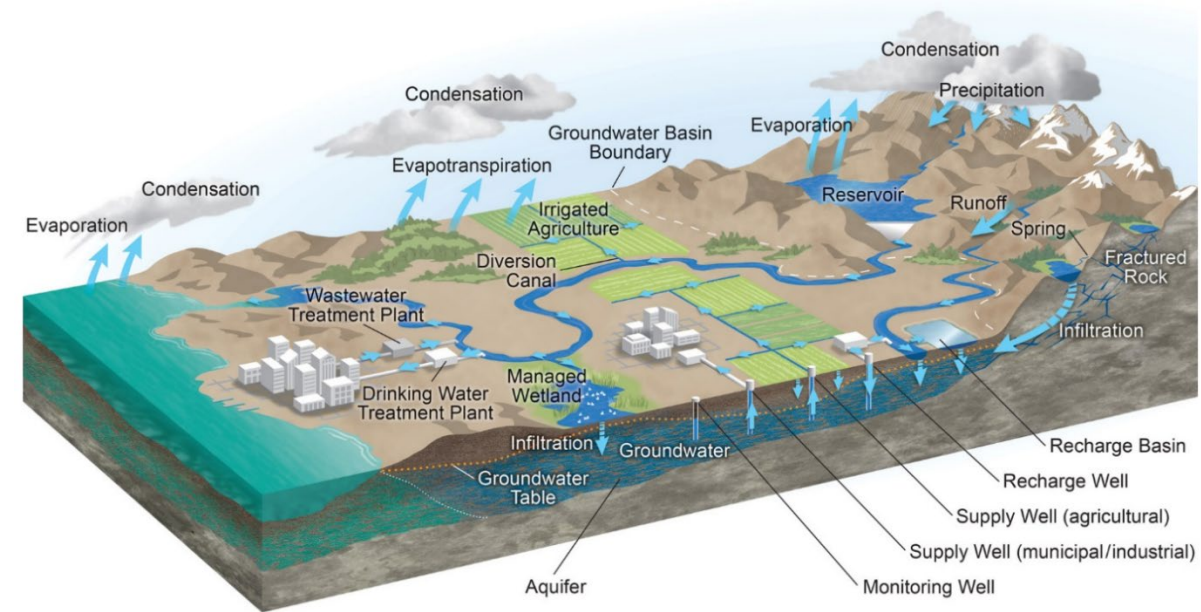


Natural Groundwater Infrastructure

515 Groundwater Basins & Aquifers

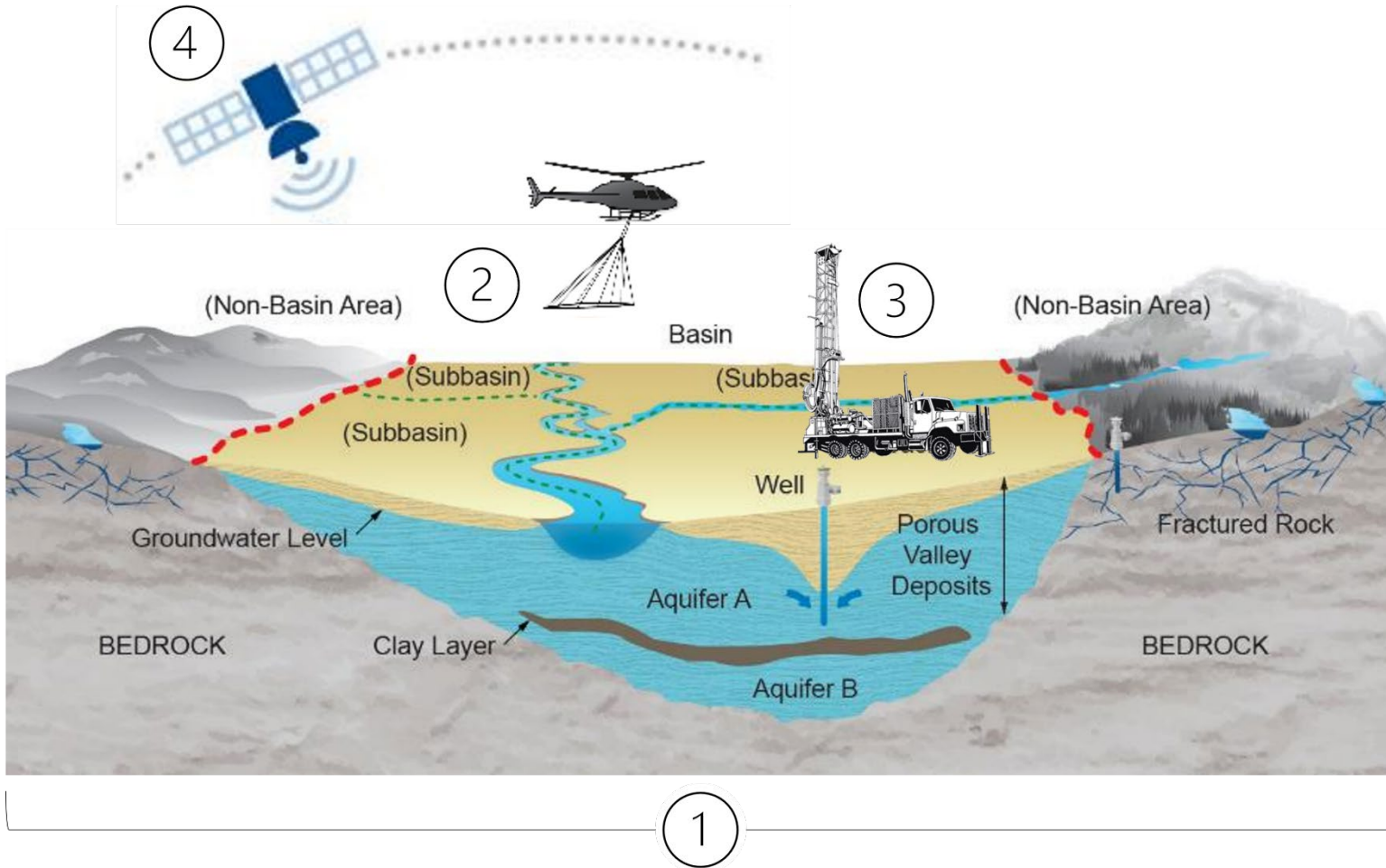
State of California's Groundwater

- State of Groundwater Knowledge
- State of Groundwater Governance
- State of Groundwater Management
- State of Groundwater Conditions
- State of Groundwater Recharge



State of Groundwater: Knowledge

- Local and State groundwater characterization and investigations are underway
 - California's Groundwater (Bulletin 118): <https://water.ca.gov/calgw>



1. Groundwater Information & Access

- >130 Basins Actively Investigating
- Regional and Statewide Reports
- >1m Well Reports accessible since 2015
- Open Water Data Act passed in 2016

2. AEM & GW Basin Characterization

- Statewide AEM surveys complete

3. Statewide GW Monitoring Enhancement

- Hundreds of New Monitoring Wells

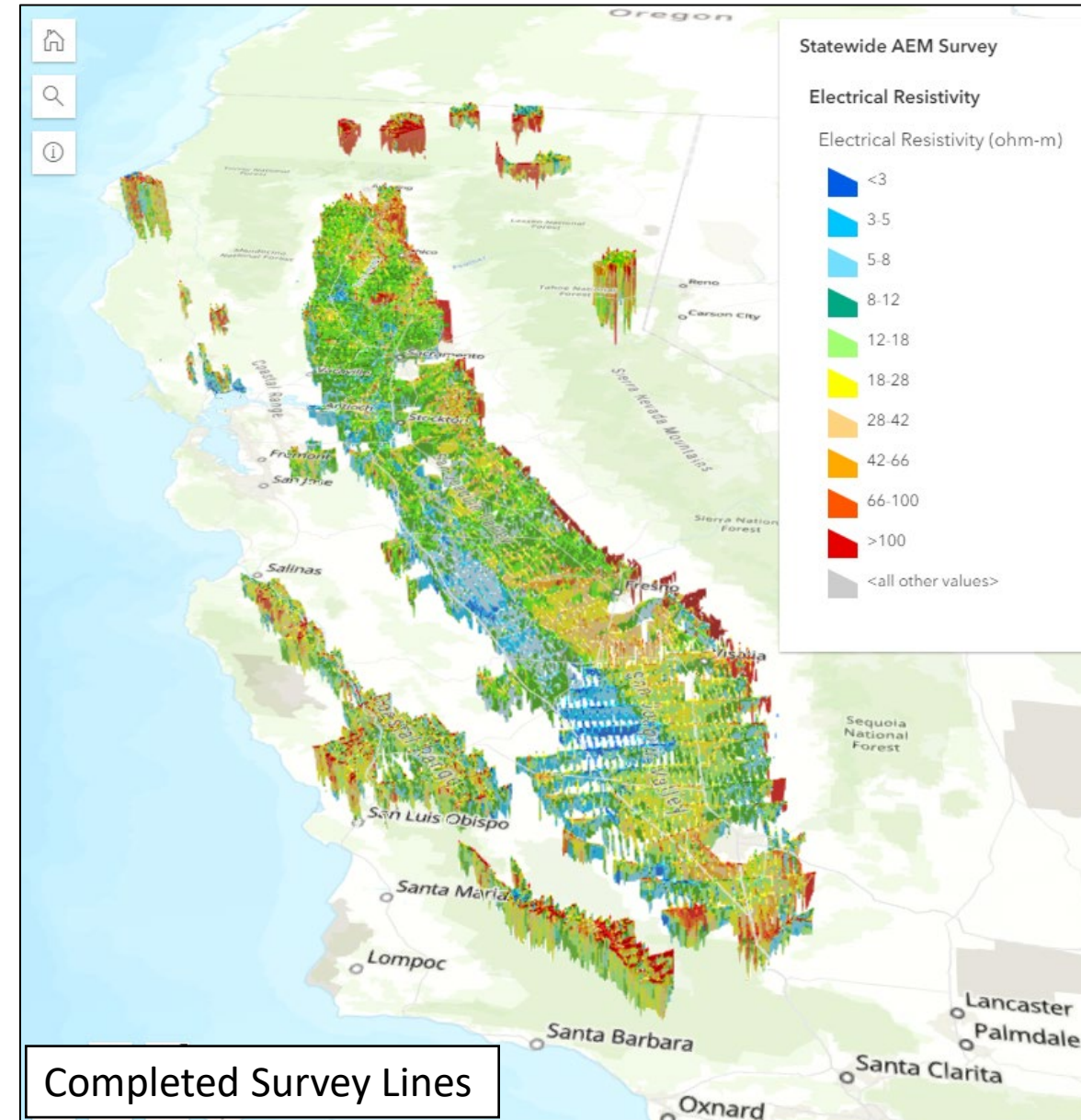
4. Satellite-Based Subsidence Data

- Statewide coverage, increased frequency

State of Groundwater: Knowledge

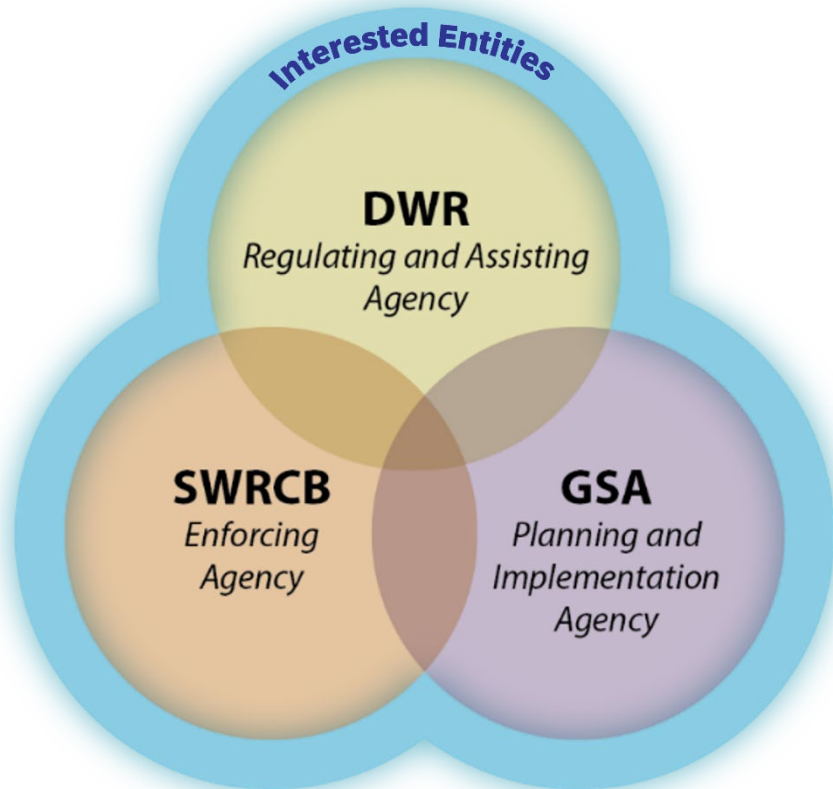
Statewide Airborne Electromagnetic (AEM) Surveys:

- Surveys conducted between 2020 and 2023
- 130,000 letters or postcards sent to parcel owners
- AEM data collected: 16,000 line-miles
- Surveyed Groundwater Basins: 95
- High-quality, digitized lithology logs: >13,000
- High-quality, digitized geophysical logs: >1,200
- Open Data Access: <https://data.cnra.ca.gov/dataset/aem>
- Next Phase DWR's Basin Characterization [Webpage](#)
 - Basin characterization pilots have started



