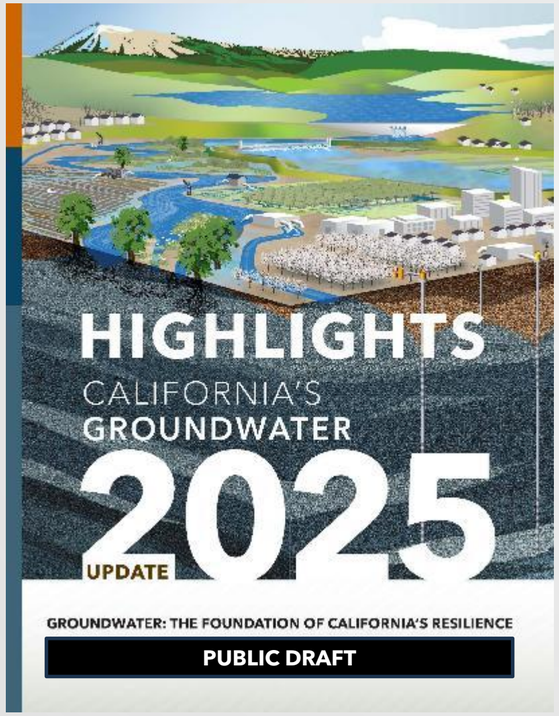
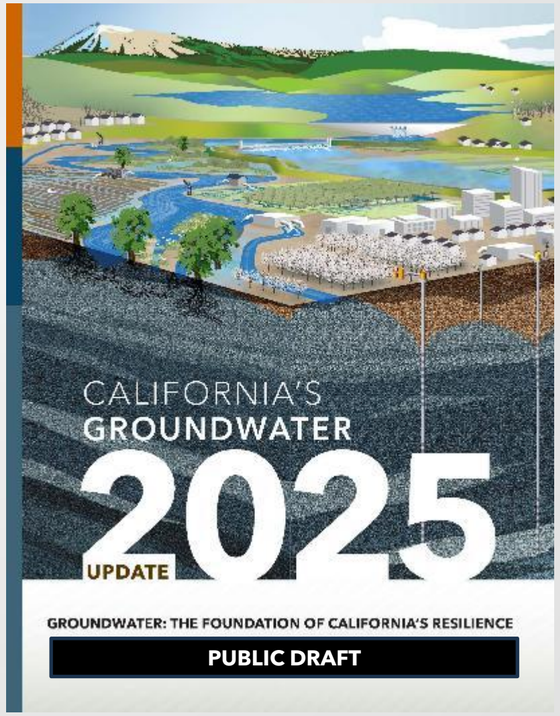
California's Groundwater: Bulletin 118 – Update 2025





Public Webinar
November 04, 2025

CalGW Update 2025

Agenda & Housekeeping

Agenda

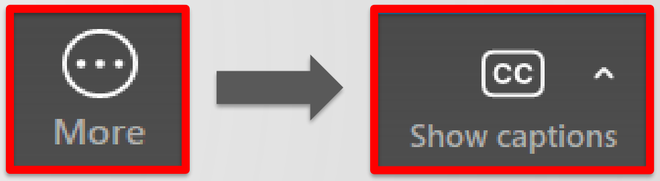
- Webinar Logistics & How to Comment/Ask Questions
- Overview of California's Groundwater (CalGW) Update 2025
- High-Level Chapter-by-Chapter Details
- Next Steps & Resources
- Question & Answer Portion


ELECTION DAY
DON'T FORGET
TO VOTE

CalGW Update 2025 Webinar Logistics

- Recordings will be available online at www.water.ca.gov/CalGW
  (English & Spanish caption versions)

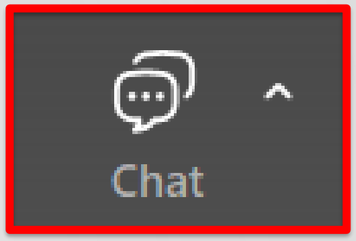
- **Turn on live captioning** in the meeting controls toolbar (click ‘More’ if the icon is not initially showing there, to enable)



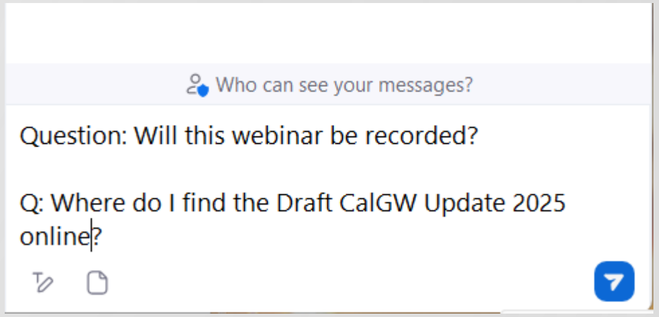
- Technical difficulties? Contact **Joshua Baar** via chat direct message

Webinar Questions & Comments

- Use the **Zoom Chat feature** to ask clarifying questions & provide public comments throughout the webinar



  - Designate a “Q” for questions
  - Clarifying questions will be prioritized & answered
  - Comments will be noted
  - Please provide longer comments via email



Comment Period Logistics

- Email questions & submit public comments to CalGW@water.ca.gov
  - Please reference the document, section & page you are commenting on
  - Include any attachments you need to support your comment
  - Comment period closes Friday, December 5, 2025

Período de comentarios

Instrucciones en Español

- Envíe sus preguntas y comentarios sobre el Agua Subterránea de California – Informe 2025 a CalGW@water.ca.gov.
- El periodo de comentarios cierra el 5 de diciembre del 2025.
- Por favor, haga referencia a la página, sección, y pagina en la cual su comentario(s) apliquen.
- Incluya cualquier documento o nota que apoye a su comentario.

La grabación de este seminario web con subtítulos en español estará disponible aquí: www.water.ca.gov/CalGW

CalGW Update 2025

Overview

California's Groundwater Update 2025

Groundwater: The Foundation of California's Resilience

California's Groundwater Overview

515 Groundwater Basins

In an average year, about

40%

of California's water supply comes from groundwater

In dry years, up to

60%

Over

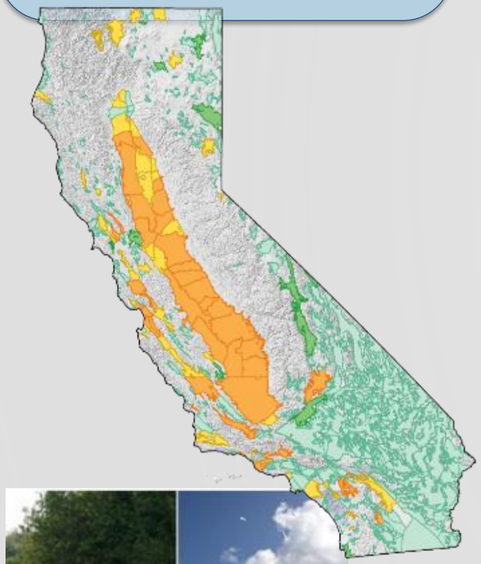
80%

of Californians rely on groundwater

California’s Groundwater Connected Activities

Requirements

Water Code 225, 226, 229, 231
10720.1, 10729, 10920, 12924
Water Resilience Portfolio,
Water Supply Strategy, Drought/ Flood/Recharge



California's Groundwater (Bulletin - 118) Updates – CalGW

California’s Groundwater Basin Characterization – CalGWBC

100+ GSP HCMs

Statewide AEM Surveys

Local Pilots & Regional Studies

C2VSim & Local Models

Texture Modeling & HydroStrat Analysis

Local & Regional Basin Characterization

California’s Groundwater Monitoring – CalGWM

Geophysics	Wells	GW Levels	Subsidence	WQ	Land Use
Statewide AEM Infill AEM tTEM/FloaTEM NMR/e-logs	**OSWCR**	**CASGEM & SGMA**	InSAR CGPS Extensometers	DWR WQ Board WQ	Crop Mapping Statewide County Level

New Groundwater Monitoring & Characterization Funding

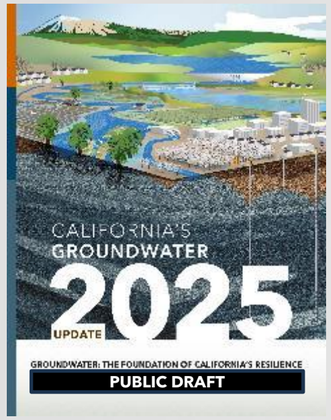
Data Reporting & Coordination

Public ↔ Technical (Audience)

- **CalGW Live**
- **CalGW B-118 Reports**
- **SGMA Data Viewer**
- **BCX**
- **2D/3D Data Viewer**
- **Open Data**

California’s Groundwater Products

1



California’s Groundwater (B-118) Comprehensive Updates

in years ending in 5

2

California’s Groundwater (B-118) Semi-Annual Updates

Expanding in Spring, Conditions in Fall

3

California’s Groundwater Live

Expanded Content

Level of Detail & Analysis

Now 10 years (Next one – 2035)

6 months

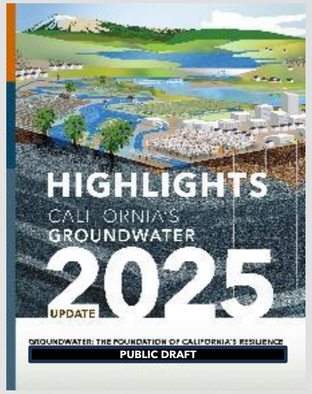
daily

Update Frequency

CalGW Update 2025 – Public Draft Content

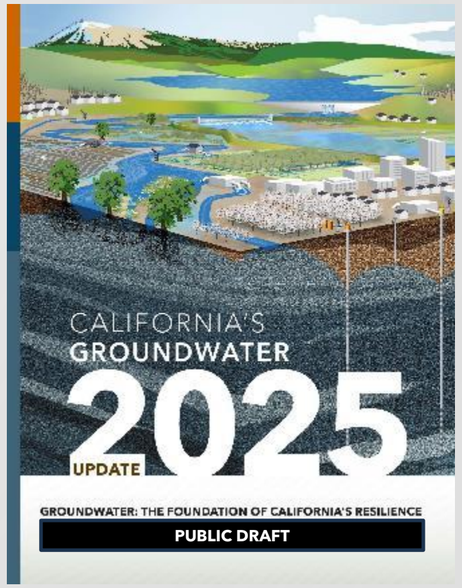
DRAFT Highlights *(English & Spanish)*

- Summary of Statewide Report
- Key Findings & Recommendations



DRAFT Statewide Report *(English)*

1. Context & Vision for Sustainable Groundwater Management
2. Progress towards Sustainable Groundwater Management
3. California's Natural & Built Groundwater Infrastructure
4. Water Use, Extraction & Budget
5. Groundwater Monitoring
6. Groundwater Conditions
7. Regional Groundwater at a Glance (10 HRs)



AVAILABLE DRAFT Appendices

Appendix A – Findings & Recommendations
Appendix B – Glossary
Appendix D – Reference Materials
Appendix I – Update on Land Subsidence in California

CalGW Update 2025 – Themes

1. Maximizing Groundwater Infrastructure for Climate Adaptation & Resiliency

2. Accelerating Momentum for Sustainability

3. Strengthening Connections for Equity

4. Enhancing Groundwater Data, Tools & Analysis for Decision Support

CalGW Update 2025 – Recommendations

- Aligned with CalGW 2025 themes
- Each recommendation backed by specific actions
- Total of 15 recommendations & 59 actions
- 2020 recommendations retained & refined
- New 2025 recommendations driven by findings
- Some actions interconnected