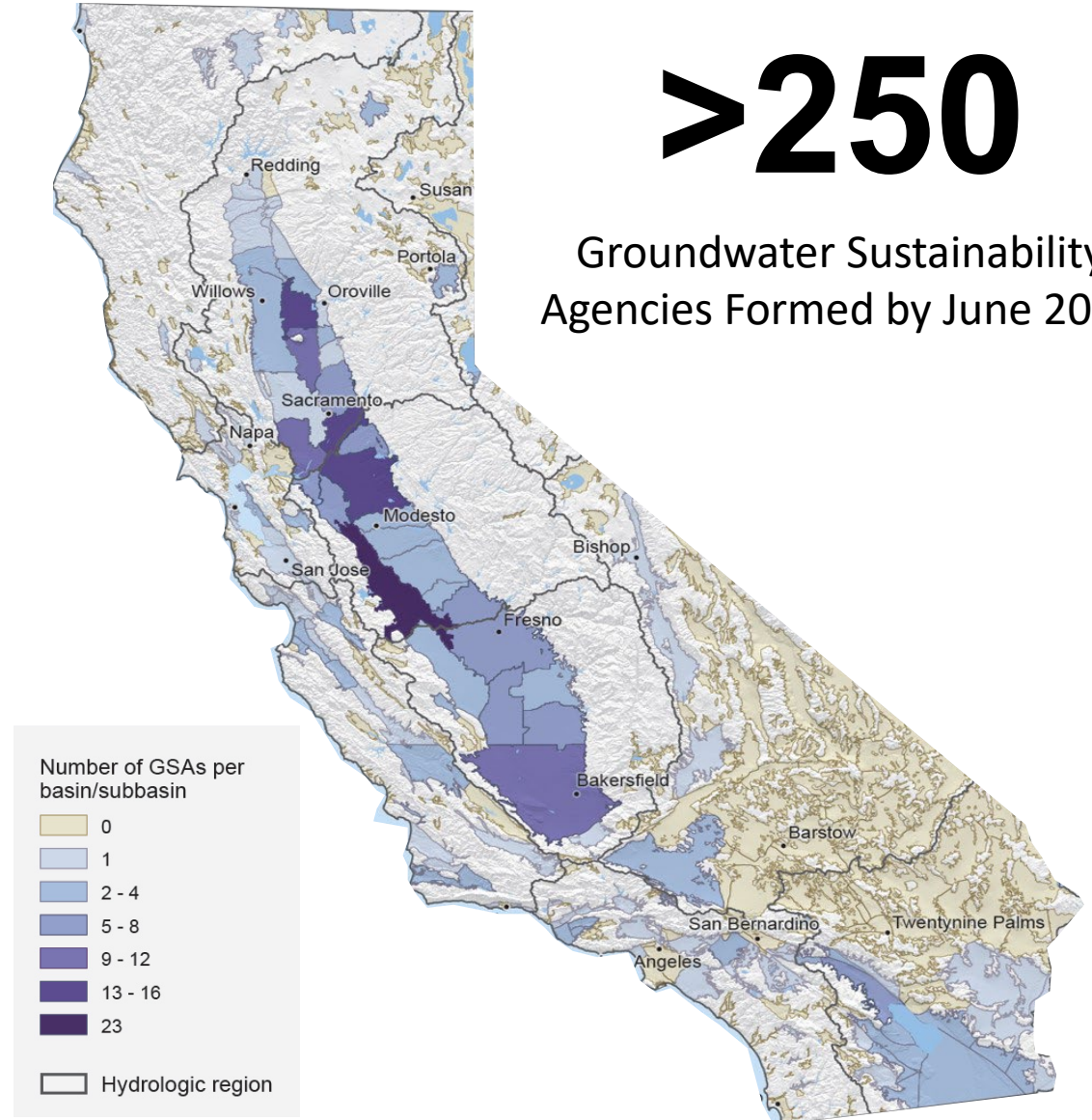
State of Groundwater: Governance

Local and State Governance Systems in Place and Active



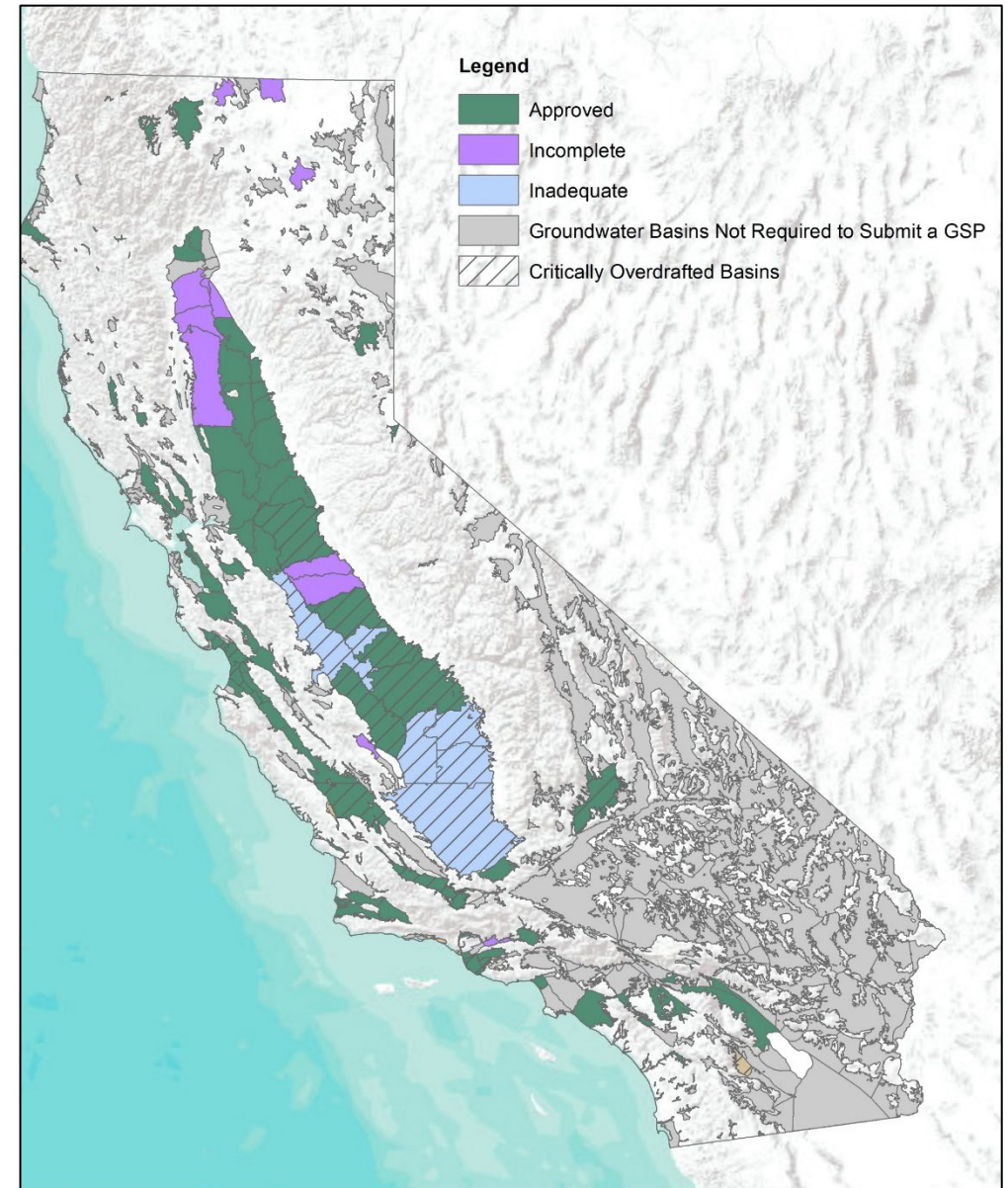
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Groundwater Sustainability Agencies Formed by June 2017



State of Groundwater: Management

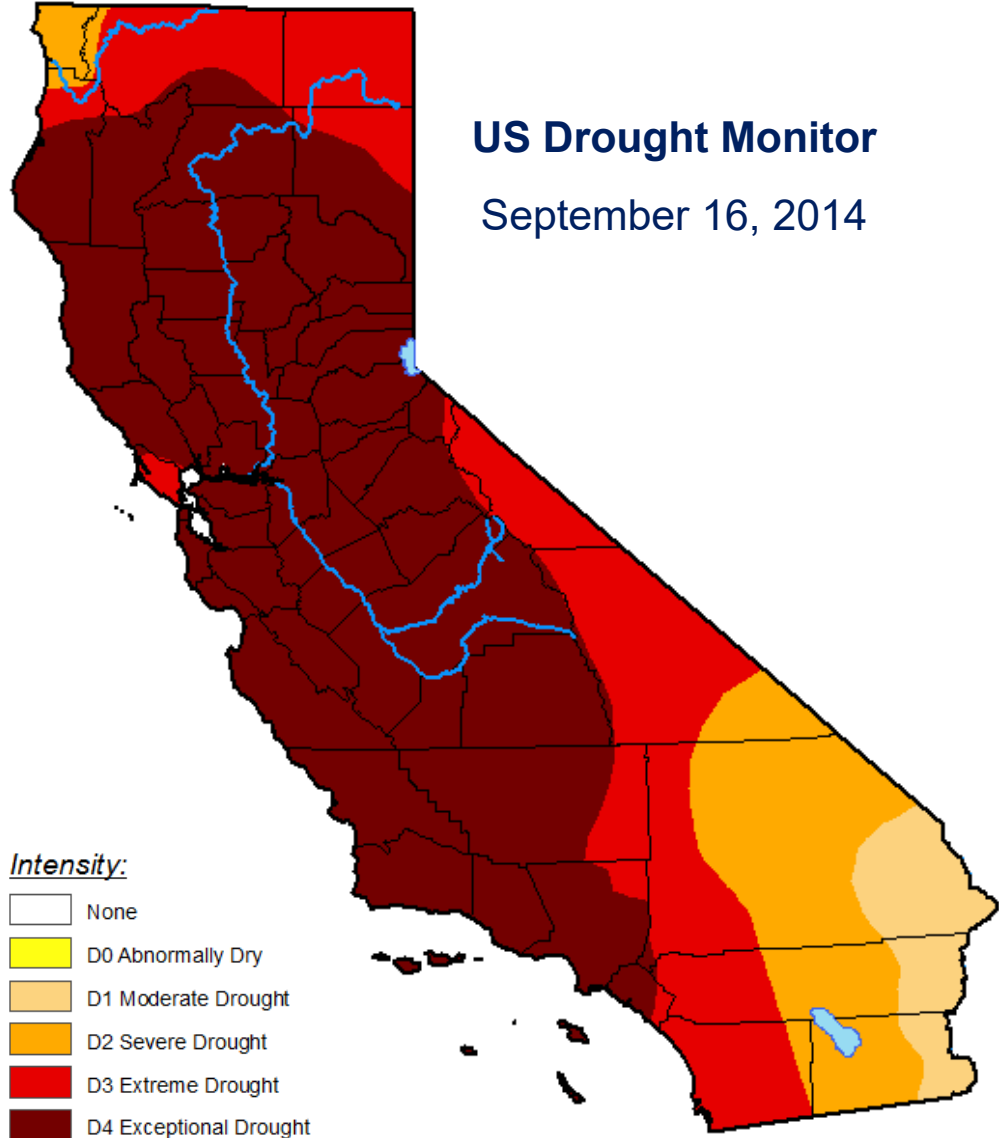
- **Over 130 Basins Being Managed**
 - Represent 98% of all groundwater pumped in California
- **101 Basin Implementing SGMA**
 - 71 Approved Basins
 - Achieve sustainability by 2040 and beyond
 - Submitting Annual Reports every April 1st
 - Submitting Periodic Plan Updates at Least Every 5 Years
 - 13 Incomplete Basins
 - 6 Inadequate Basins
 - State intervention with SWRCB
 - 4 Other Basins
- **30 Adjudicated Basins**
 - Active Management
 - Submitting Annual Reports





CA Groundwater Conditions

State of Groundwater: Conditions

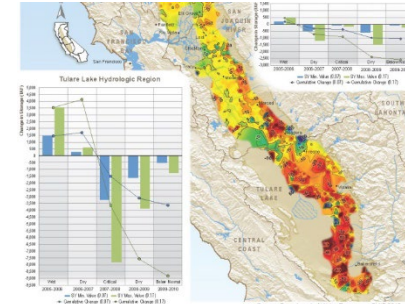



SGMA Defined Sustainability and How It's Monitored

Avoid Six Undesirable Results



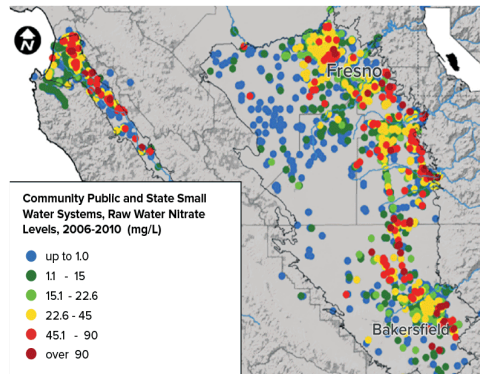
 Lowering of GW Levels



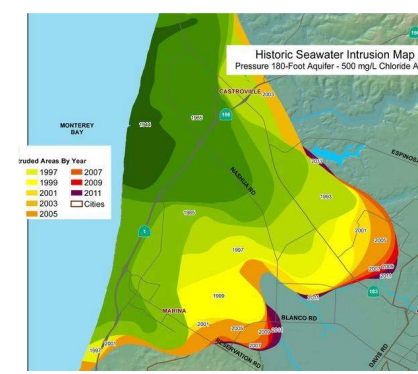
 Reduction of GW Storage



 Land Subsidence




 Water Quality Degradation

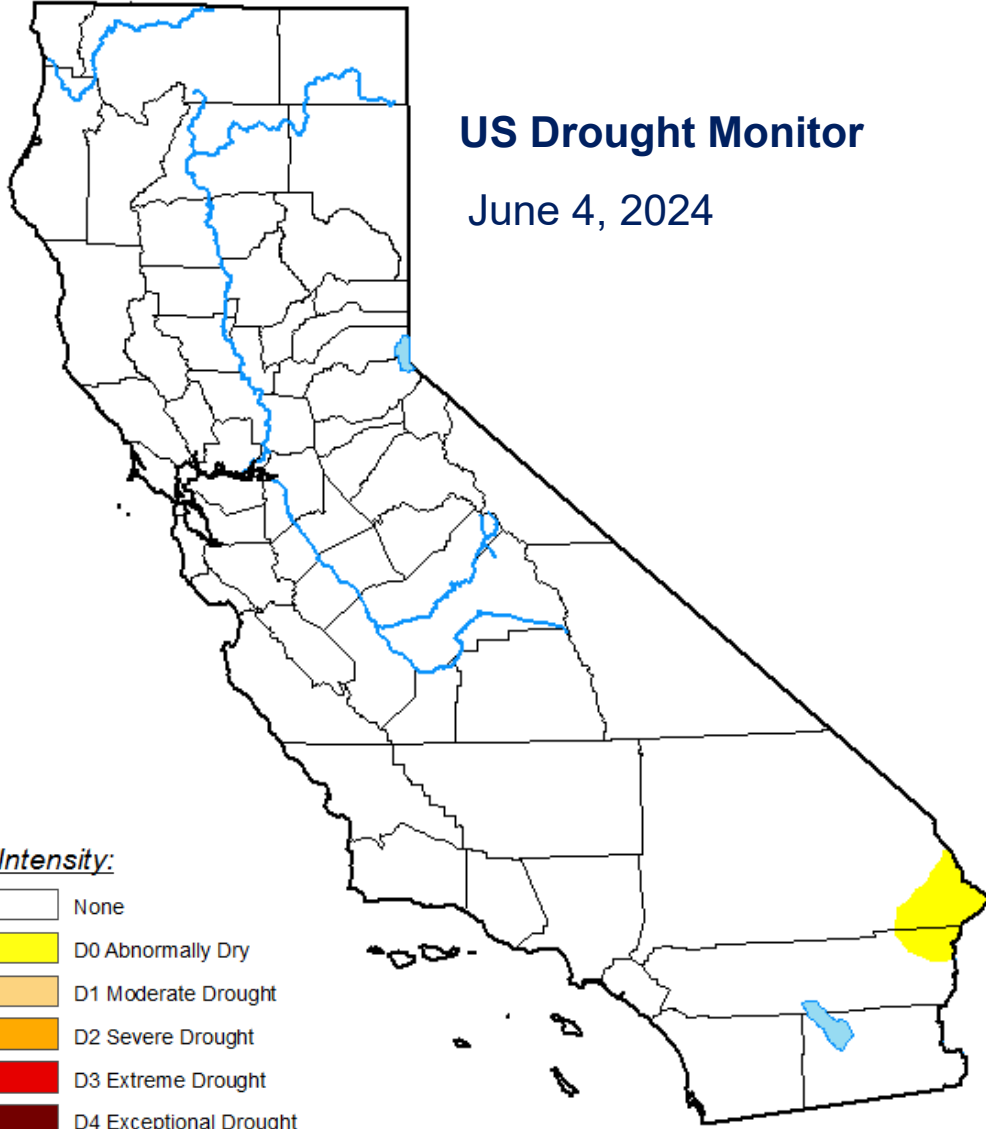


 Seawater Intrusion



 Depletion of Interconnected Streams

State of Groundwater: Conditions

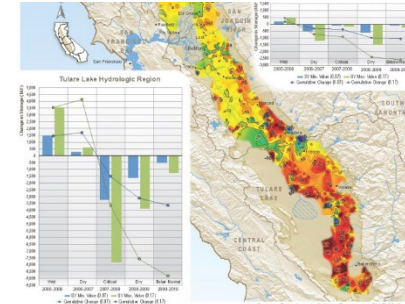



SGMA Defined Sustainability and How It's Monitored

Avoid Six Undesirable Results



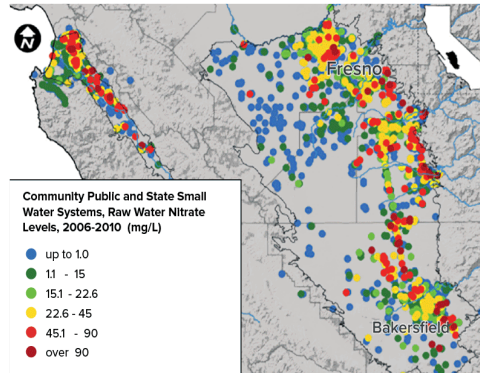
 Lowering of GW Levels



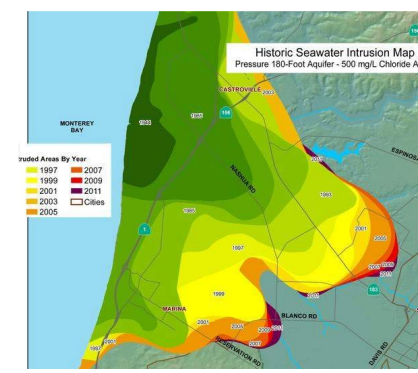
 Reduction of GW Storage



 Land Subsidence



 Water Quality Degradation



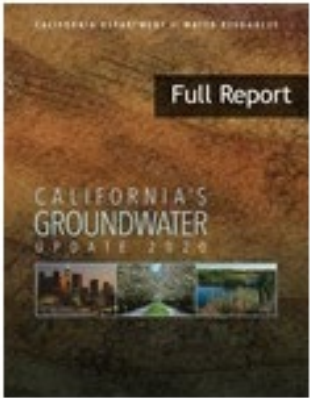
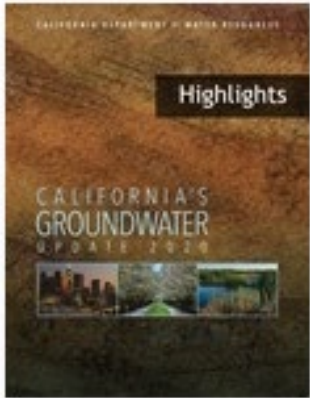
 Seawater Intrusion



 Depletion of Interconnected Streams

California's Groundwater (Bulletin 118) Improved Information and Access

1



California's Groundwater (Bulletin 118) Updates
Updated in years ending in 0 & 5

2

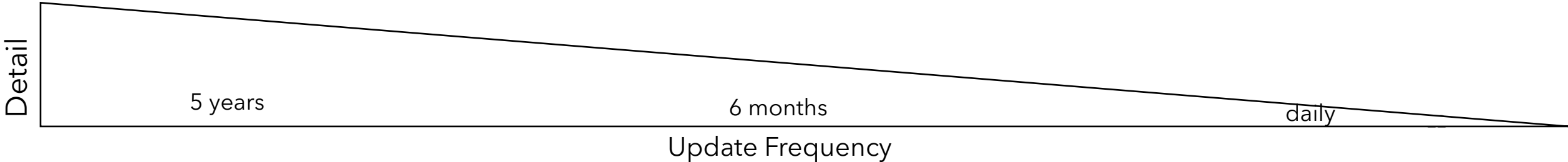


Semi-Annual Conditions Updates

3



California's Groundwater Live



Semi-Annual Groundwater Conditions Update Spring 2024

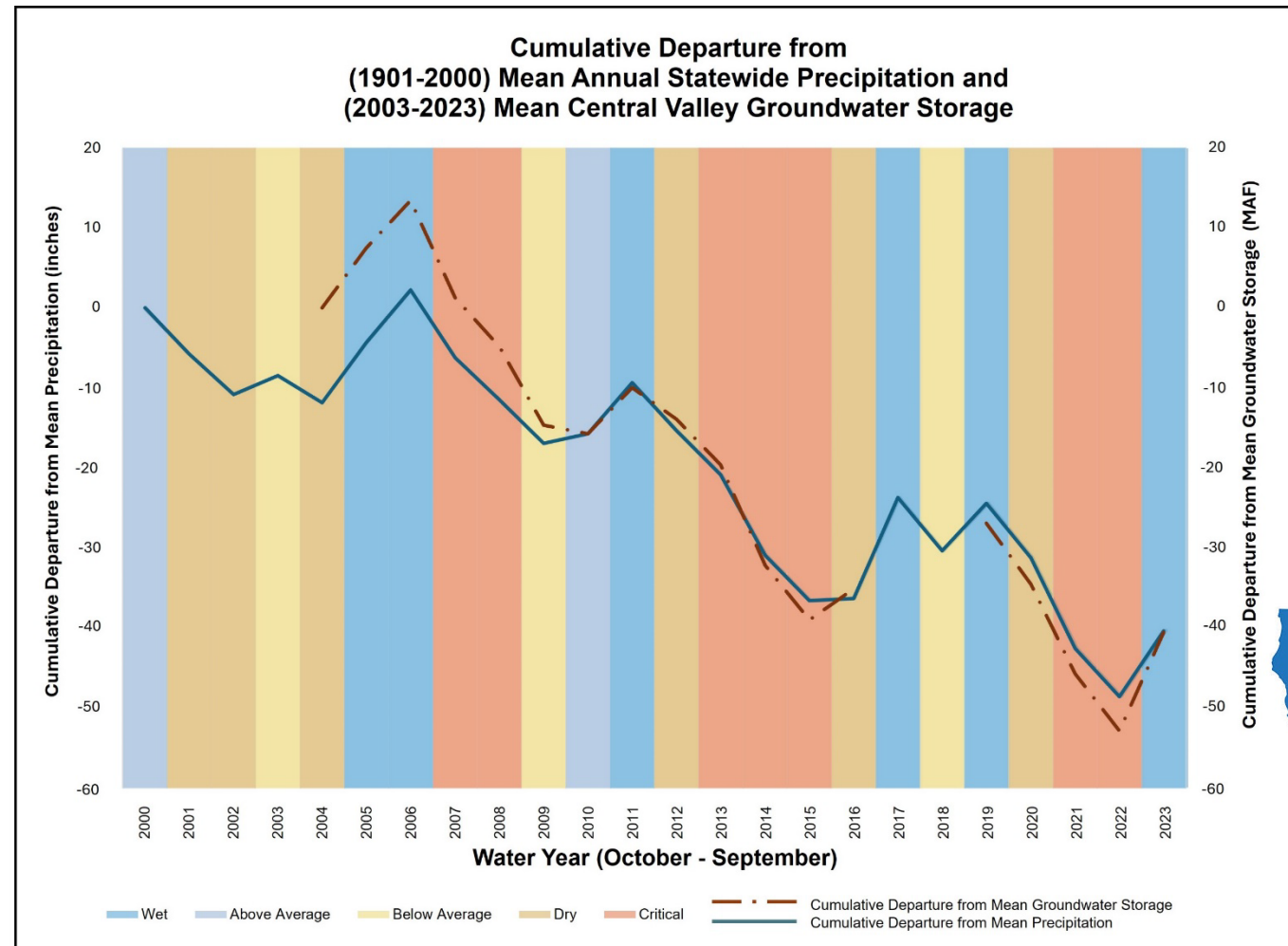
- Presents latest groundwater information, including 99 GSP & Alternative Plan Annual Reports
 - These 99 basins account for about 90% of groundwater use in all 515 groundwater basins
- Spring 2024 report focuses on WY23 recharge and how that changed conditions across CA
- Also includes latest information on: GW Extraction, GW Storage, GW Levels, Subsidence, Wells, and GW monitoring efforts
- Next GW conditions report will be Fall 2024



Available on DWR's California's Groundwater Webpage
<https://water.ca.gov/calgw>

Semi-Annual Groundwater Conditions Update Highlights

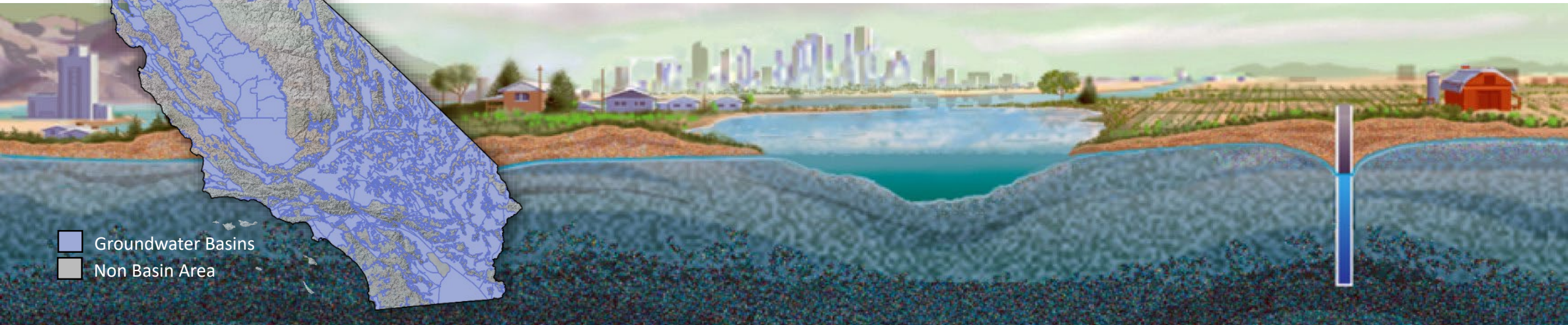
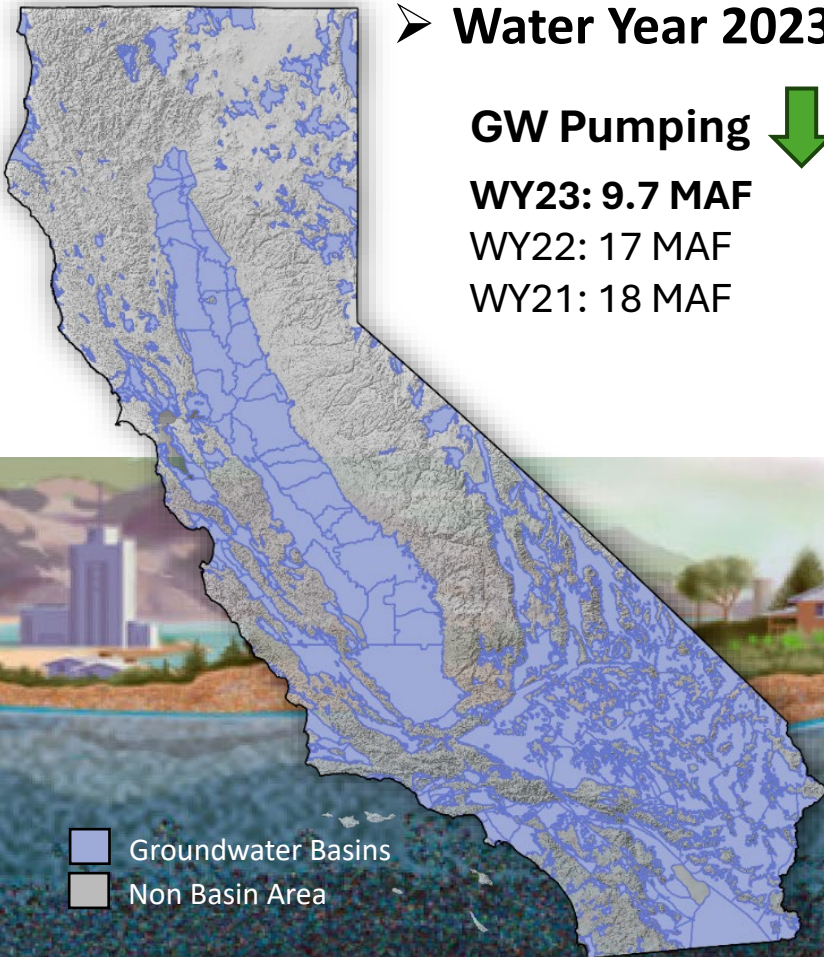
- WY23 greatly benefited surface water resources and marked the beginning of groundwater level recovery after many years of chronic decline.
- However, one year of heavy precipitation will not refill groundwater basins that have been depleted over decades.



Semi-Annual Groundwater Conditions Update Highlights

➤ Water Year 2023: Positive Groundwater Trends, Long-term Deficits Persist

GW Pumping ↓	+	Managed Recharge ↑	=	Change in Storage ↑	GW Conditions ↑
WY23: 9.7 MAF WY22: 17 MAF WY21: 18 MAF		WY23: 4.1 MAF WY22: 315 TAF WY21: 205 TAF WY20: 525 TAF WY19: 2.1 MAF (last wet year)		WY23: +8.7 MAF WY22: -6.4 MAF WY21: -7.9 MAF	Increased GW Levels Less Subsidence Fewer Dry Wells

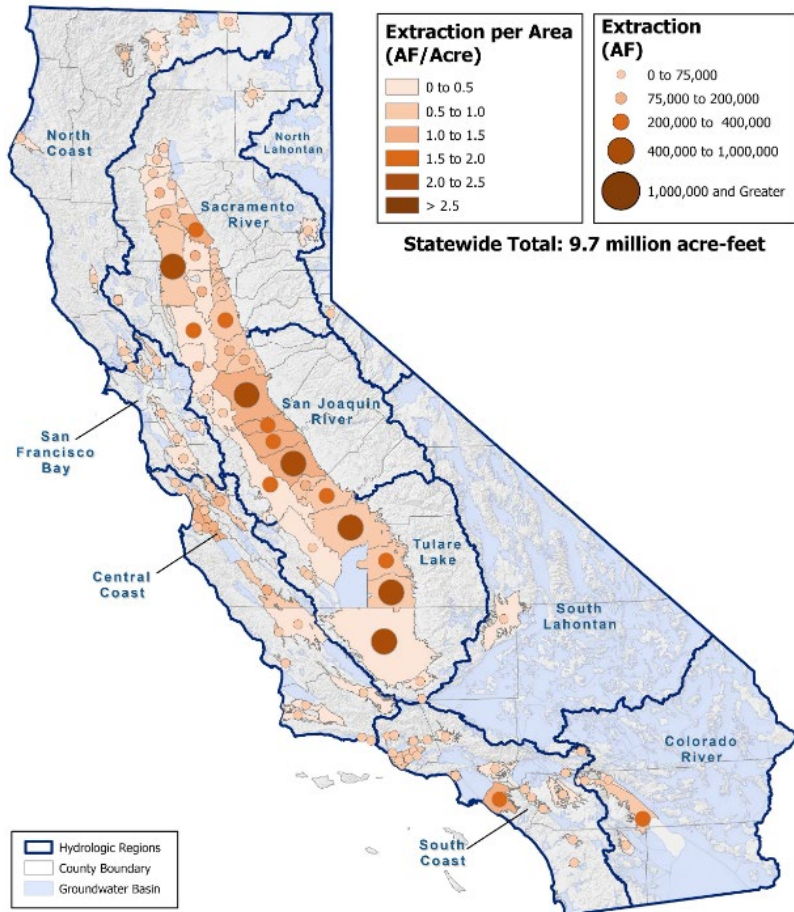


Semi-Annual Groundwater Conditions Update

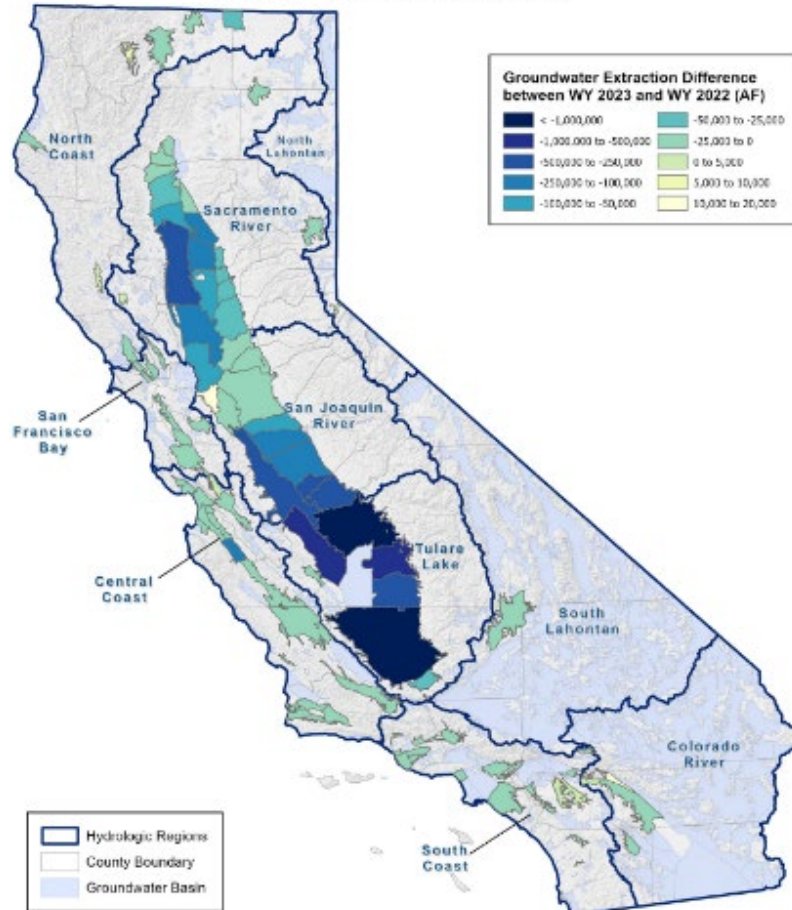
Groundwater Extraction

Groundwater Extraction: 9.7 MAF (Statewide), 7.7 MAF (79% Central Valley), 5.4 MAF (54% San Joaquin Valley)