Theme	Recommendation Topic	Actions
Maximizing Groundwater Infrastructure	Basin Characterization	6 (3 New)
	Investments & Funding	1
	Non-Financial Incentives	2
	Innovation & New Technology	2
	Climate Change (New)	3 (3 New)
Accelerating Momentum for Sustainability	Oversight, Support, & Stewardship	3
	Multi-Benefit Projects	6 (2 New)
	Water Markets & Transfers	3
	GSA Capacity Building	3
Strengthening Connections	Engagement	3 (1 New)
	Coordination	4 (1 New)
	Groundwater Education	4
Enhancing Data, Tools & Analysis	Data Collection	12 (2 New)
	SGMA Portal	2 (1 New)
	Methods, Standards, Tools	5 (2 New)

CalGW Update 2025 – Collaborating Agencies

- NGO Advisory Group
- State Water Board
- U.S. Geological Survey
- Dept. of Conservation
- NASA, Jet Propulsion Laboratory
- CA Dept. of Fish & Wildlife
- CA Dept. of Food & Ag
- CA Water Commission
- Association of California Water Agencies
- Northern California Water Association

CalGW Update 2025 – Development Team

Core Team	**Department of Water Resources:**	Steven Springhorn	Amanda Ott	Emilia Wisniewski	Erin Crandall	Brett Wyckoff		
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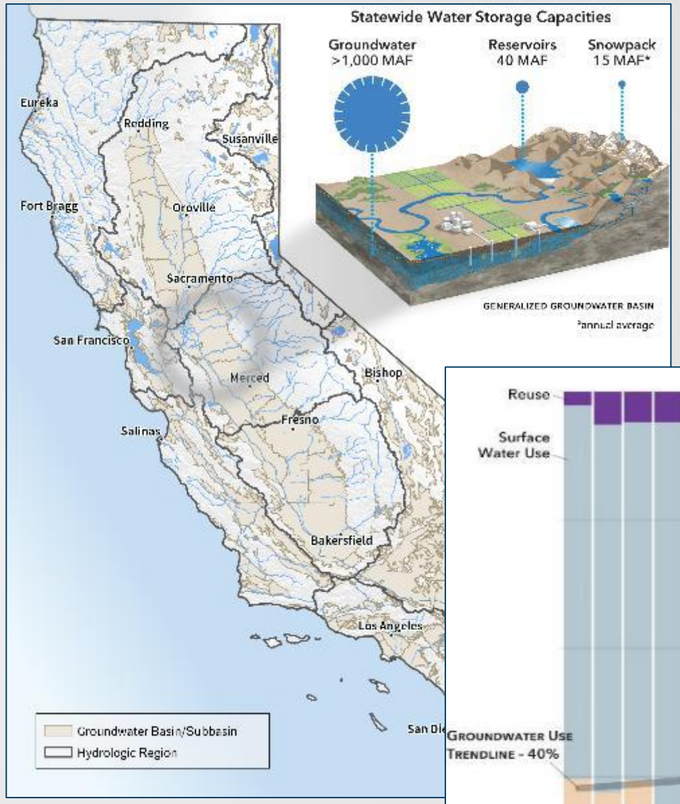
Content Leads	Bill Brewster	Katherine Dlubac	Andres Guillen	Barrett Kaasa	M. Katy Janes	Mark Nordberg		
	Erica Haight	Kyle Hardage	Michelle Dooley	Wyatt Arnold	Romain Maendly			
Technical Review	Roy Hull	Dane Mathis	Jack Tung	Jennifer Marr	Shane Edmunds	Bryce Russell	Chris Bonds	
	Jim Blanke	Rich Juricich	Reza Namvar					
Additional Content Developers & Reviewers	Yaman Al Ahmed	Craig Altare	Nicholas Anchor	Alexander Arita	Dee Ayres	Jorge Baca	Christopher Baker	Victor Bautista
	Tad Bedegrew	Kimberly Bowman	Benjamin Brezing	Alyse Briody	Nathan Burley	Zhiming Chen	James Common	Jackson Cook
	Jamie Dubay	Julie Ekstrom	Behrooz Etebari	David Fairman	Monique Gaido	Eric Garcia	Benjamin Gooding	Vivian Guillen
	Francisco Guzman	Edween Hernandez	Zoe Kanavas	Abdul Khan	Salma Kibrya	Kelley List	Quinn Little	Christopher Lyles
	Evan MacKinnon	Bryce Matsumura	Caitlin McHugh	Andrew Morgan	Anthony Navasero	Michael Parker	Constance Pawell	George Peraza
	Anita Regmi	Andrew Renshaw	Giancarlo Restreppo	Alicia Ruplinger	Monica Salais	Andrew Schwarz	Heather Shannon	Paul Shipman
	K. Sunny Singh	Deborah Spangler	Jennifer Stricklin	Scarlett Tovar	Michelle Zhang			
	Nicole Jacobsen (Woodard & Curran)		Art Machado (Woodard & Curran)		Lorraine E. Flint (Earth Knowledge, Inc.)			
	Appendix I:	DWR	INTERA, Inc.	Borchers	Luhdorff & Scalmanini Consulting Engineers			
Partner Agencies	State and Regional Water Boards:		Mike Conway	Emily Haugen	Emily Houlihan	Sarah Sugar		
	Adam Weinberg (CDFW)		John Reager (NASA JPL)					
Graphics & Production	Asif Ali	Frank Keeley	Scott Olling					
	Sandy Bailey	Leah Makler						
Public Affairs	Ryan Endean	Allison Armstrong	Joshua Baar					

CalGW Update 2025

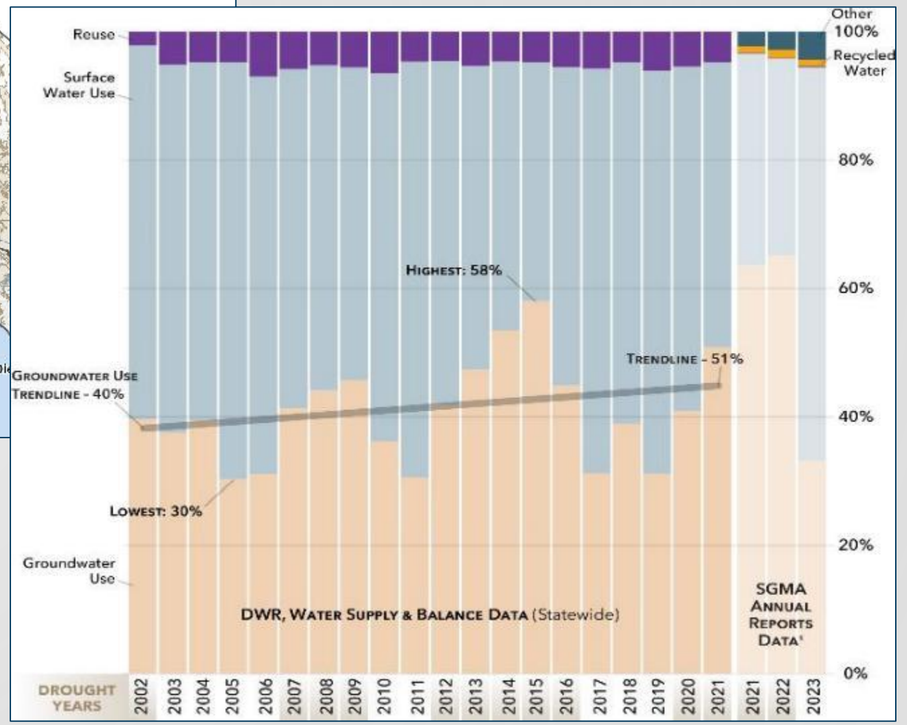
Chapter 1

Chapter 1: Context & Vision for SGM

- Role of groundwater in California
- State's water management goals
- Core themes of CalGW Update 2025
- Advancing equity in groundwater management
- Climate change resilience, adaptation, extremes
- Structure & organization of CalGW Update 2025



CA's Groundwater Basins



CA Water Use by Source

Chapter 1: Context & Vision for SGM

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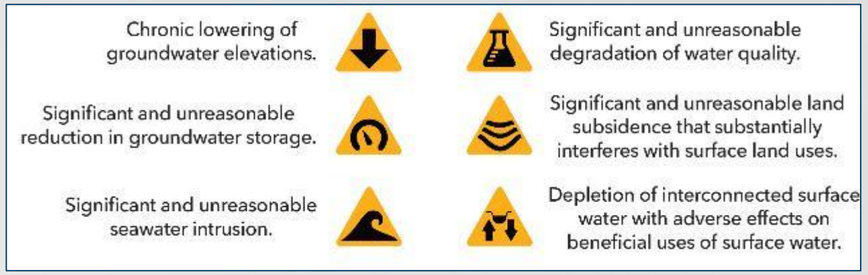

Six Undesirable Results Defined in SGMA

Multi-Faceted Nature of Climate Change Impacts

Chapter 1: Context & Vision for SGM

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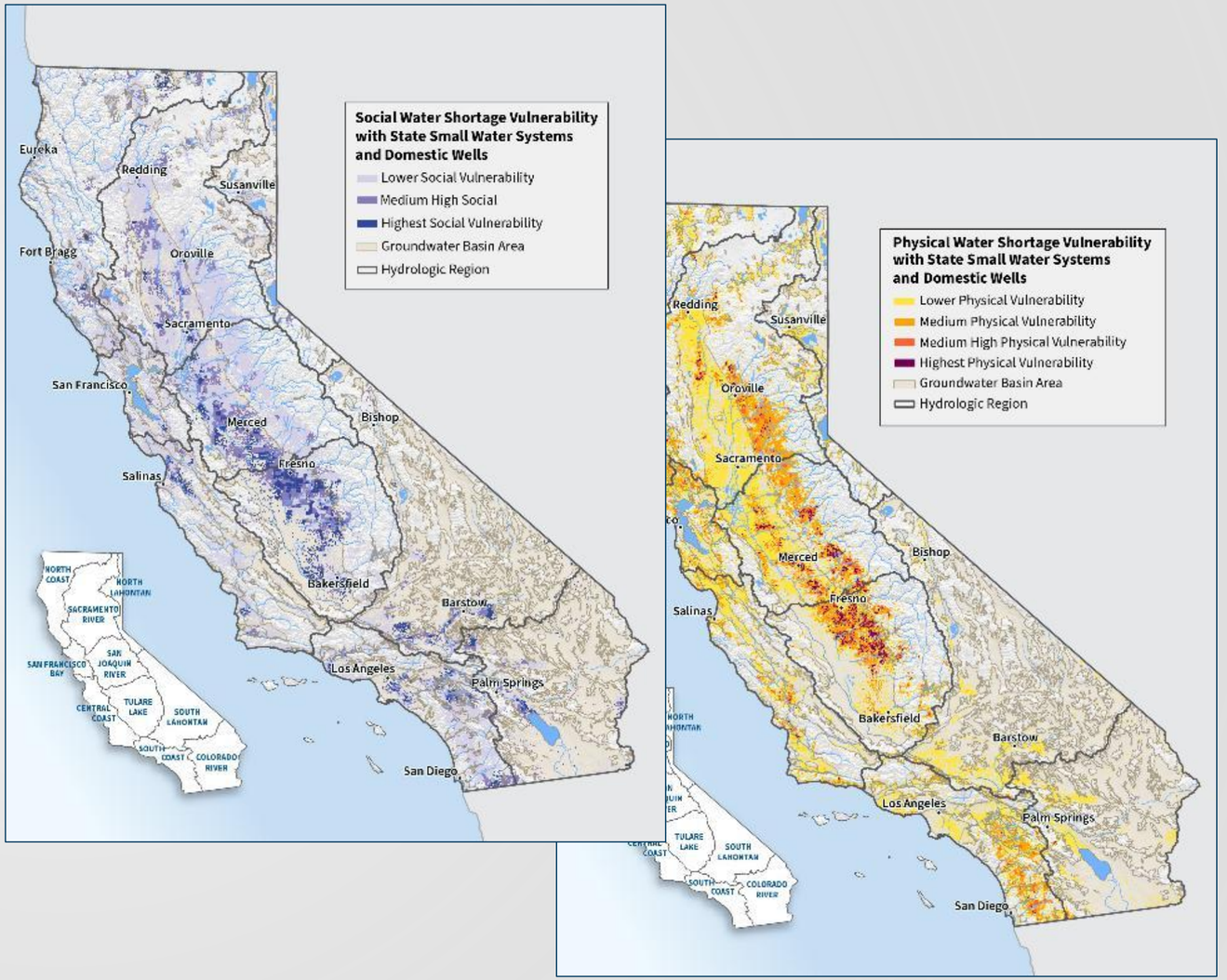

Data Source: Water Shortage Vulnerability Scoring and Tool

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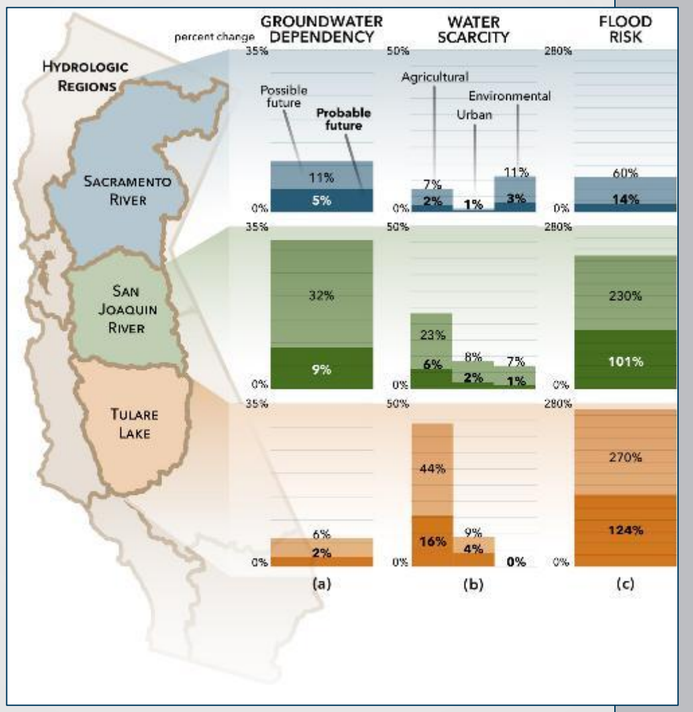
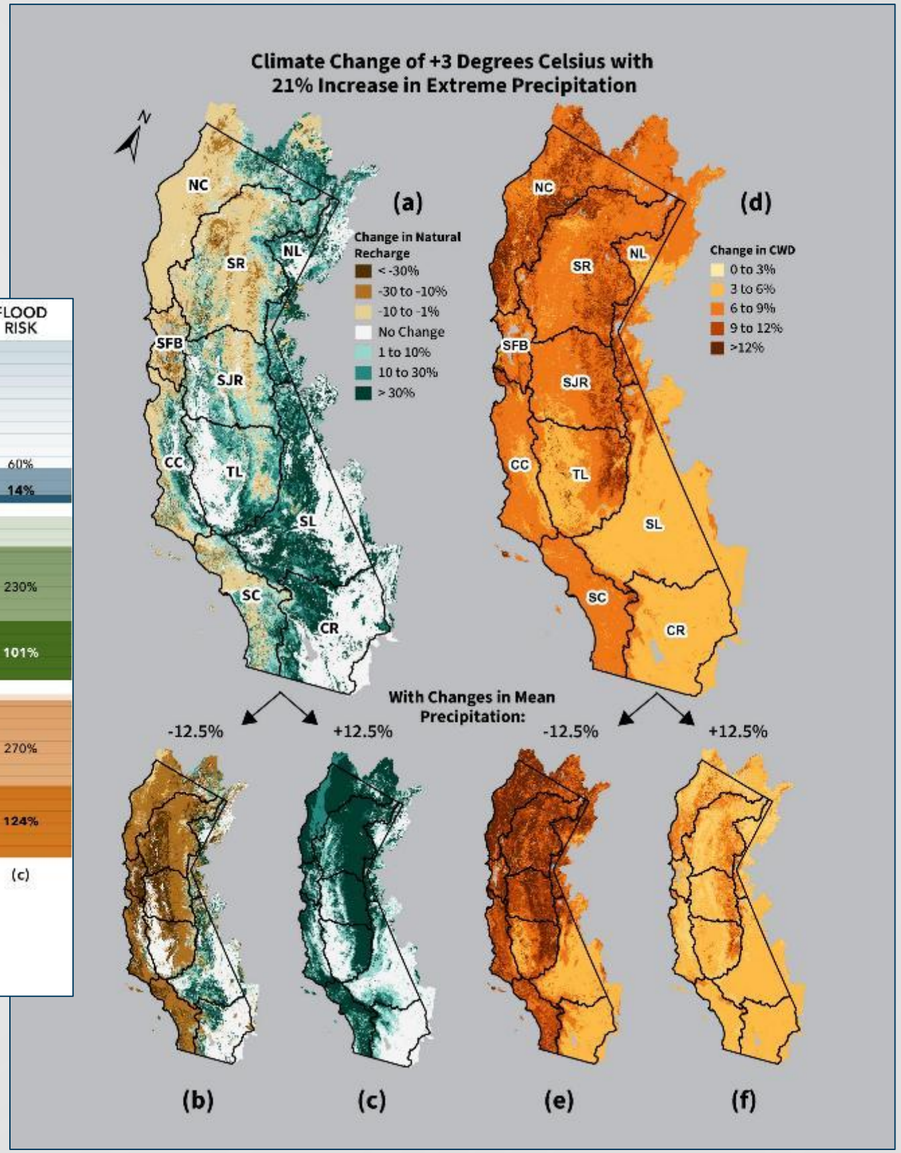


Future Scenarios (CWP 2023)



Climate Change Impacts on Groundwater Recharge

Chapter 1: Context & Vision for SGM

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- Climate change resilience, adaptation, extremes
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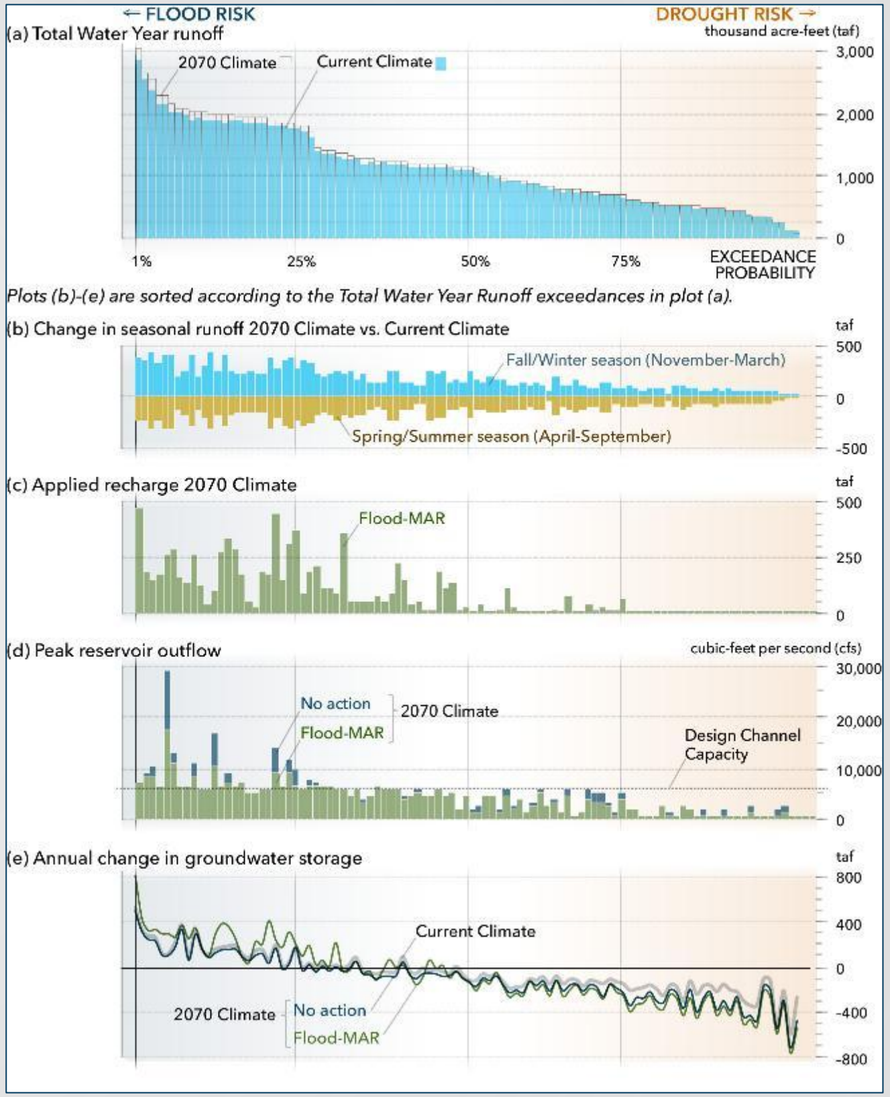

Climate-Driven Flood & Drought Risk Mitigation with Flood-MAR in the Merced River Watershed

Chapter 1: Context & Vision for SGM

- Role of groundwater in California
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- Climate change resilience, adaptation, extremes
- Structure & organization of CalGW Update 2025

Beneath the Surface – Fun GW Facts!

- SGMA Is Shaping How California Manages Water - Not Just Groundwater
- Groundwater Sustainability Is Climate Adaptation