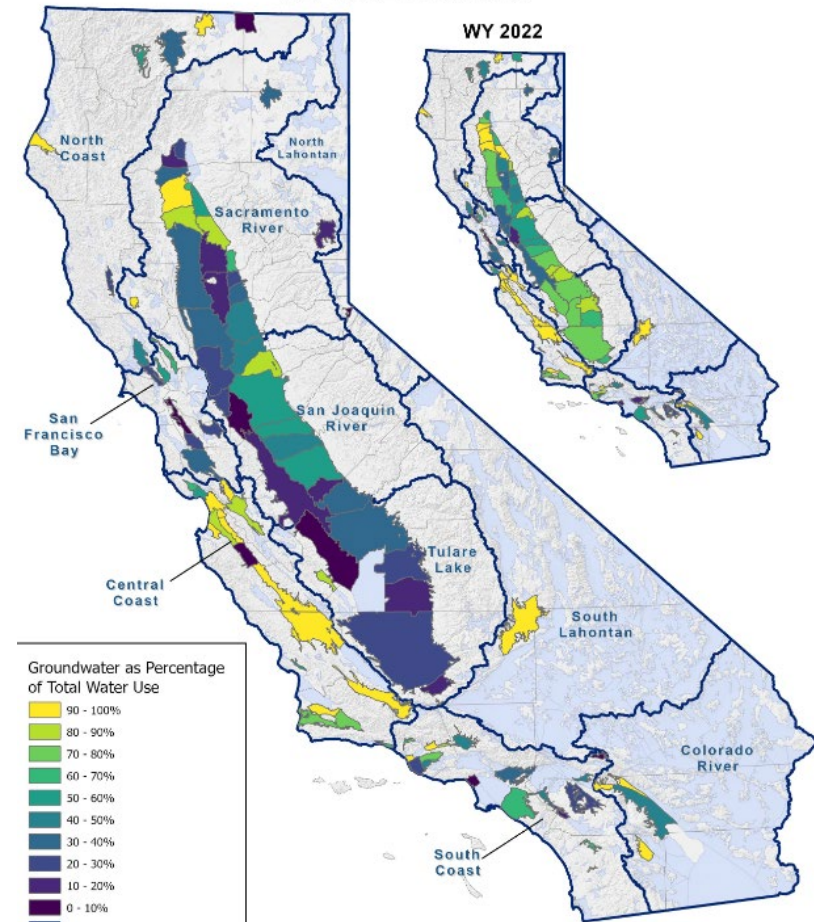
Groundwater Extraction Reported by Basin for Water Year 2023



Groundwater Extraction Comparison between WY 2023 and 2022



Groundwater Use as Percentage of Total Water Use WY 2022 and 2023

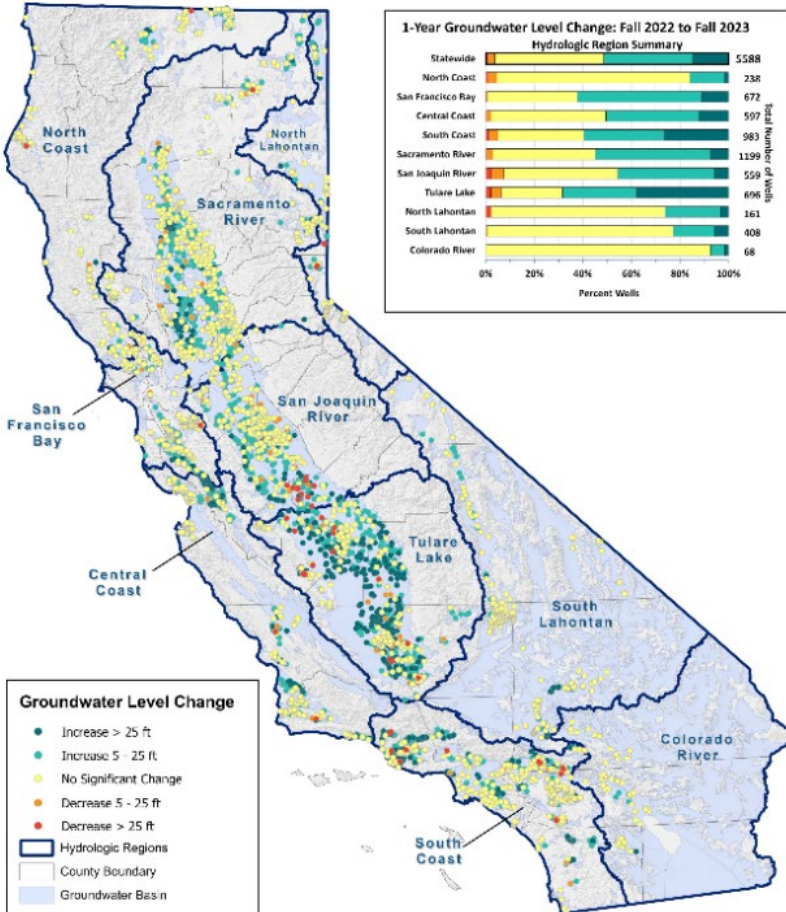


Semi-Annual Groundwater Conditions Update

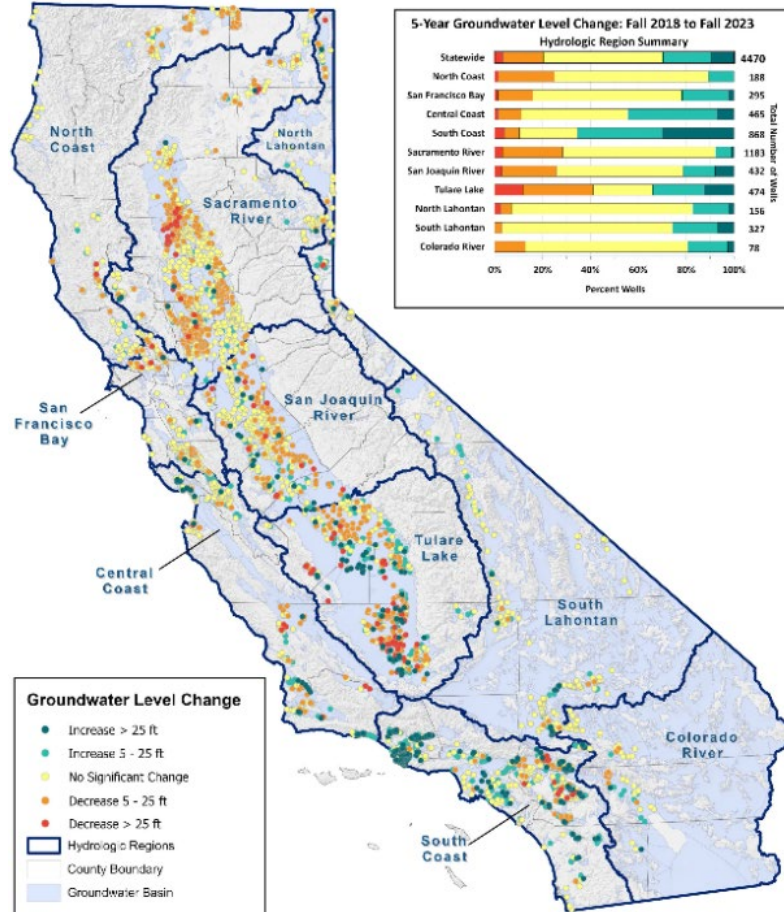
Groundwater Levels

Groundwater Levels: Improvements in Short-term (1 yr) Conditions, Long-term Declining (5 yr & 20 yr) Trends Persist

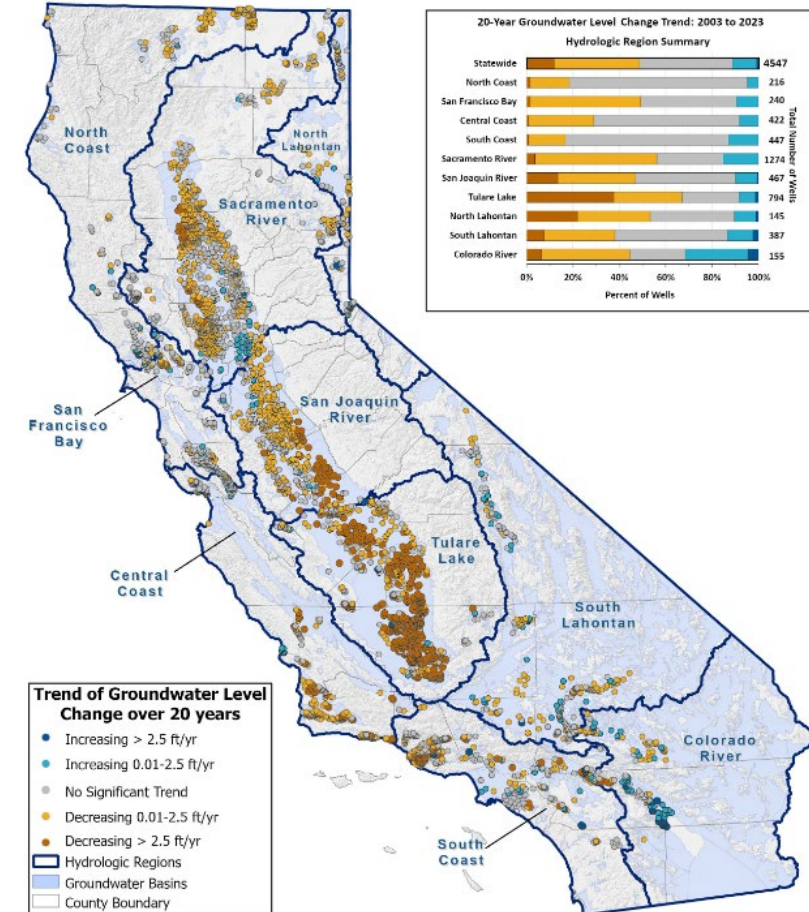
One-Year Groundwater Level Change
Fall 2022 to Fall 2023



Five-Year Groundwater Level Change
Fall 2018 to Fall 2023



Twenty-Year Groundwater Level Trend
Water Years 2003 to 2023



Semi-Annual Groundwater Conditions Update

Land Subsidence

Subsidence Conditions:

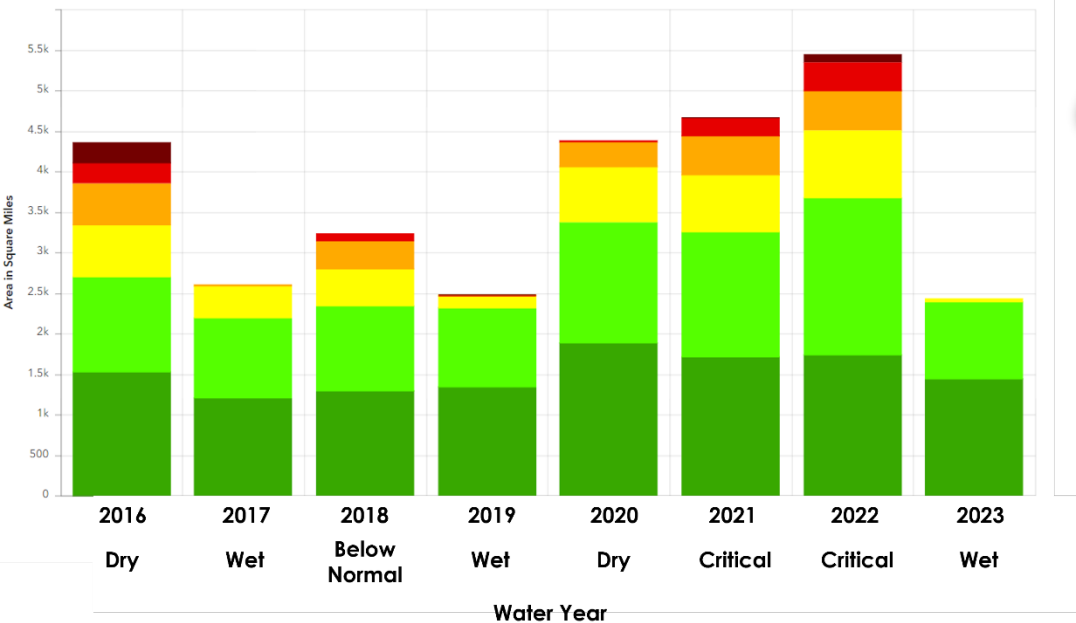
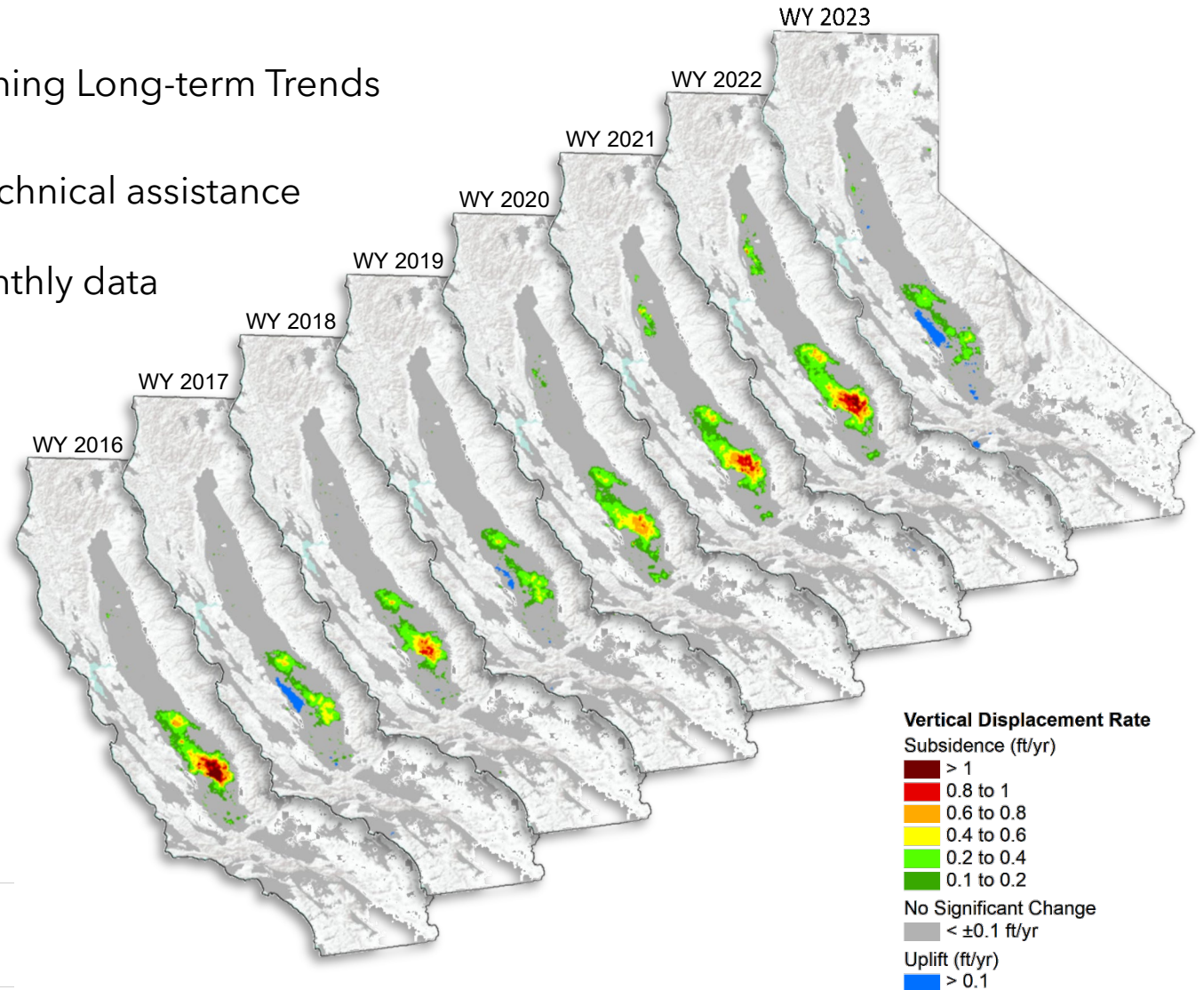
- Reduction in Short-term Subsidence Rates, Declining Long-term Trends