CalGW Update 2025

Chapter 2

Chapter 2: Progress towards SGM

- Evolution of groundwater management

Figure 2-20 Total Number of Groundwater Management Plans Adopted Per Year

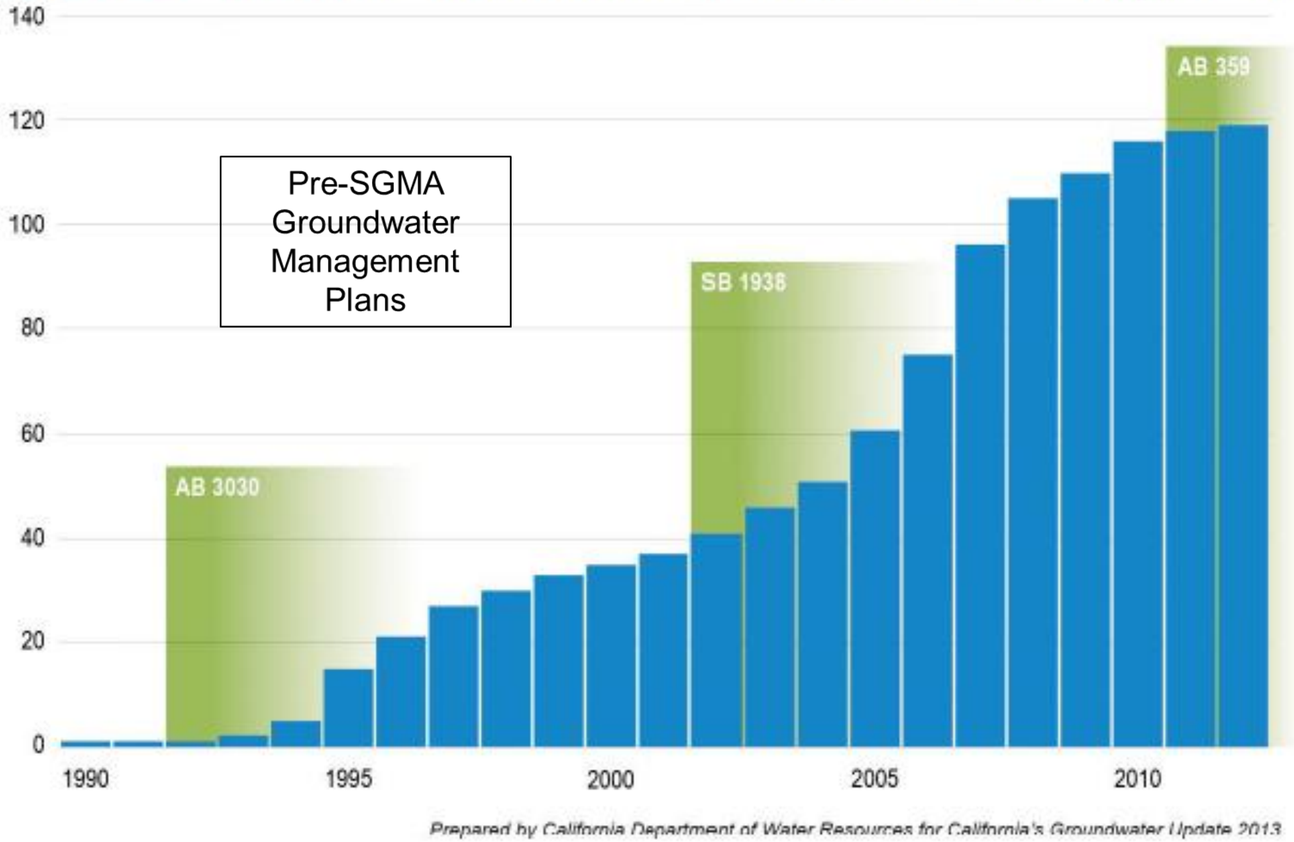
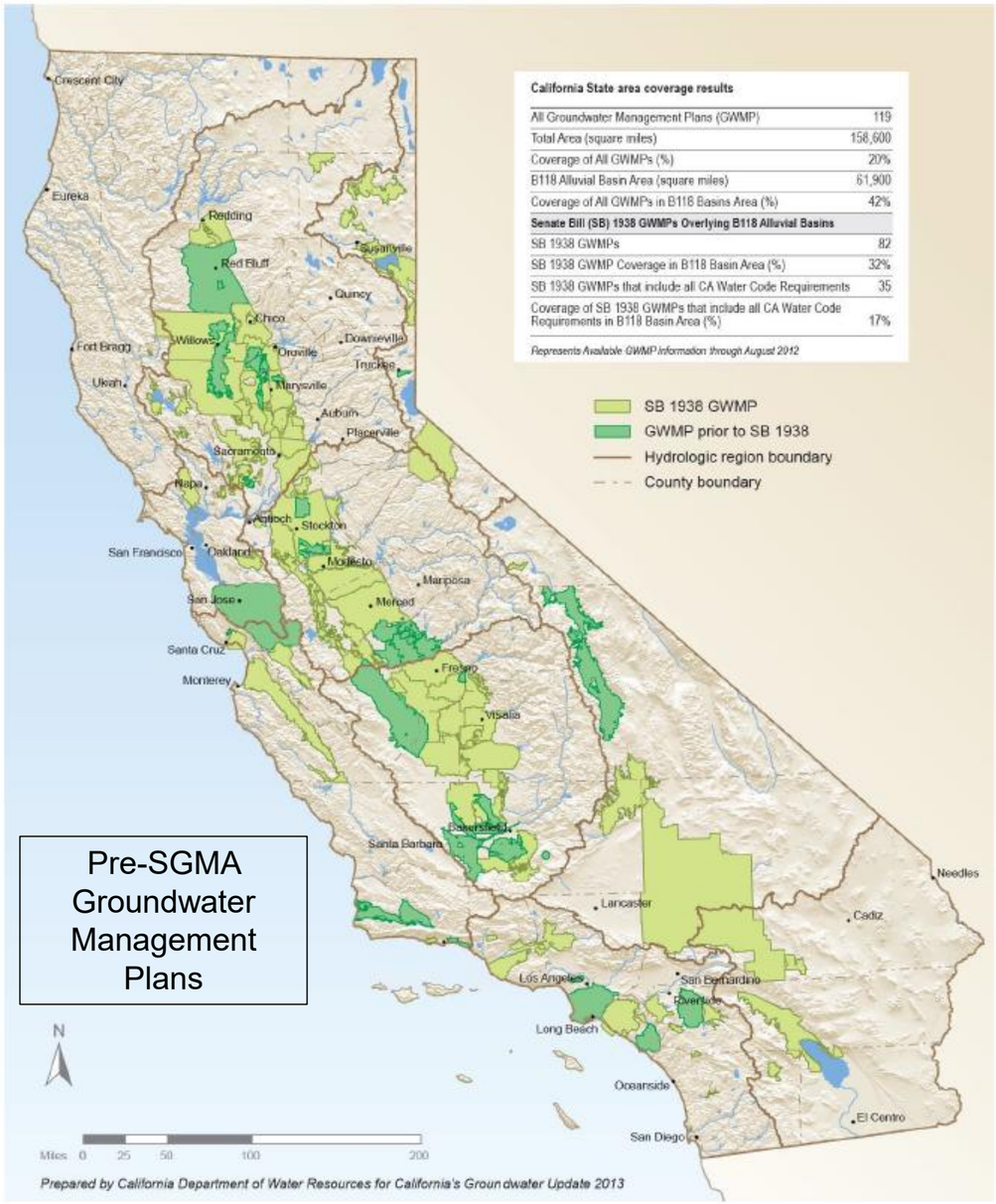


Figure 2-19 Location of Groundwater Management Plans in California



Chapter 2: Progress towards SGM

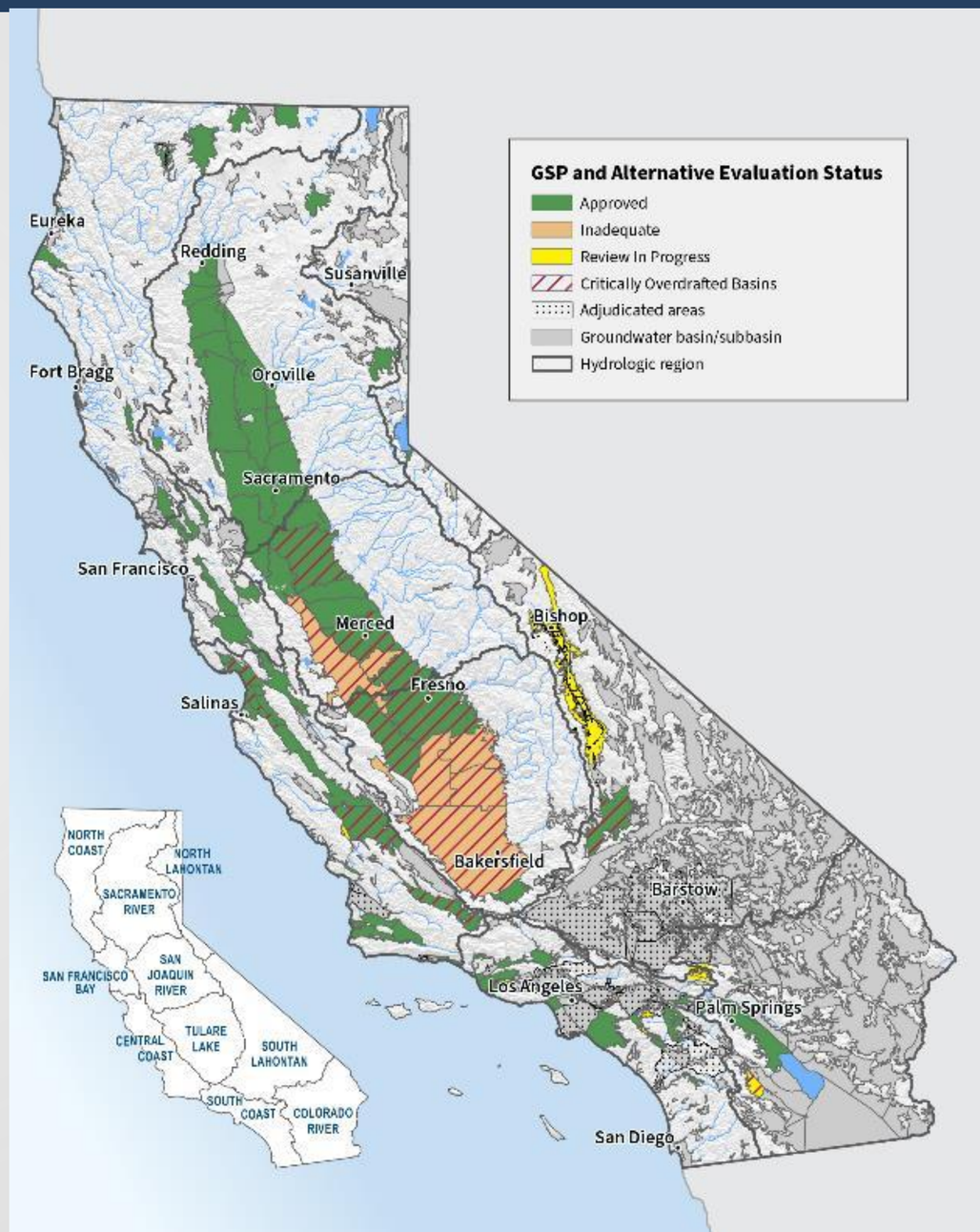
- Evolution of groundwater management
- 10-Years of SGMA

Table 2-8 Summary of GSP and Alternative Status as of August 2025

Type of Plan and Approval Status	Number of Basins	Basin Priority
GSP — Approved	81	76 High and Medium 5 Very Low
GSP — Inadequate[1]	7	High
GSP — Incomplete	4	Low and Very Low
Alternative — Approved	10	High and Medium
No GSP or Alternative Submitted[2]	413	1 Medium 412 Low and Very Low

Table 2-8 Notes:

1. *As of August 2025, the GSP covering the Chowchilla Subbasin has been returned to DWR following an inadequate determination and State Intervention, and the GSP is currently under DWR review.*
2. *The medium priority basin that did not submit a GSP is the Carmel Valley Basin, which is managed under the State Water Resources Control Board's subterranean stream designation and is not required to submit a GSP.*

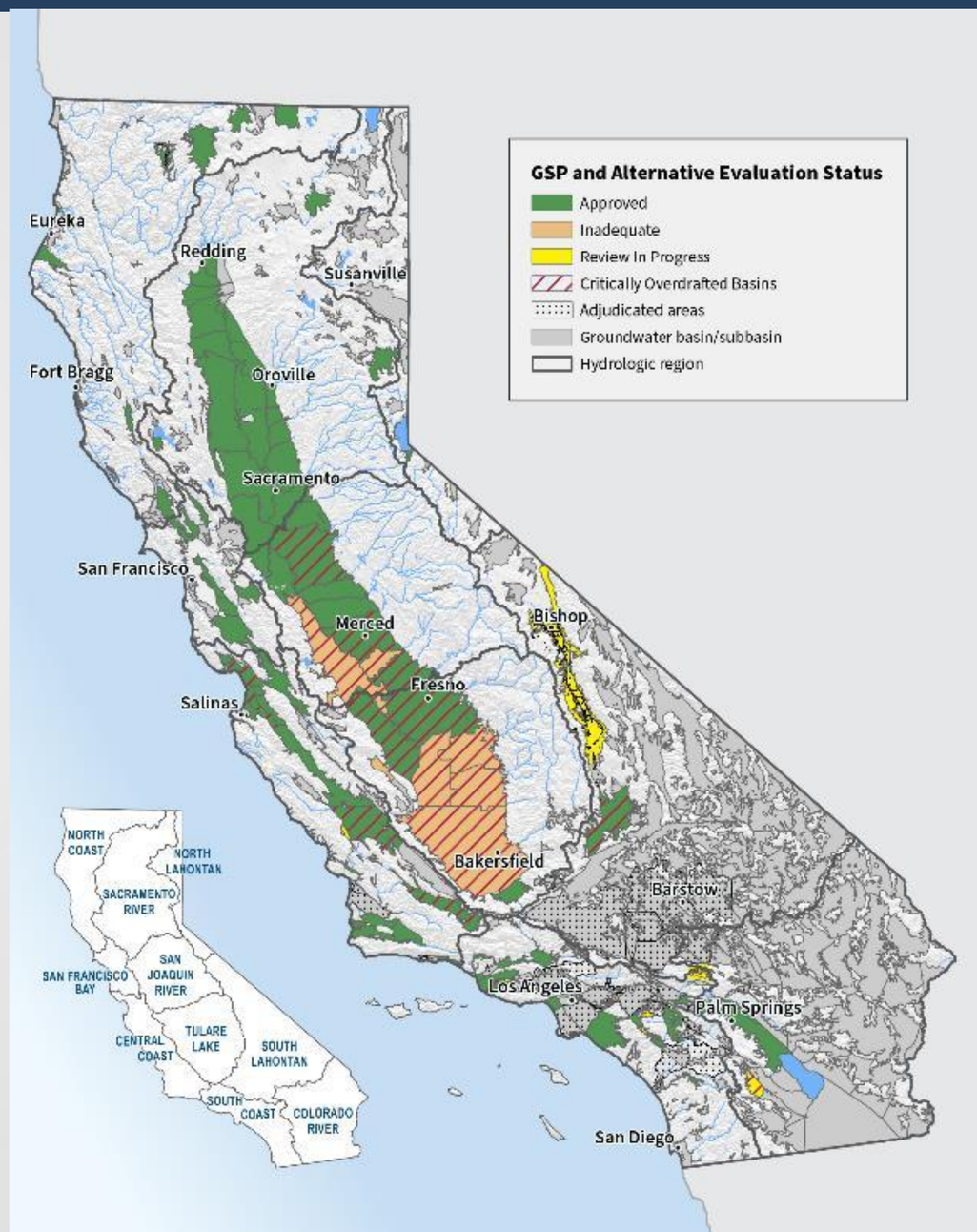


Chapter 2: Progress towards SGM

- Evolution of groundwater management
- 10-Years of SGMA
- DWR's SGMA roles & responsibilities
- DWR's assistance efforts
- Local implementation of SGMA
- Projects & management actions
- Overview of sustainable management criteria

Beneath the Surface

- Over 250 GSAs formed in 142 Basins
- Over 1,500 Projects and Management Actions in >100 GSPs
- DWR-SGMO has reviewed all initial GSPs
- $1B in State Investment in SGMA over 10 years



CalGW Update 2025

Chapter 3

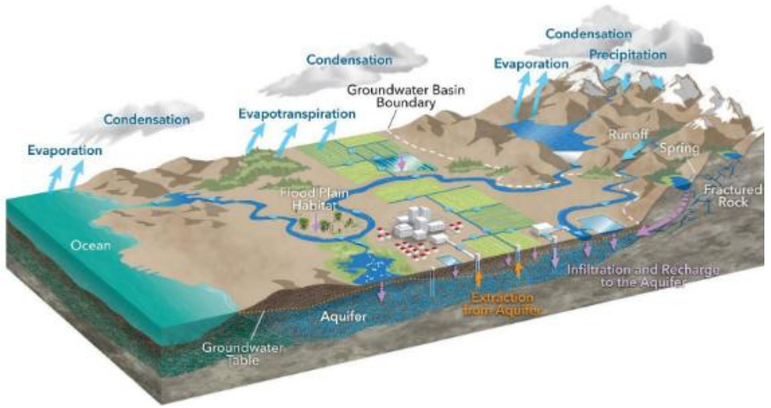
Chapter 3: Natural & Built GW Infrastructure

- Comprehensive understanding of California's natural and built groundwater system.
- Natural and built infrastructure play critical role in sustainable groundwater management.
- Descriptions and definitions of basin characteristics that are discussed in detail in other chapters.

Beneath the Surface

➢Aquifers Are Now Natural Infrastructure (§71154 PRC)

GW Basins & HR Regions



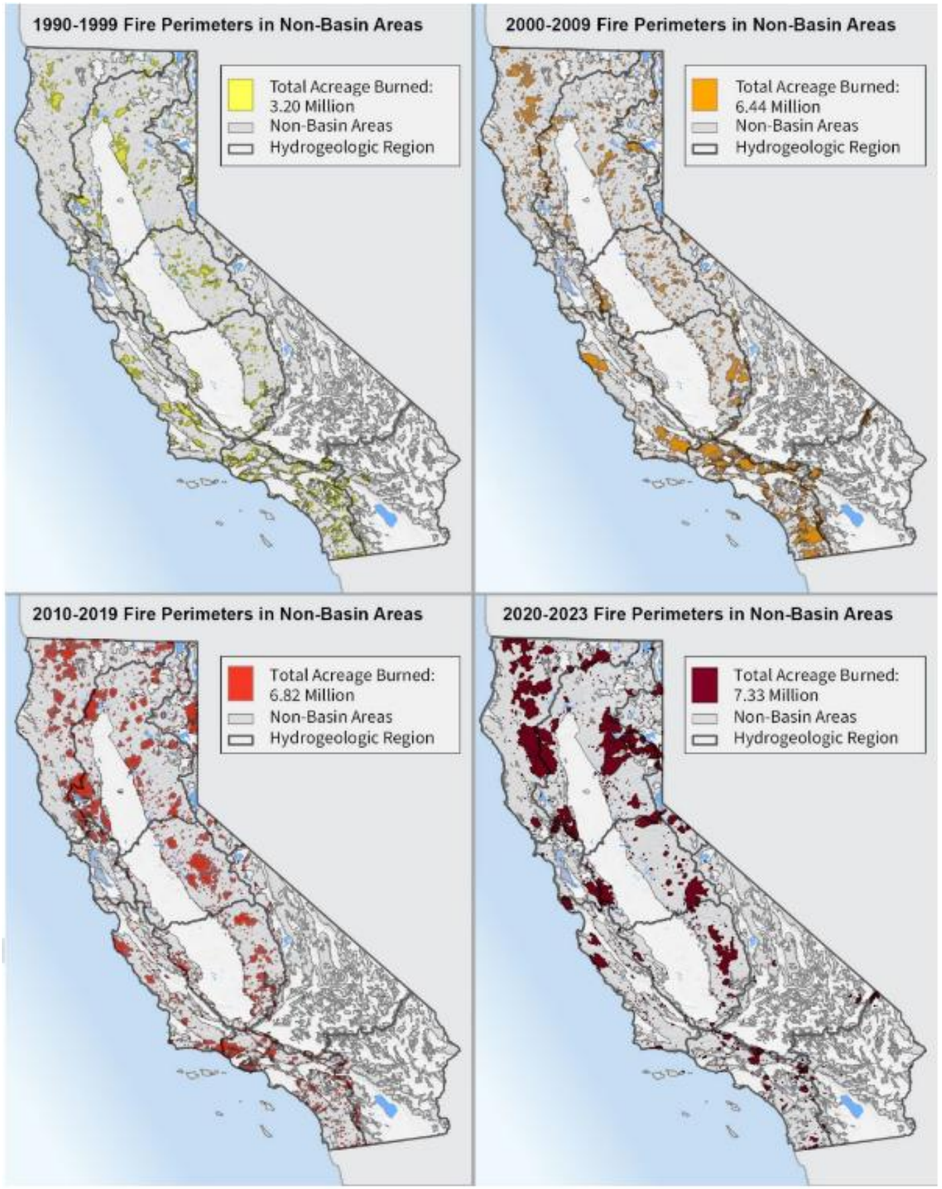
Chapter 3: Natural & Built GW Infrastructure

- Natural groundwater infrastructure
  - Watersheds, rivers, forests, and meadows
  - Groundwater Aquifers
    - Alluvial groundwater aquifers/basins
    - Hard rock aquifers (Non-Basin Areas)
  - Impacts of climate change on natural infrastructure
    - Temperature and ET increases
    - Snowpack shifts
    - Precipitation shifts and atmospheric rivers
    - Wildfire impacts

Beneath the Surface

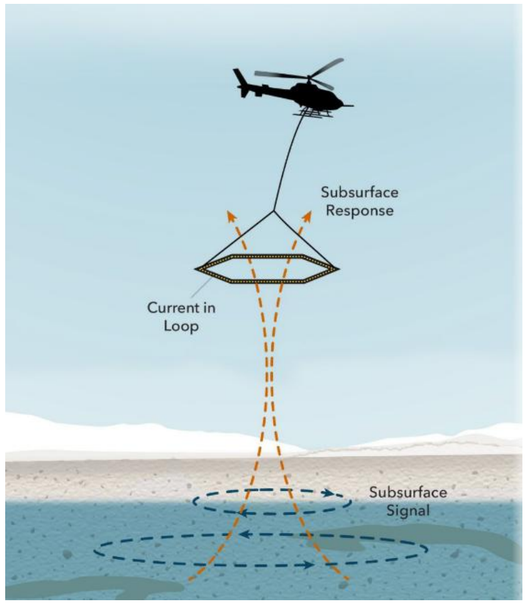
➢Over 80% of Californians live over groundwater basins

➢Over 50% of all domestic wells are in Non-Basin Areas

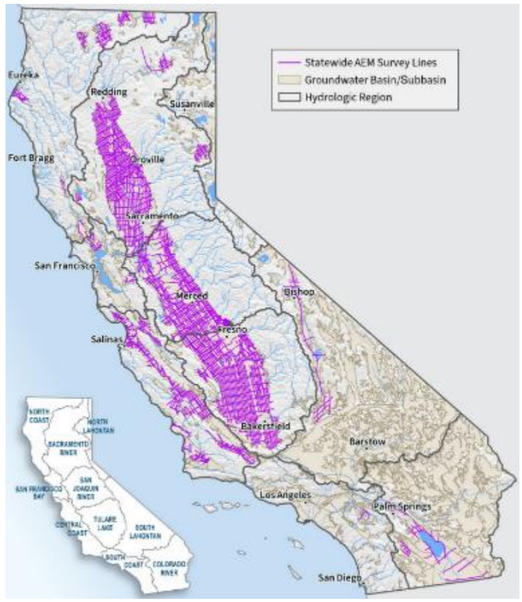


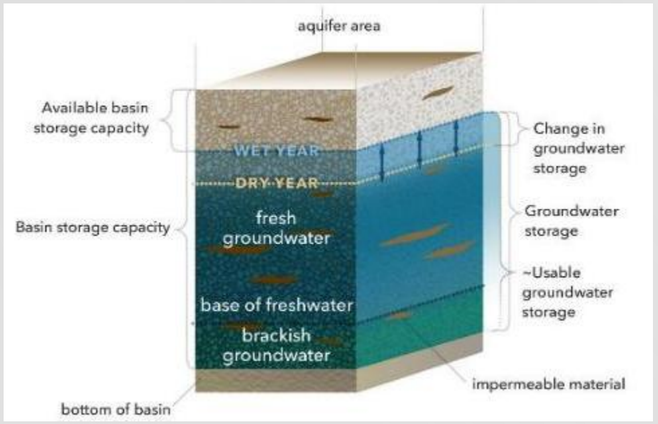
Chapter 3: Natural & Built GW Infrastructure