Statewide Land Subsidence Monitoring:

- Significant Improvement, part of DWR's SGMA technical assistance
- Data [available](#) in over 150 groundwater basins
- Data Coverage: 40,000 mi², 2015 to Current, monthly data

Statewide Land Subsidence Management:

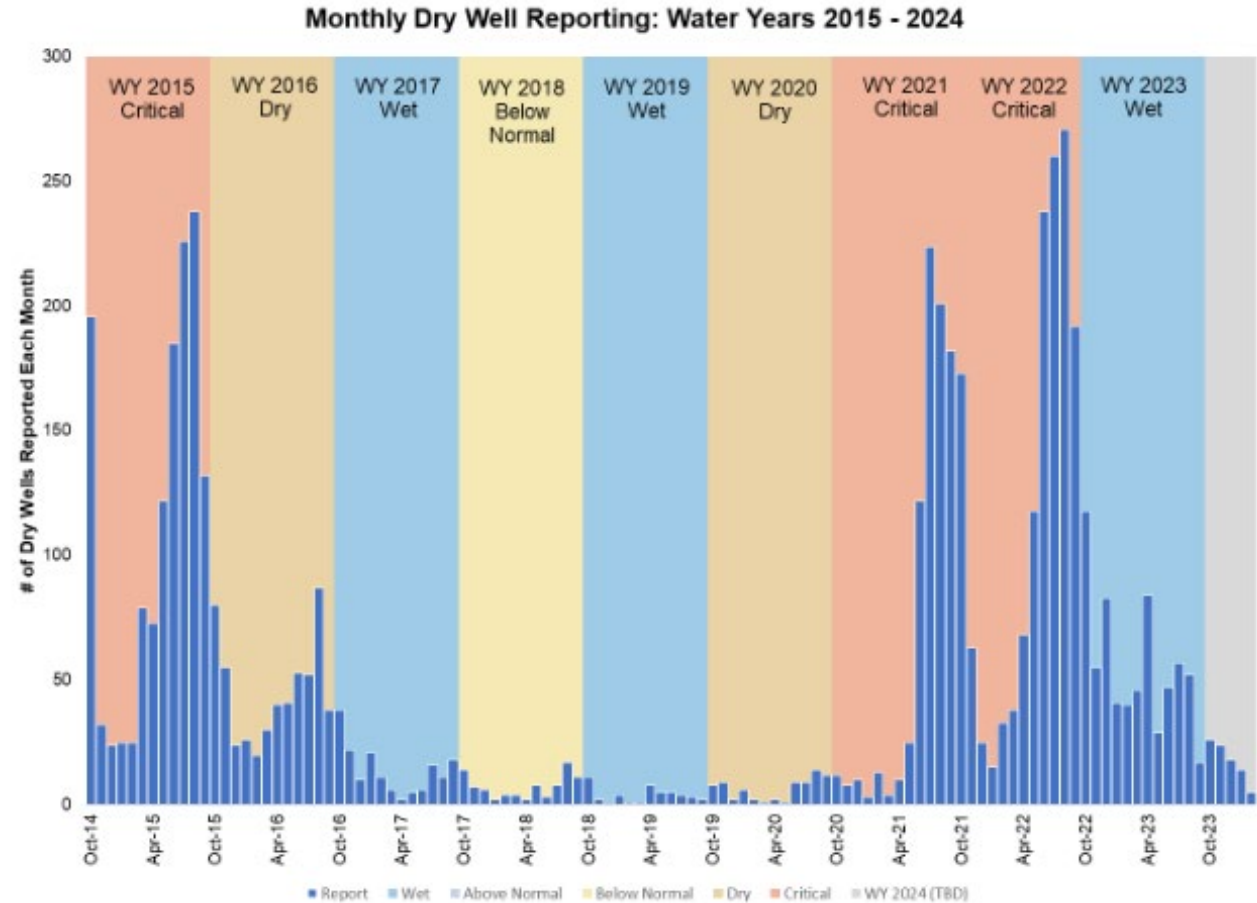
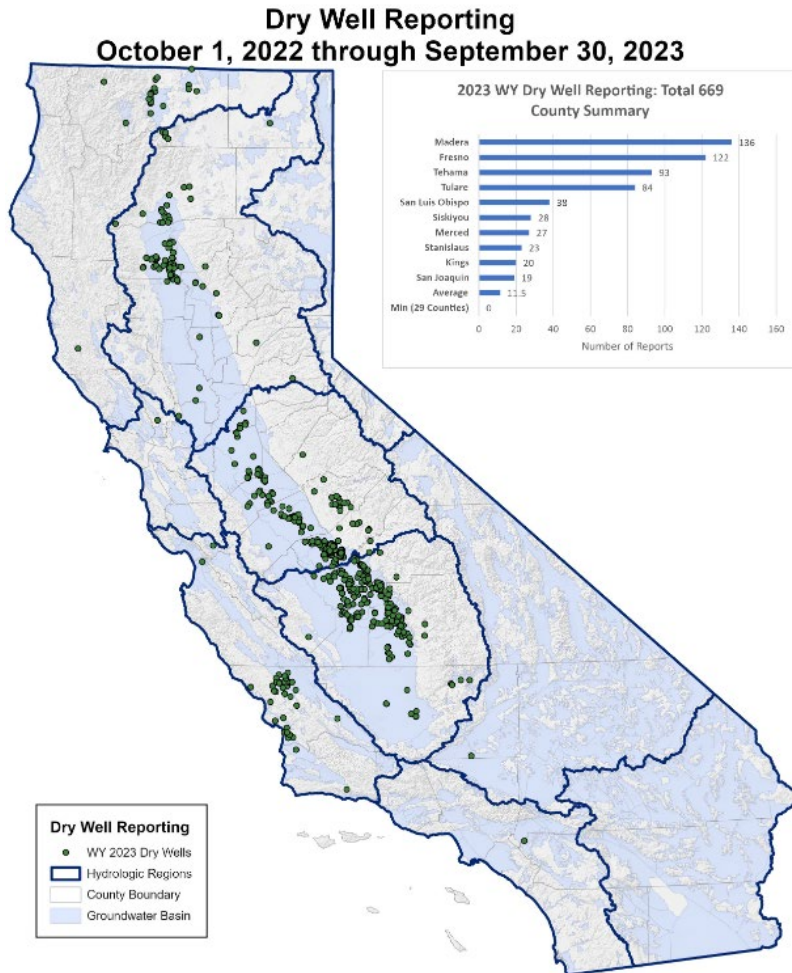
- Evolving regulatory and guidance space



Semi-Annual Groundwater Conditions Update

Reported Dry Domestic Wells

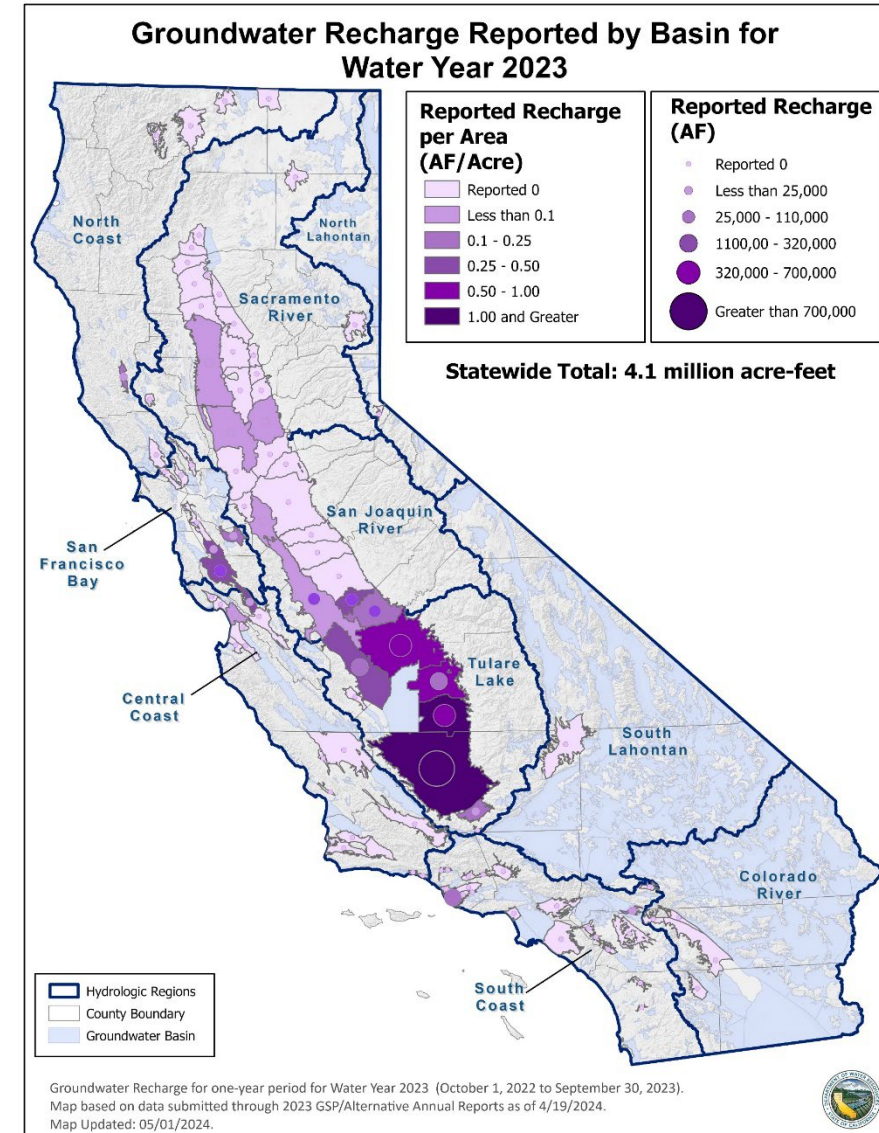
Dry Wells: Fewer Dry Wells Reported in WY 2023 and Beginning of WY 2024 than in Previous Drought Years



Semi-Annual Groundwater Conditions Update

Managed Recharge

- Most managed recharge reported in SGMA era
 - Reflects extremely wet conditions and significant local and state actions to maximize recharge
- Reported Managed Recharge Numbers:
 - Statewide Managed Recharge: **4.1 MAF**
 - Almost twice as much recharge as last wet water year 2019
 - Central Valley Managed Recharge: **3.9 MAF (94%)**
 - San Joaquin Valley Managed Recharge: **3.8 MAF (93%)**
- Exceeding Water Supply Strategy's goal to expand annual recharge by 500,000 acre-feet



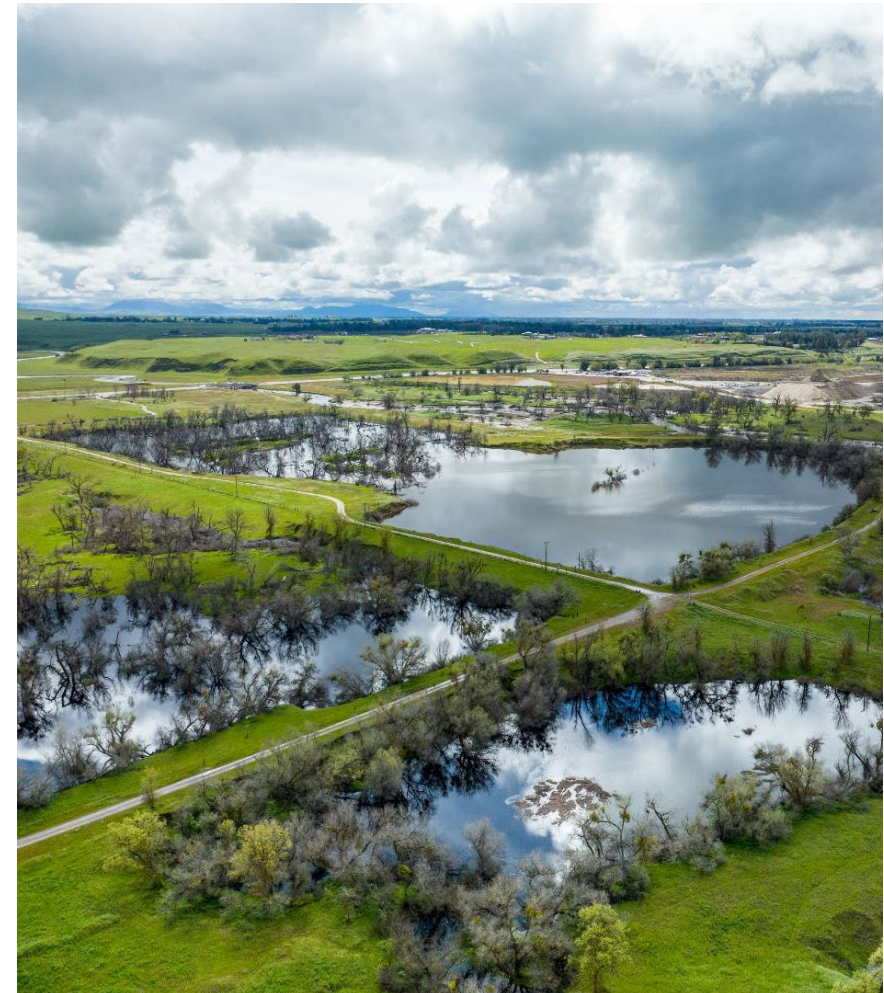
Semi-Annual Groundwater Conditions Update

Enhancing Managed Recharge

- Since 2018, DWR has awarded over \$121 million to 69 groundwater recharge projects.
 - Estimated additional recharge capacity of almost 115,000 acre-feet per year

- California’s natural groundwater infrastructure is immense, with groundwater basins providing over 10 times the combined storage of all the state’s surface reservoirs

	Total Number of Projects	Existing Capacity (AF)	Estimated Planned Additional Capacity (AF)
GSP Recharge Projects	357	2,251,572	854,962
Executive Order CEQA Exemptions for Recharge Projects^a	24	Not applicable	144,795
DWR Financial Assistance for Recharge Projects	69	Not applicable	114,860



Semi-Annual Groundwater Conditions Update

State Supported Recharge Actions

➤ Significant State actions to maximize recharge occurring, additional work needed

Recharge Actions	Reported Diversions (acre-feet)	Permitted Capacity (acre-feet)	Data Source
Flood/Recharge Executive Orders	401,403	Not applicable	Governor's Executive Orders N-7-23 & N-4-23 For Flood Diversion
SWRCB Temporary Permits - Underground Storage	20,031	669,353	Pending Temporary Permits for Underground Storage
SWRCB Temporary Use Change Petition - United States Bureau of Reclamation	20,677	602,182	Temporary Urgency Change Petitions
DWR's Temporary Flood Diversion and Recharge Enhancement Initiative	10,837	Not applicable	Participating Local Agency Reporting
Total	452,948	1,271,535	