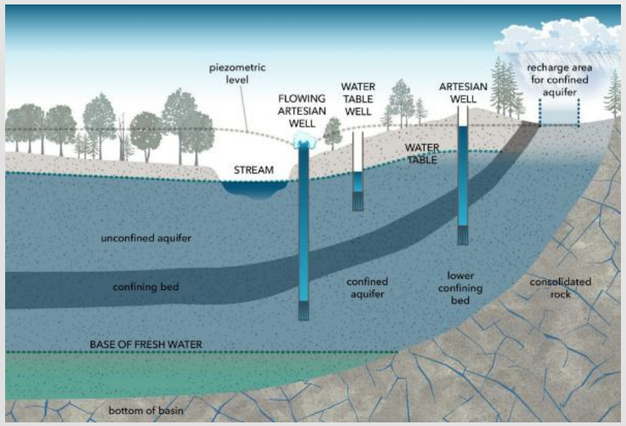
- Groundwater Basin Characterization
  - Hydrogeologic Conceptual Models and Basin Characteristics
  - DWR's Basin Characterization Program
    - Data collection
    - Advanced data analysis tools
    - Maps and 3D models
  - Other Basin Characterization Efforts in CA

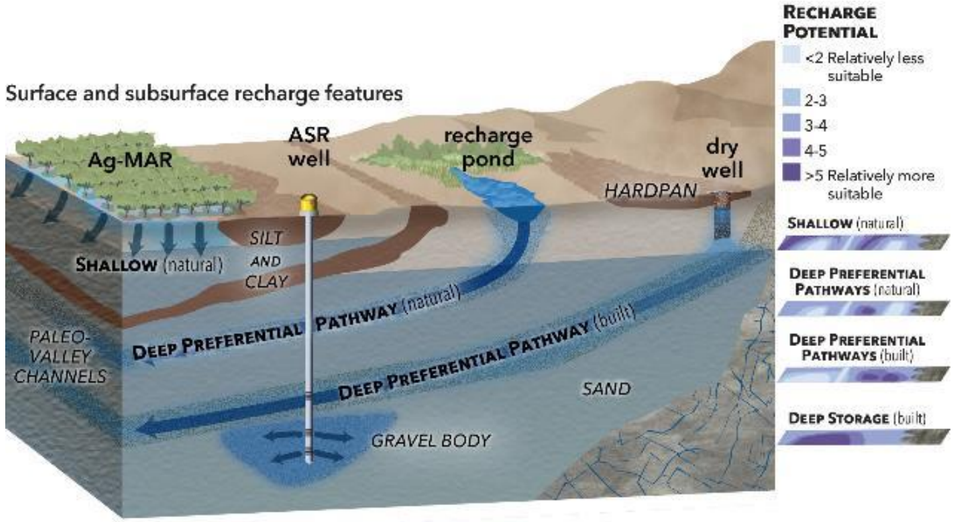


AEM Survey Lines



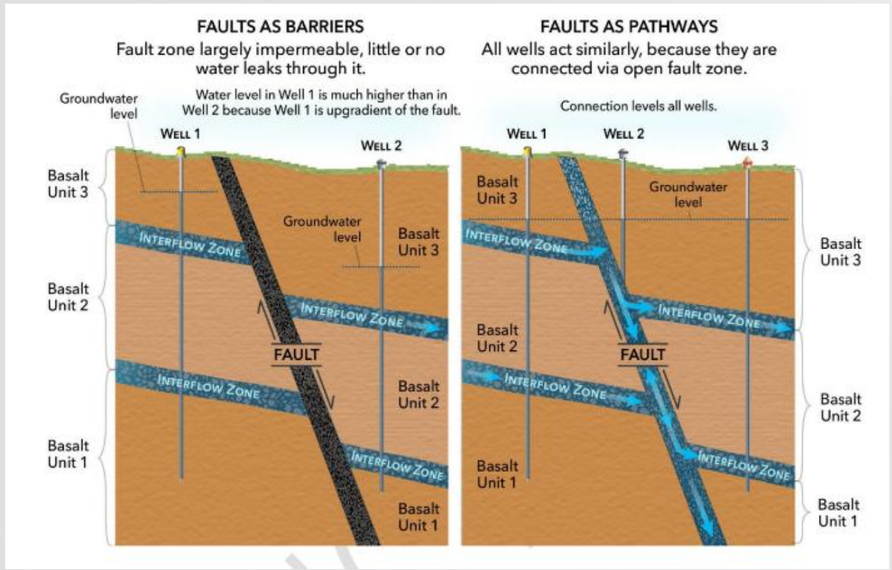




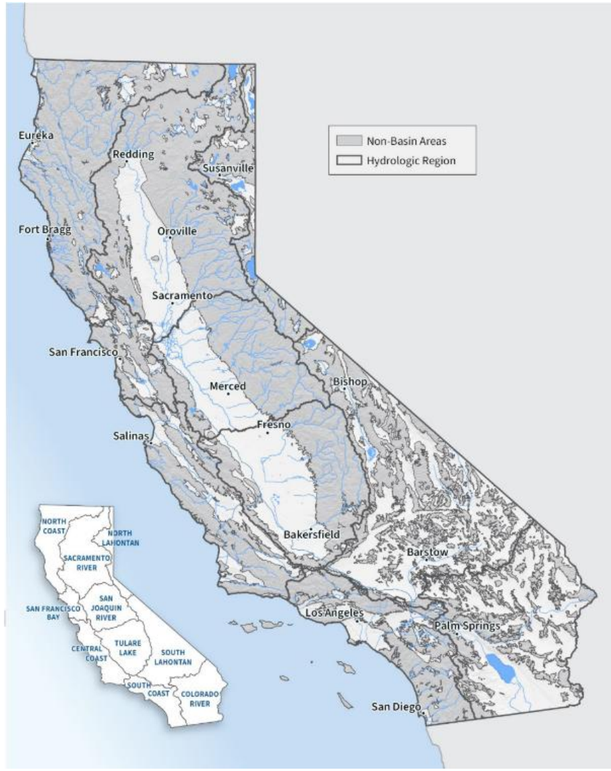


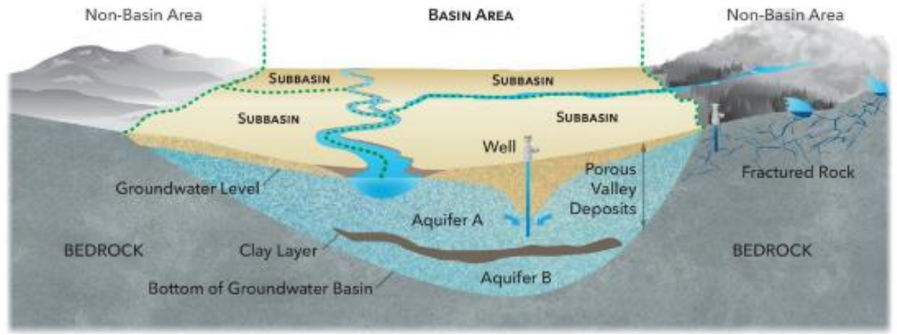
Chapter 3: Natural & Built GW Infrastructure

- Non-Basin Areas (NBAs)
  - Any area outside of a groundwater subbasin.
  - Population in NBAs
  - NBAs by Hydrogeologic Province
    - Geology, hydrology, and climate
  - Recharge Areas in NBAs
  - NBA Characterization Efforts



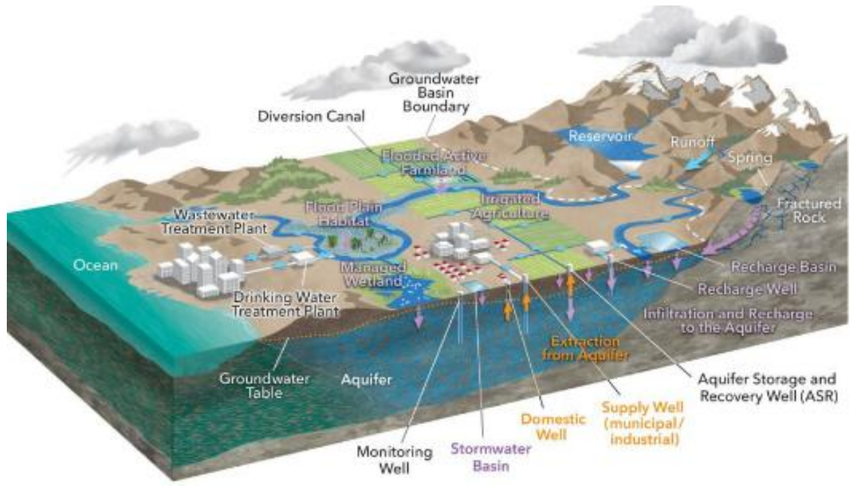
Non-Basin Areas

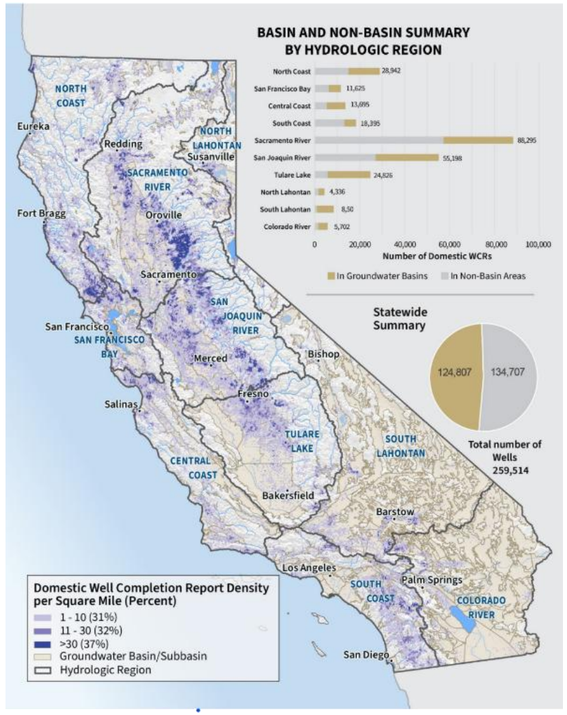




Chapter 3: Natural & Built GW Infrastructure

- Built Groundwater Infrastructure
  - Extraction Infrastructure
    - Statistical analysis of wells by type, location, depth, date of installation
  - Recharge Infrastructure
    - Methods and approaches
  - Conveyance Infrastructure
    - “Built backbone infrastructure” – CA’s Water Plan 2023
  - Utilization Infrastructure
    - Integration of built and natural infrastructure
  - Recharge Infrastructure Expansion
    - Proposed projects, costs, and challenges



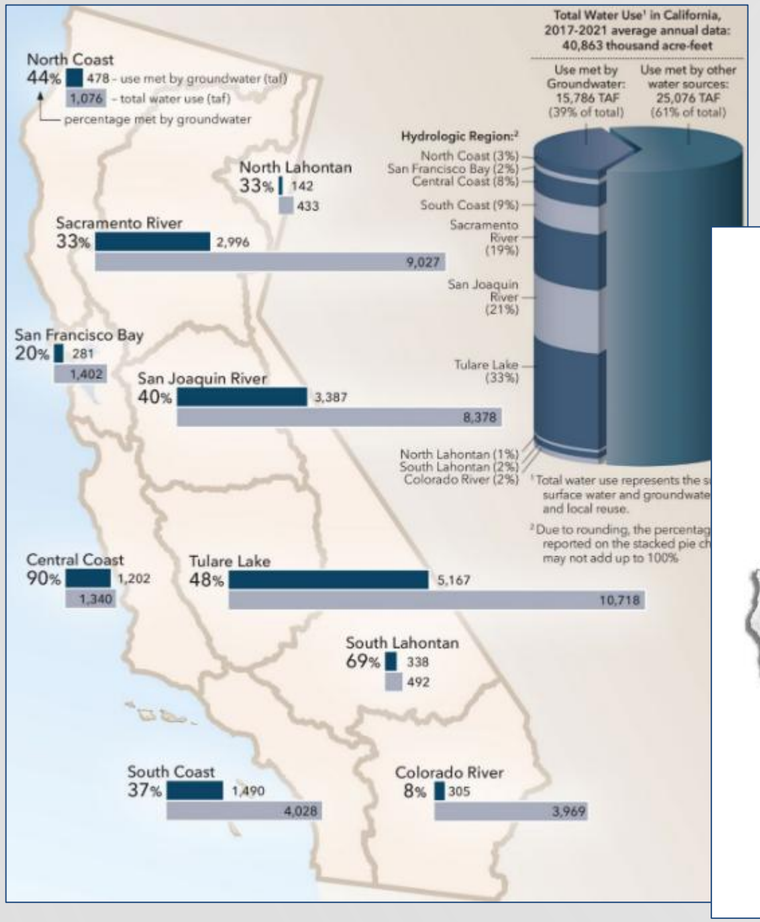


CalGW Update 2025

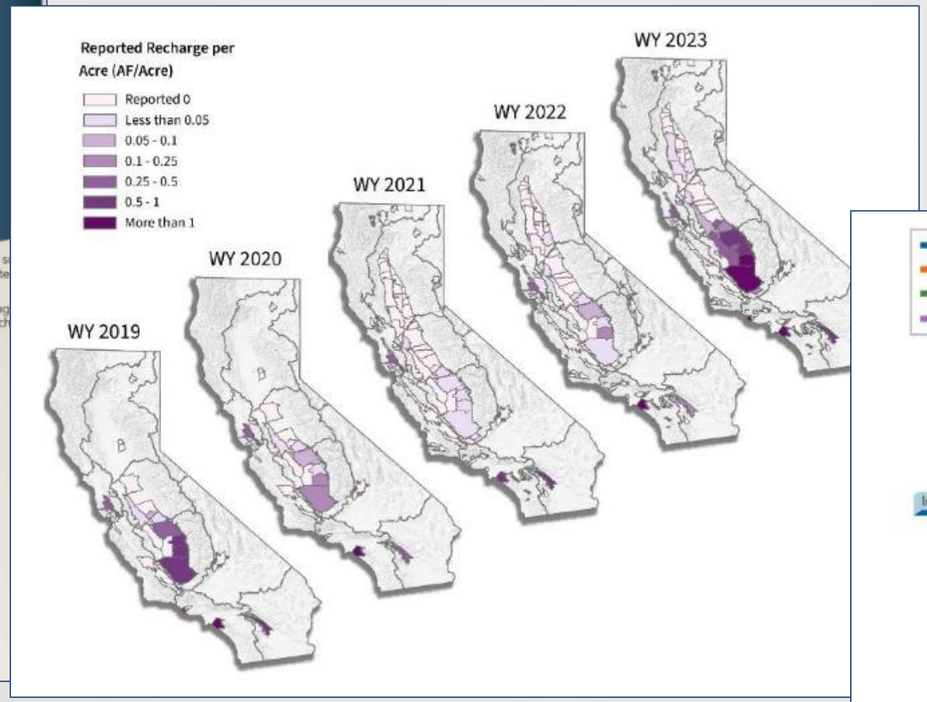
Chapter 4

Chapter 4: GW Use, Extraction & Water Budgets

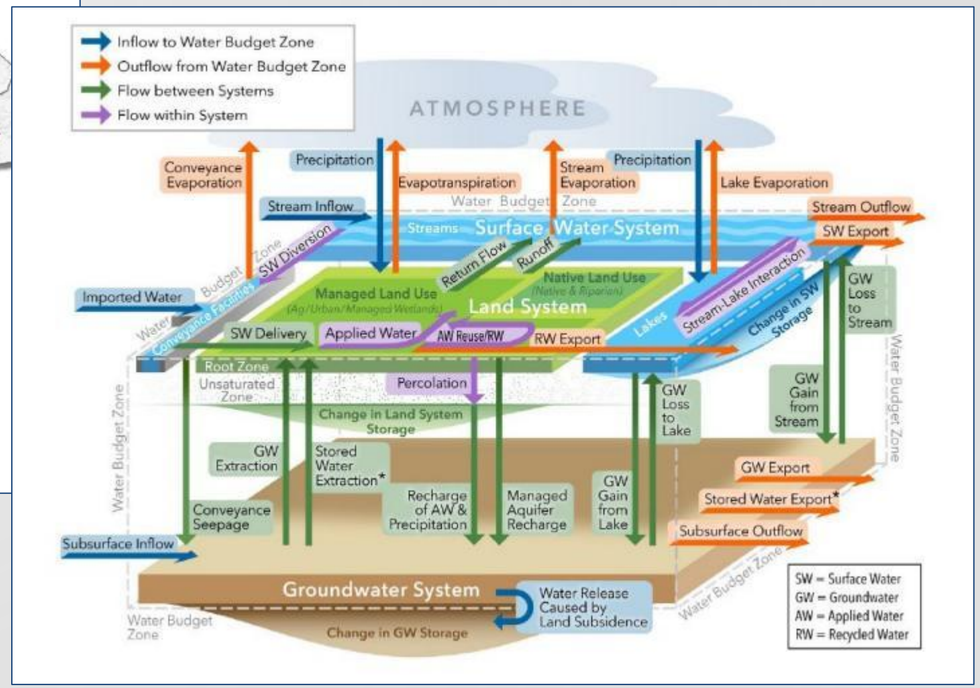
Groundwater Use



Groundwater Recharge



Water Accounting



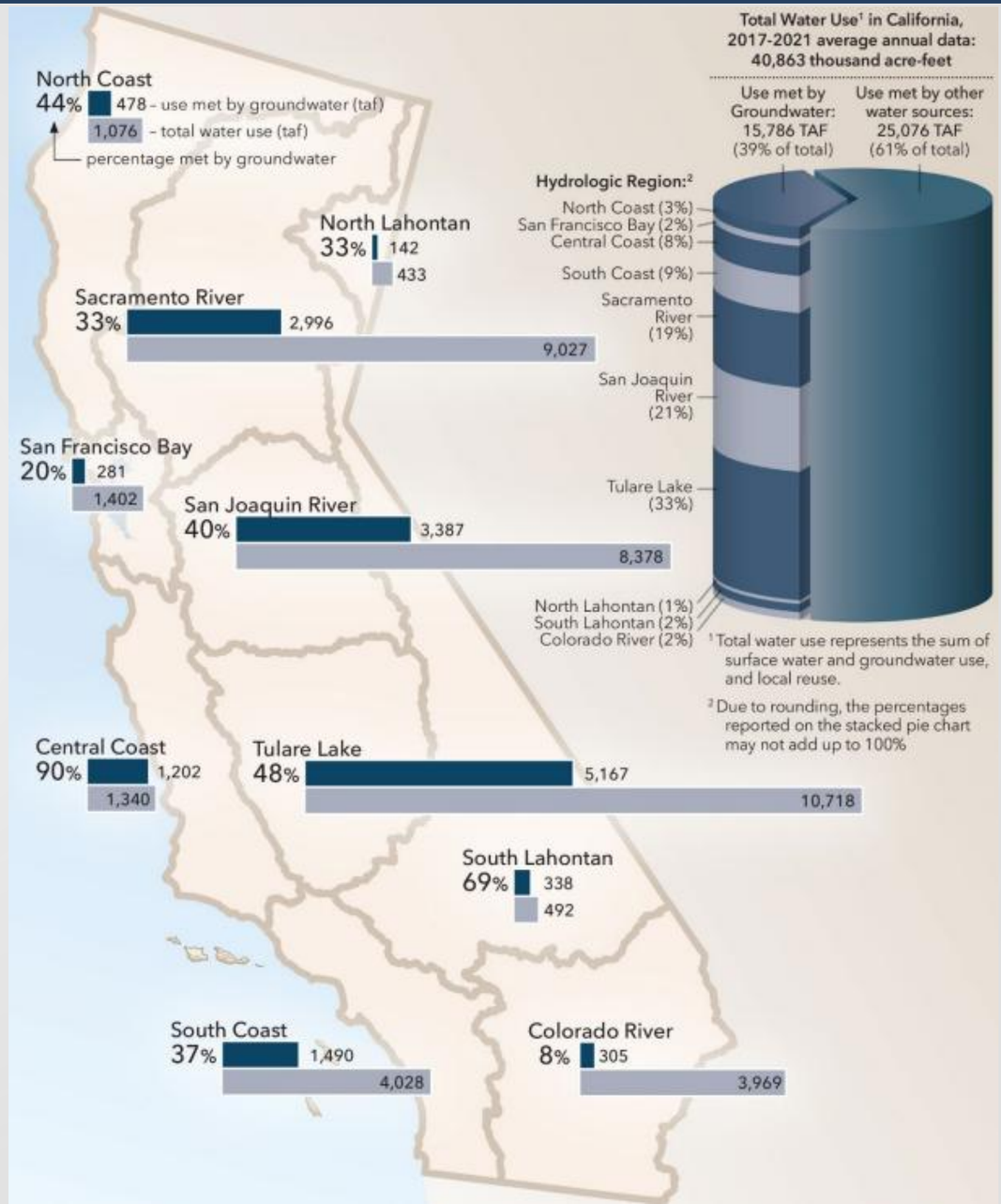
Chapter 4: GW Use, Extraction & Water Budgets

Groundwater Use

- Recent and historical trends in groundwater use
- Water source type
- Water use sector
- Statewide, hydrologic region, and basin / non-basin
- **New for 2025: summary of water use in SGMA-reporting basins**