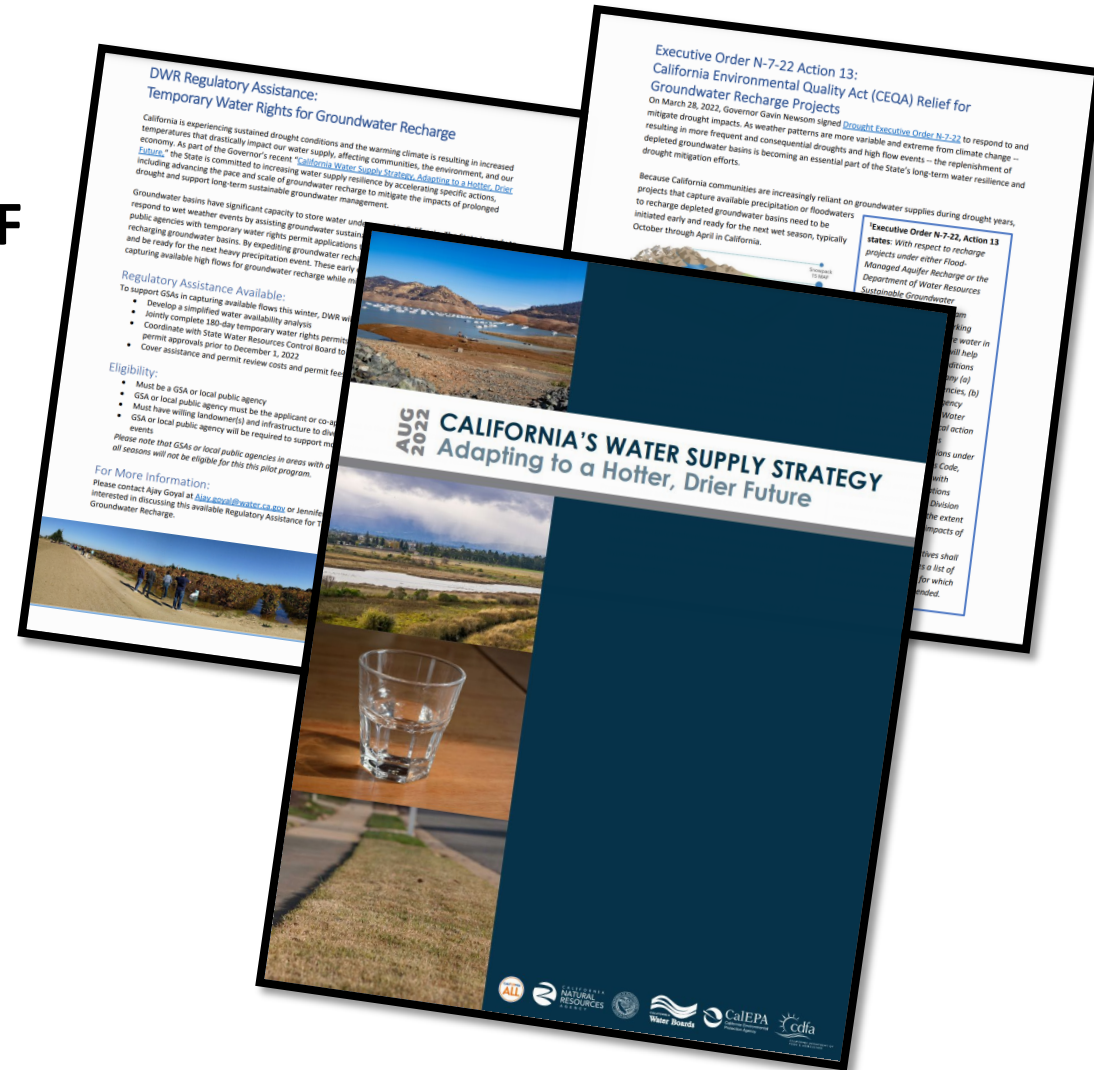
Strategies &
Resiliency in Practice
Flood Diversion & Recharge



California's Water Supply Strategy

Expediting Groundwater Recharge:

- **Increase Average Annual Recharge by 500 TAF**
- **Longer-Term Groundwater Management:** Flood-MAR and Sustainable Groundwater Management Act (SGMA) Implementation
- **Streamlined Water Rights Permits:** DWR Regulatory Assistance on 180-day Temporary, Streamlined Water Rights Permits for Groundwater Storage
- **Flood Water & Recharge Executive Orders** N-4-23, N-6-23, and N-7-23, Trailer Bill SB 122

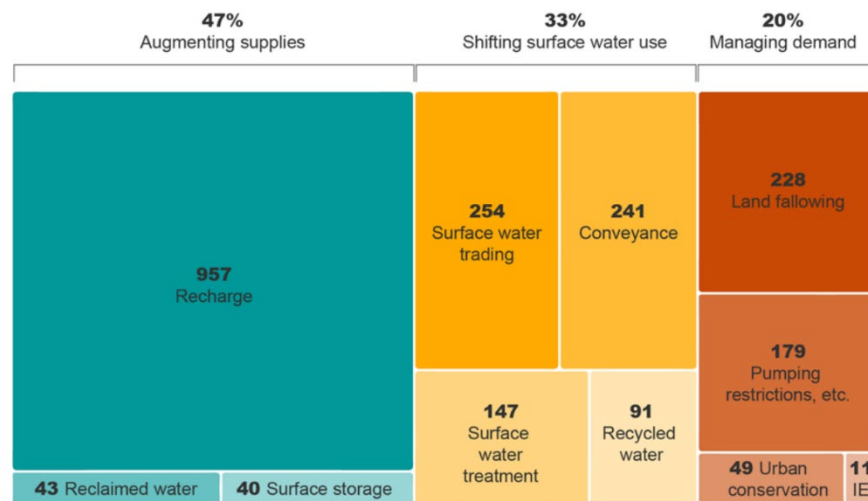


SGMA Projects & Actions

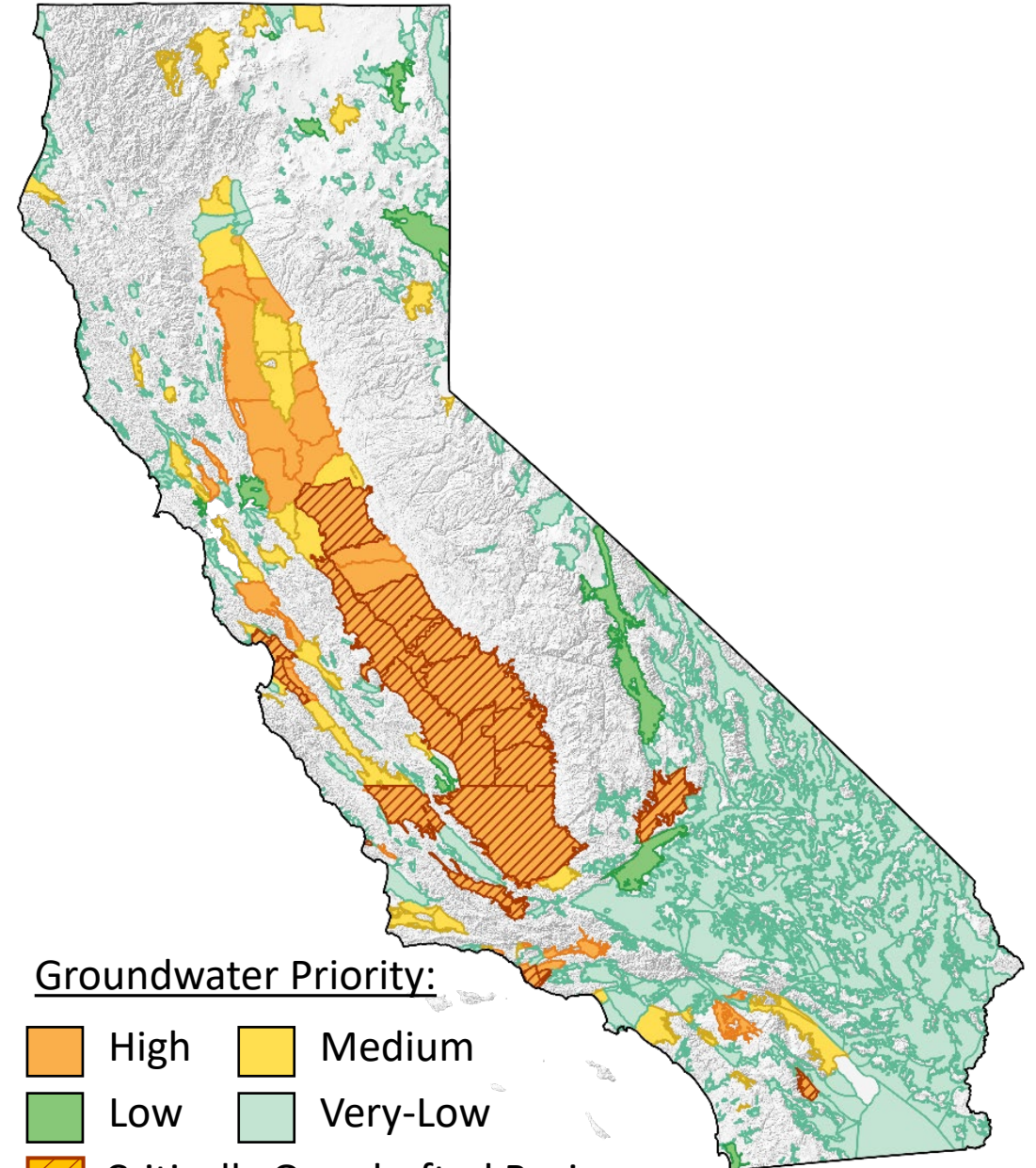
The Sustainable Groundwater Management Act (SGMA) is a framework for achieving and ensuring groundwater sustainability.

Three primary actions to achieve groundwater sustainability:

1. Reduce groundwater demand
2. Increase water supplies (Recharge)
3. Do both



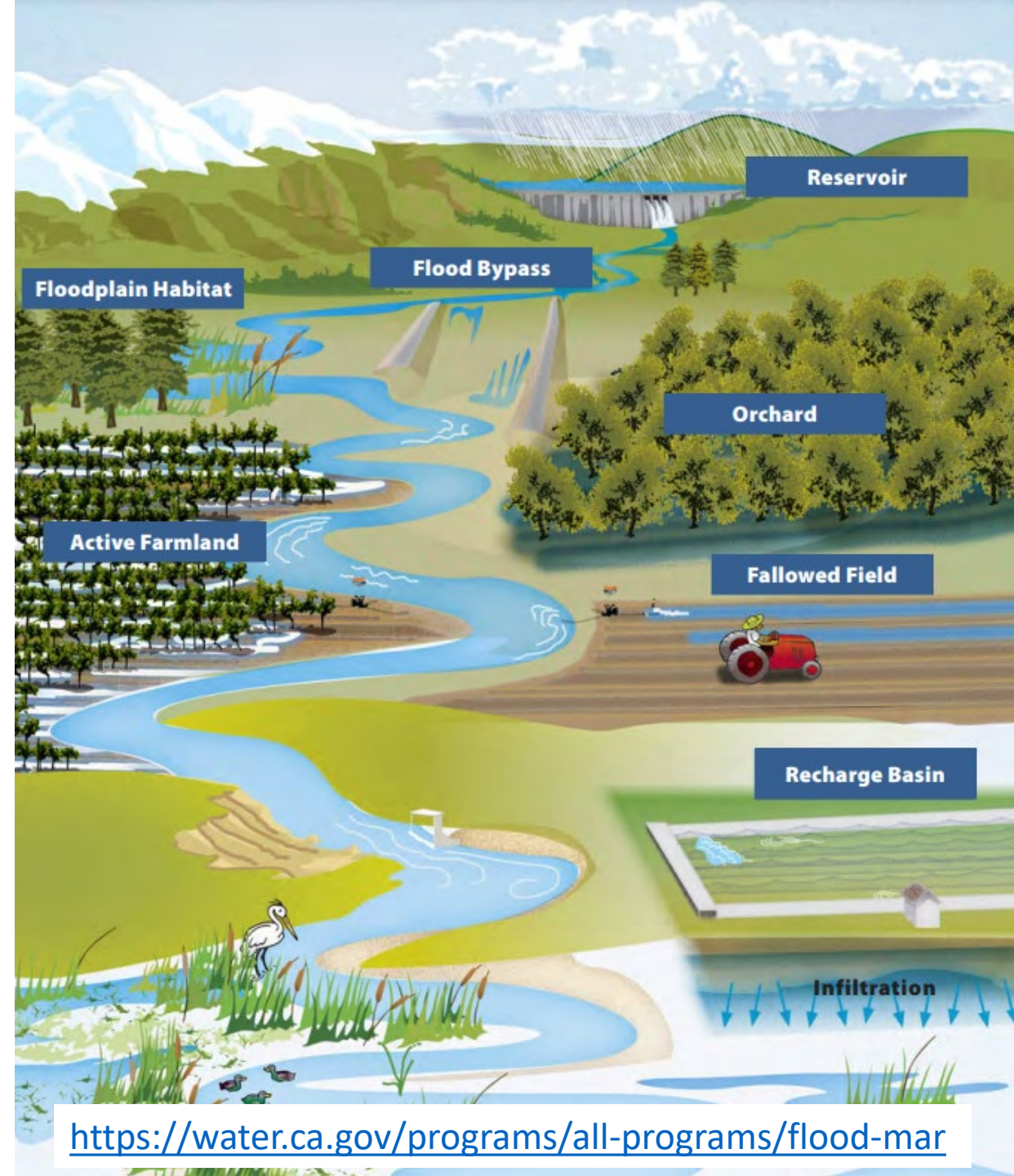
Total amount: 2,241 taffy



PPIC (2020)

DWR's Flood-MAR

Using high-flows from, or in anticipation of, rainfall or snowmelt for managed aquifer recharge on agricultural land and working landscapes

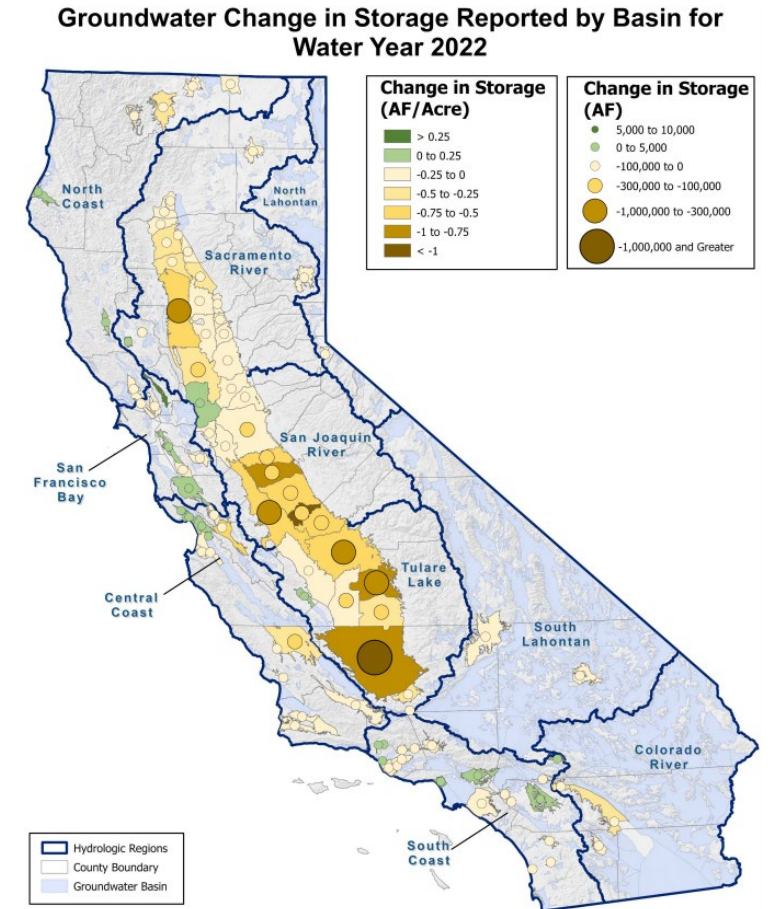
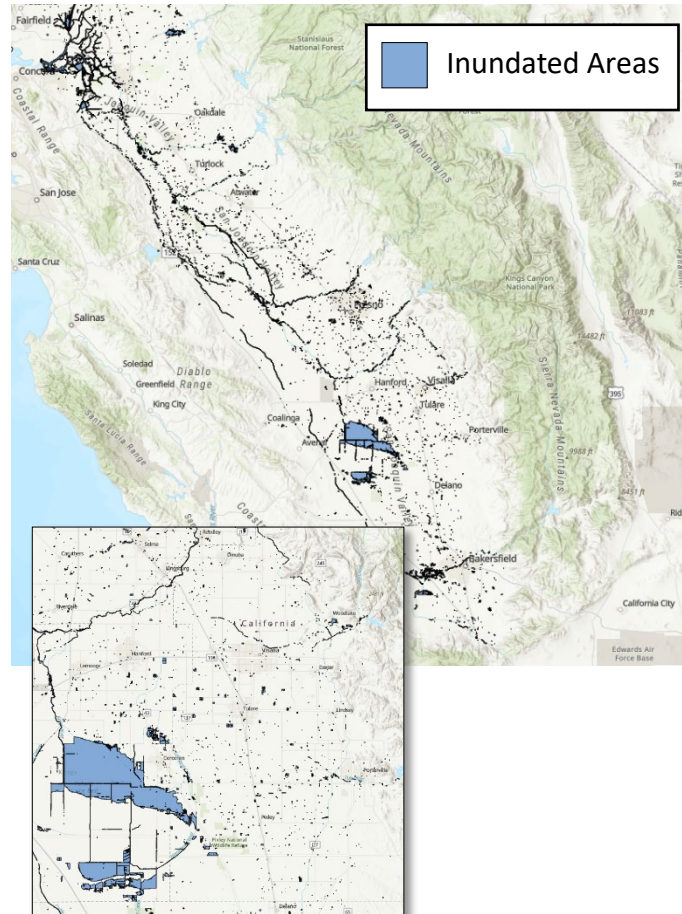
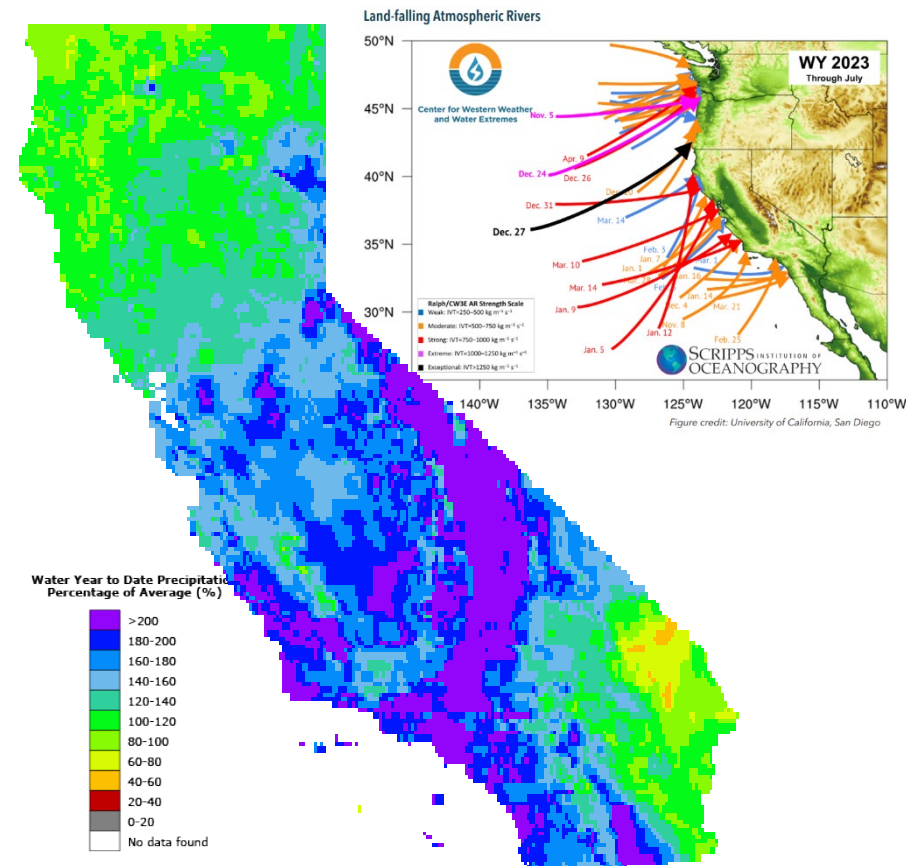


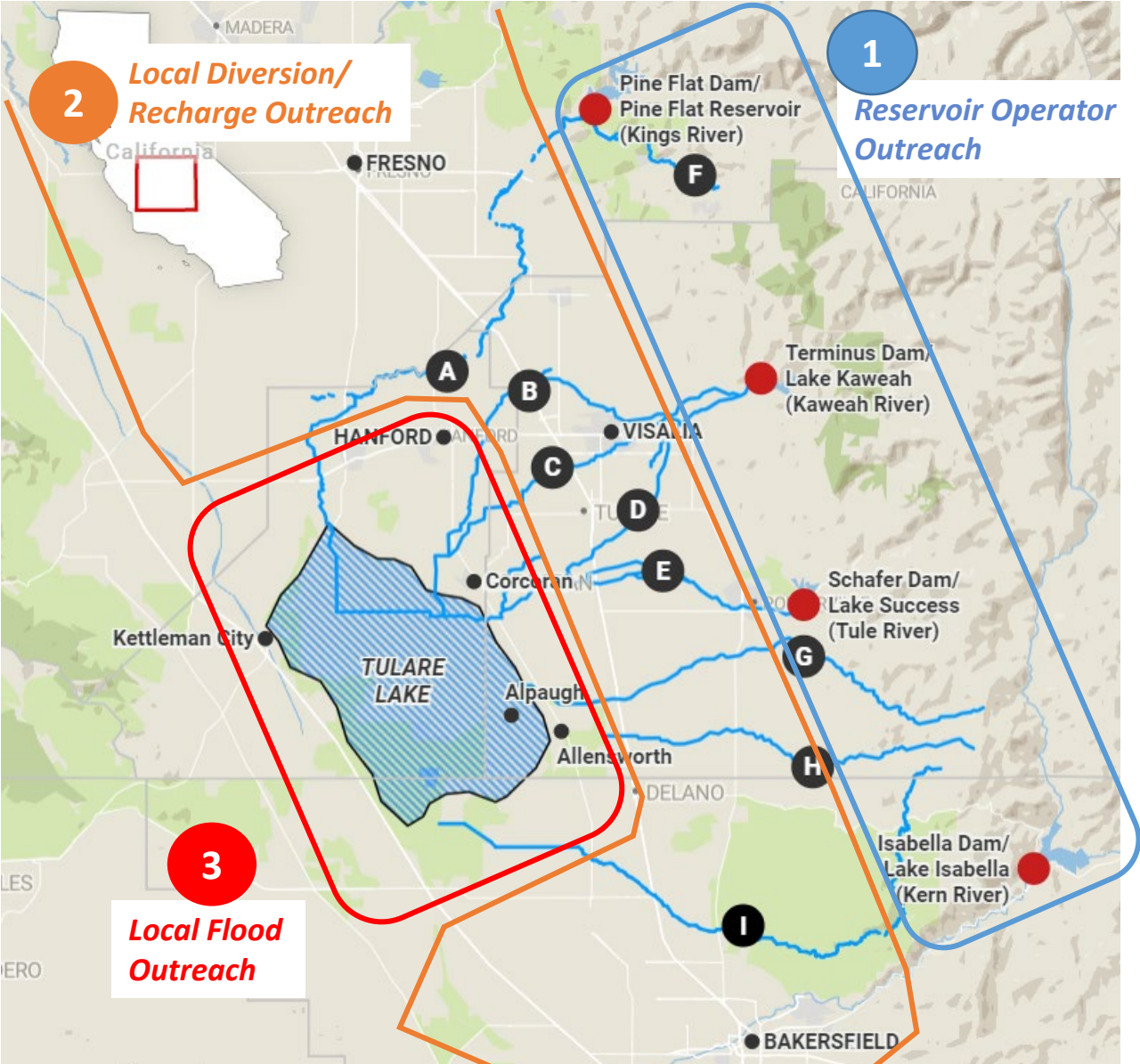
Water Year 2023: A Historic Year for Runoff and Recharge

Precipitation

Runoff & Flooding

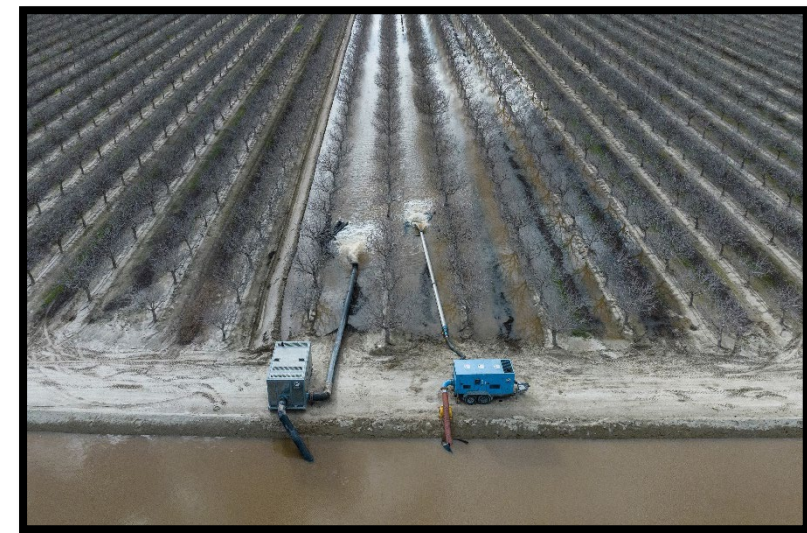
Recharge & Recovery





Runoff & Recharge Outreach and Local Assistance

- 1
Reservoir operator outreach
 - Real-time run-off conditions and forecasts
- 2
Local diversion/recharge outreach
 - Weekly outreach with water diverters, flood managers
 - Maximize diversion in existing water delivery systems
 - Temporary pumps and flood diversion equipment enhanced local efforts to reduce flood risk and move flood waters to suitable recharge areas



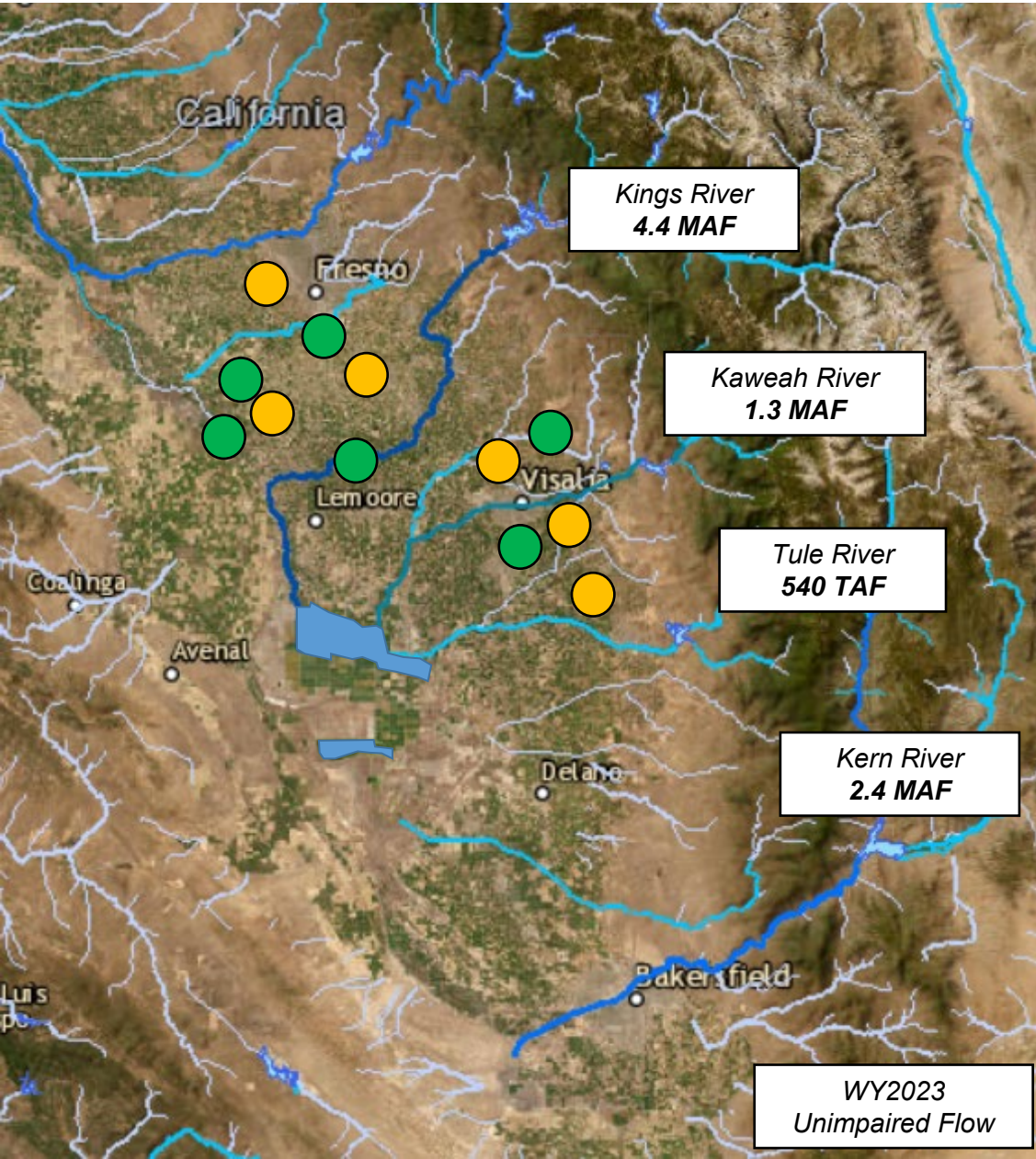
3 Local flood outreach

A Kings River
 — River/Stream
 ● Dam/Reservoir
 Tulare Lake (historic area)

B St. John's River/Cross Creek
 C Kaweah River/Packwood Creek
 D Elk Bayou/Outside Creek
 E Tule River

F Mill Creek
 G Deer Creek
 H White River
 I Poso Creek

Temporary Flood Diversion & Recharge Enhancement



● Temporary Pumps *Increase Flood Water Diversion and Maximize Recharge*

- 30 pumps, 1 siphon deployed in ~4 weeks
- Emergency Resource Request/Mission Tasking
- Enhanced Local Efforts



● Land Clearing *Increase Acreage to Divert Flood Flows and Expand Recharge*

- Flood Risk Reduction
- Drought Mitigation
- Expedite transition to sustainable groundwater management



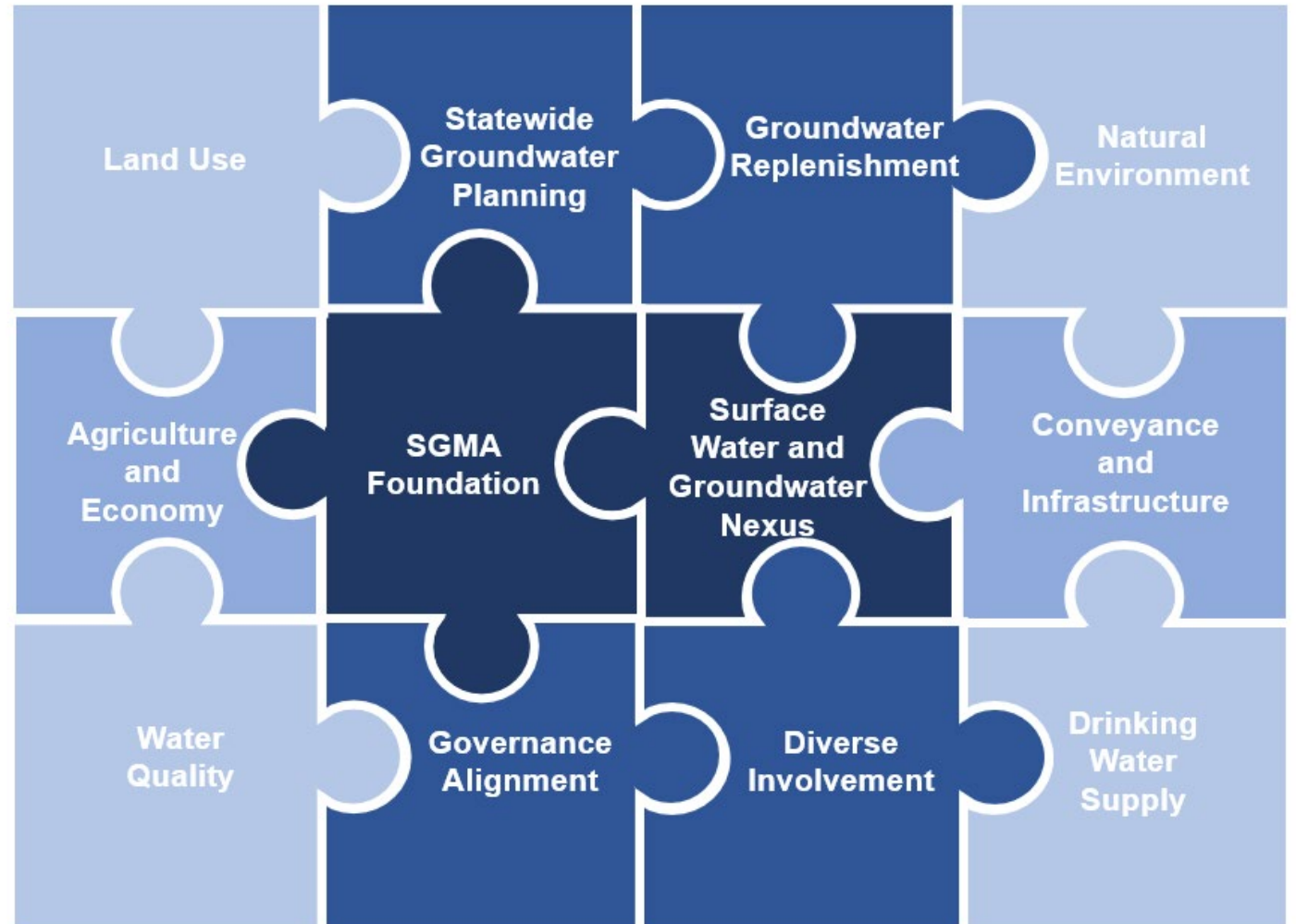
Future Actions

- Continue connecting flood responders and managers with groundwater and drought managers
- Prepare for the upcoming winter & runoff season – expand flood diversion & recharge efforts
- Explore longer-term opportunities to maximize flood diversion and recharge
 - Hazard Mitigation – Flood and Drought
 - Other Planning elements
- Improve understanding of climate change impacts to underserved populations to reduce flood risk and improve drought resilience



Closing Thoughts

- **Substantial Increase in GW Data Volume and Access**
- **Projects and Actions**
 - Local partnership/projects/pilots are critical – GSAs, Frontline Communities
- **Monitoring and Adapting**
 - Filling Data Gaps in new ways
 - Citizen Science
 - Track Performance
 - Improve Understanding
- **Coordination and Alignment**
 - Local to Regional Management
 - Engagement
 - Connecting Flood/Drought/Groundwater



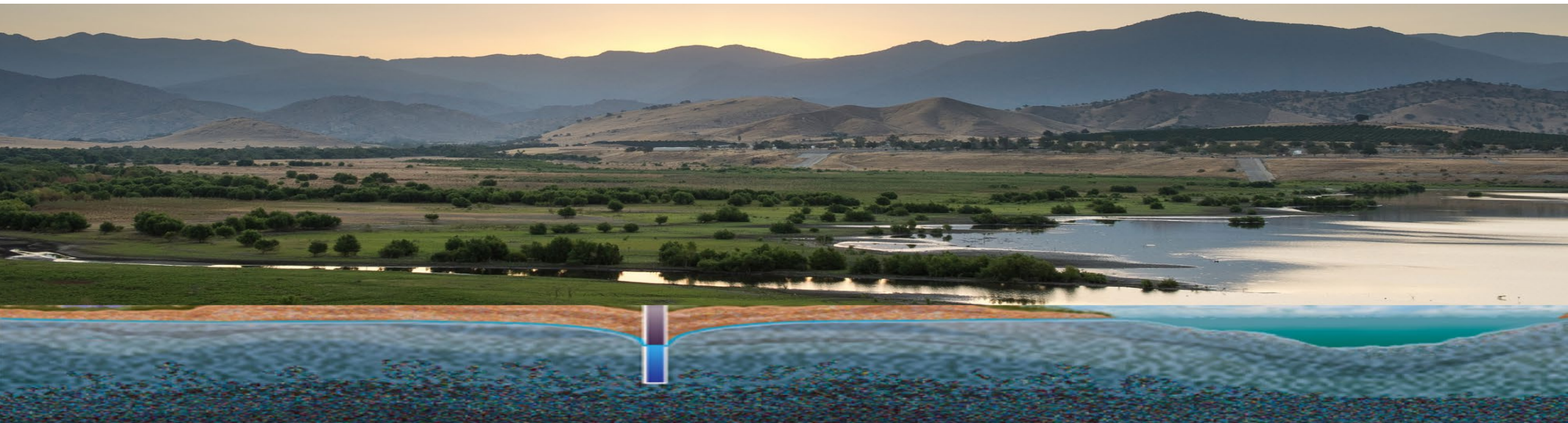
State of California's Groundwater

- Summary: Significant progress has been made, yet work remains to achieve sustainability

For more information contact: sgmps@water.ca.gov

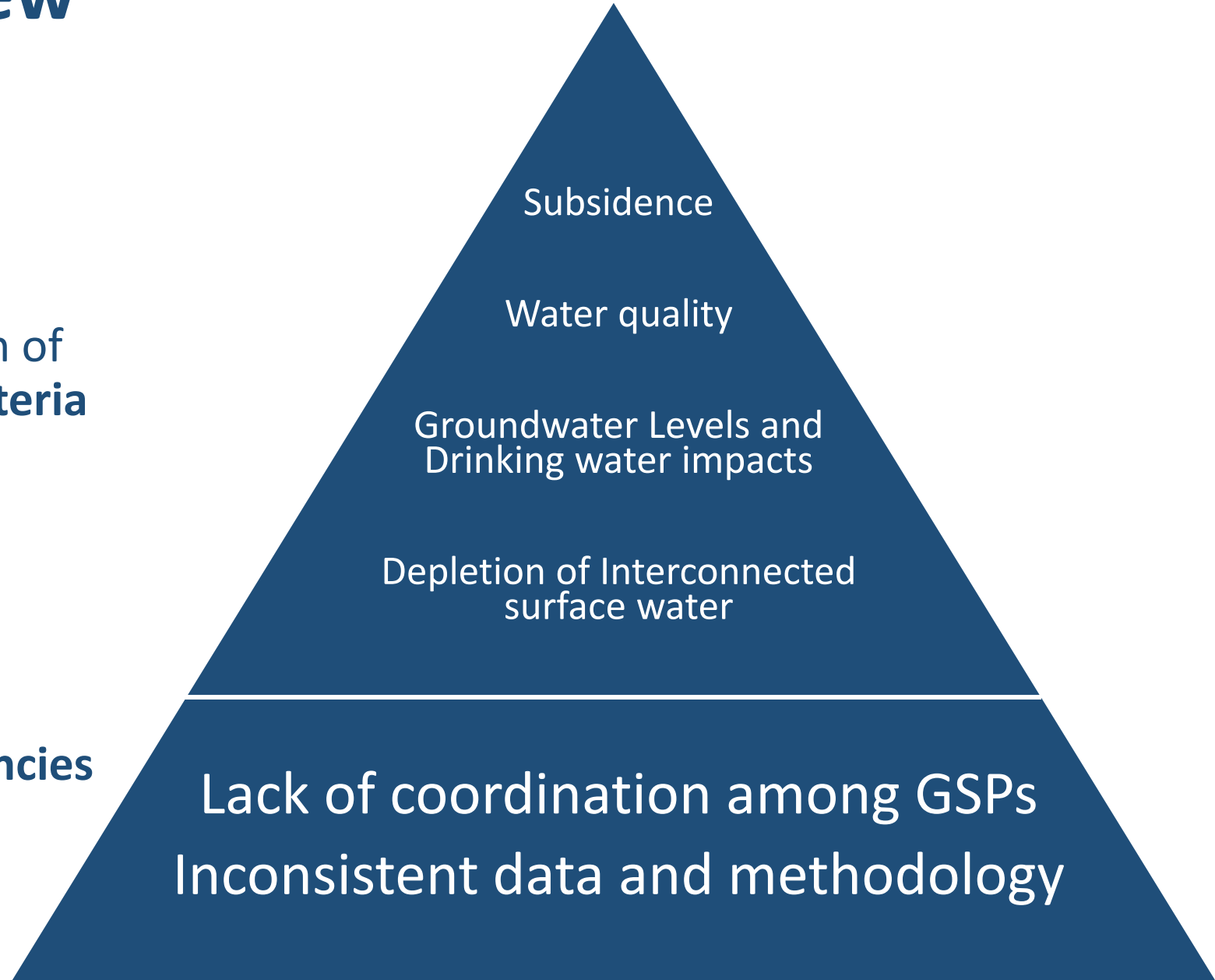
Additional Resources:

- <https://water.ca.gov/Programs/Groundwater-Management>
- <https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118>



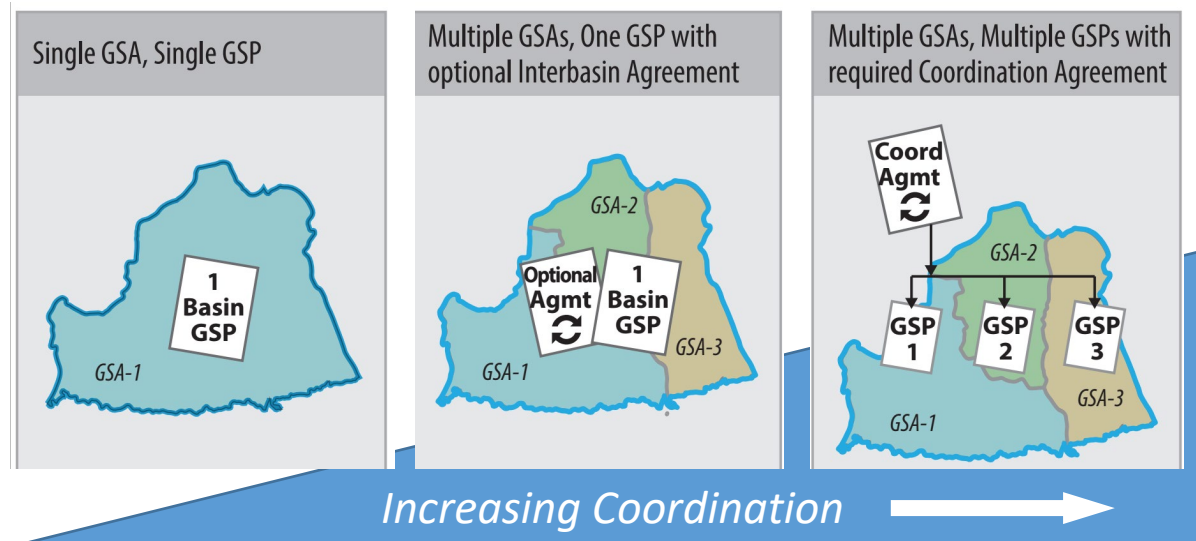
Themes of Plan Review

- **All Plans Need Improvement and Adaptive Management**
- **Incomplete GSPs**
 - Additional analysis and justification of how **Sustainable Management Criteria** were developed or will need to be developed further
 - Did not considered all **Beneficial Groundwater Users and Uses**
 - Some **multi-plan basins** did not coordinate and address **inconsistencies in their data and methodologies**



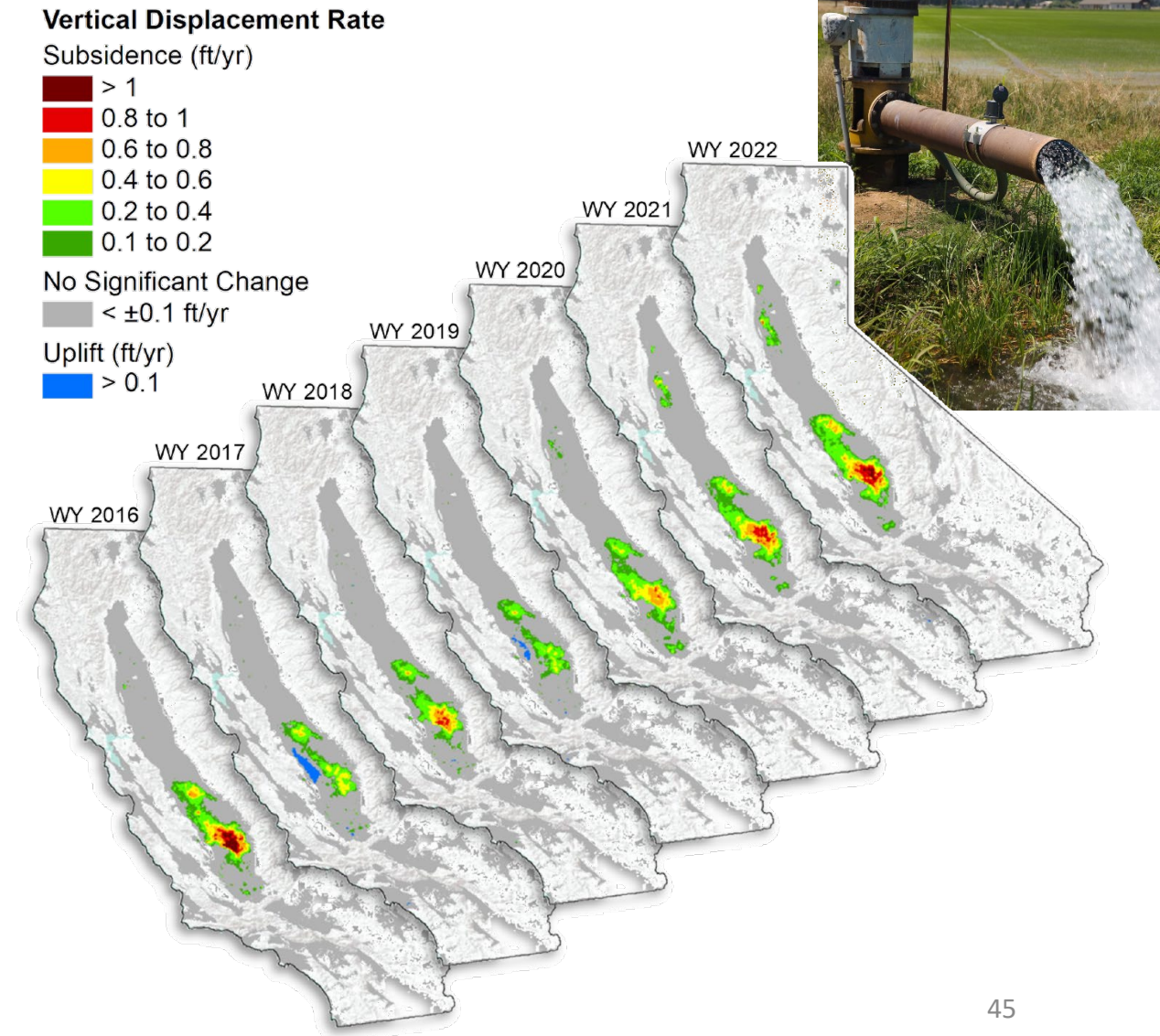
Governance & Management Challenges

- New-ish Governance and Management Structures
- Local and Regional Coordination
- Balancing Competing Interests
- Sustainable Funding



Quantity Challenges

- Balancing Water Budgets
- Land Subsidence
- Allocations & Markets
- Hydrologic Variability & Climate Change (Flood/Drought)



Quality Challenges

- SGMA Water Quality Focus
 - Use of Groundwater
 - Projects and Management Actions Implemented as Part of the GSP
 - Flood Water Diversion and Recharge
- Integration with Existing Water Quality Regulatory Programs and Laws



Questions

To ask a question, please use the chat box or use the raise hand feature.





Thank you

Next WACO meeting:

Friday, July 12, 2024 at 7:30am via Zoom

Next WACO planning meeting:

Tuesday, June 18, 2024 at 7:30am via Zoom