Beneath the Surface

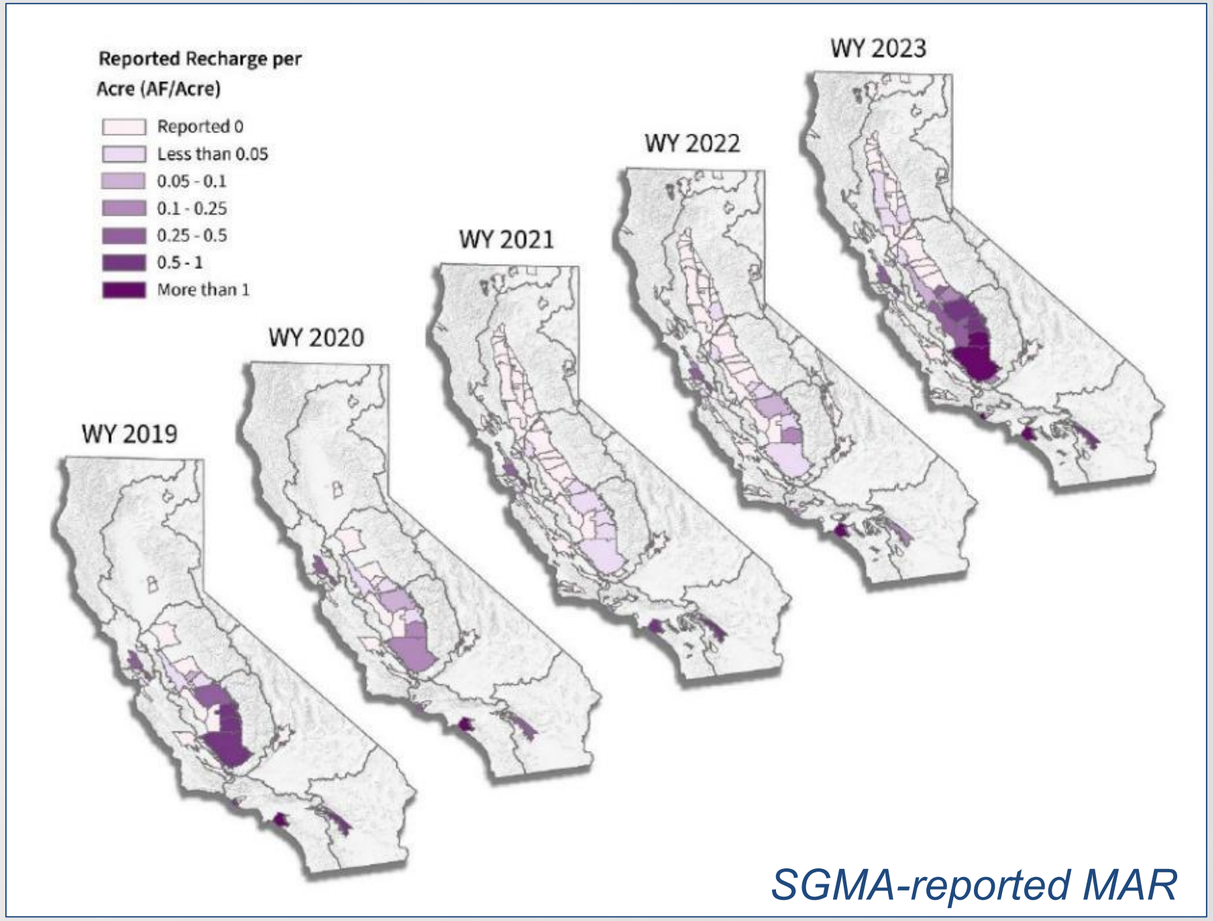
- Statewide GW use: 80% Ag, 18% Urban, 2% Mgt Wetlands
- On average 40% of the State's water supply comes from groundwater
- GW use is highly dependent on hydrologic conditions, ranging from approximately 30% of total water use in wetter years to almost 60% in drier years



Chapter 4: GW Use, Extraction & Water Budgets

Groundwater Recharge

- Focus on quantification of recharge volumes
- Baseline Recharge
  - Modeled recharge estimates
- Managed Aquifer Recharge
  - Summary of recharge volumes in SGMA-reporting basins
  - Various other MAR efforts



SGMA-reported MAR

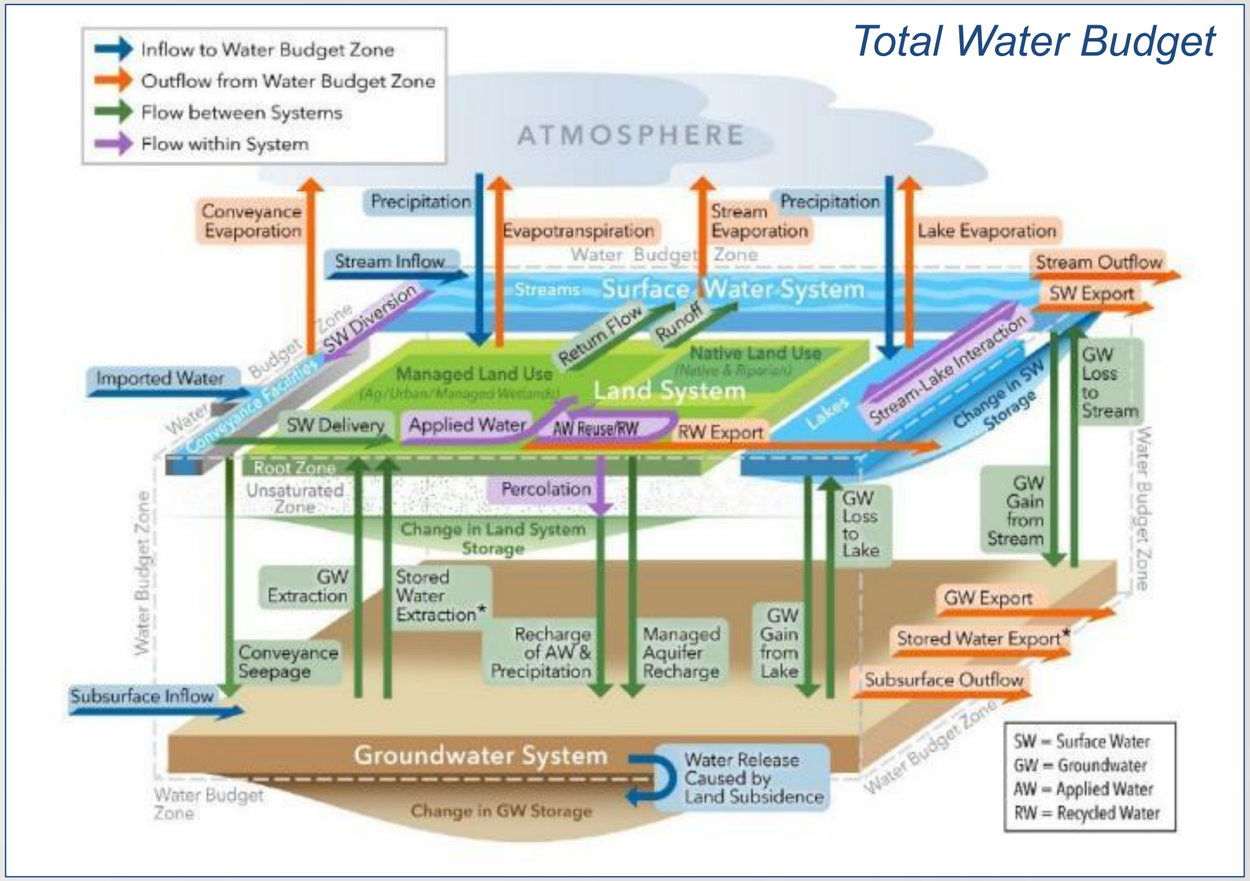
Beneath the Surface

- Modeled average annual baseline recharge ranges from ~8 to 10 MAF in the Central Valley
- ~4.9 MAF of recharge reported by SGMA Basins in 2023

Chapter 4: GW Use, Extraction & Water Budgets

Water Accounting

- Summary of legislatively mandated accounting:
  - Adjudications
  - UWMPs, AWMPs
  - SGMA
- Resources for water accounting:
  - Guidance documents
    - Draft Handbook for Water Budget Development
    - SGMA BMPs: HCM, Water Budget, Modeling
  - Data: SGMA Data Viewer, CDEC, OSWCR
  - Modeling tools: IWFM, MODFLOW

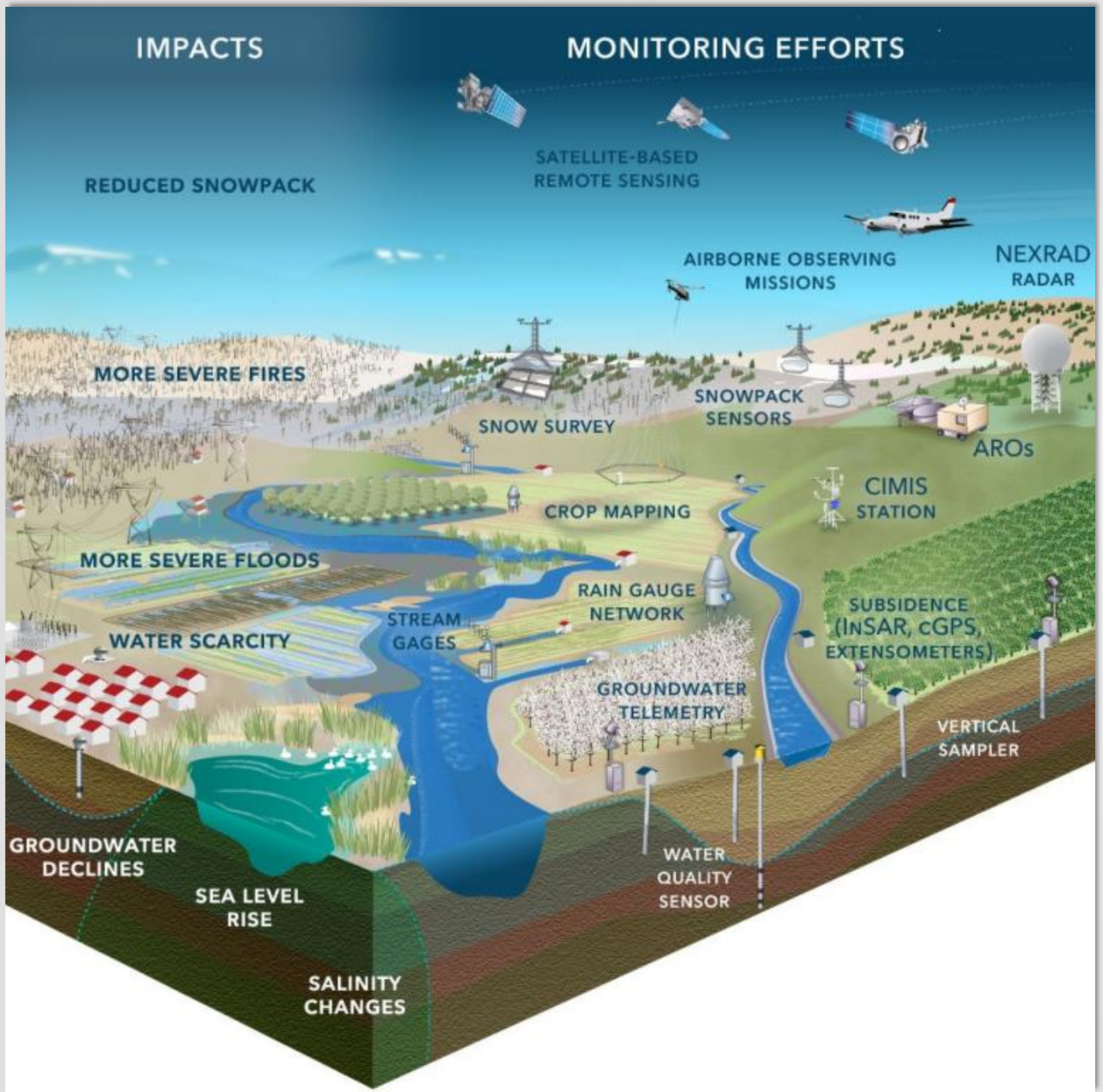


CA DWR's draft Handbook for Water Budget Development

CalGW Update 2025

Chapter 5

Chapter 5: Groundwater Monitoring



- Groundwater **Monitoring** supports Groundwater **Management,** especially under **SGMA**
- Monitoring provides the **data foundation** for informed, adaptive groundwater management
- As **climate change** intensifies, there's an increase the need for continuous monitoring
- **Core Principle:** *“You can’t manage what you can’t measure.”*
- California’s statewide monitoring network include **State, federal, and local agencies**
- This chapter details how data are collected for the **six sustainability indicators:**
  - *Groundwater Levels*
  - *Groundwater Storage*
  - *Groundwater Quality*
  - *Subsidence*
  - *Interconnected Surface Water*
  - *Seawater Intrusion*

Chapter 5: Groundwater Monitoring

Groundwater Level Monitoring

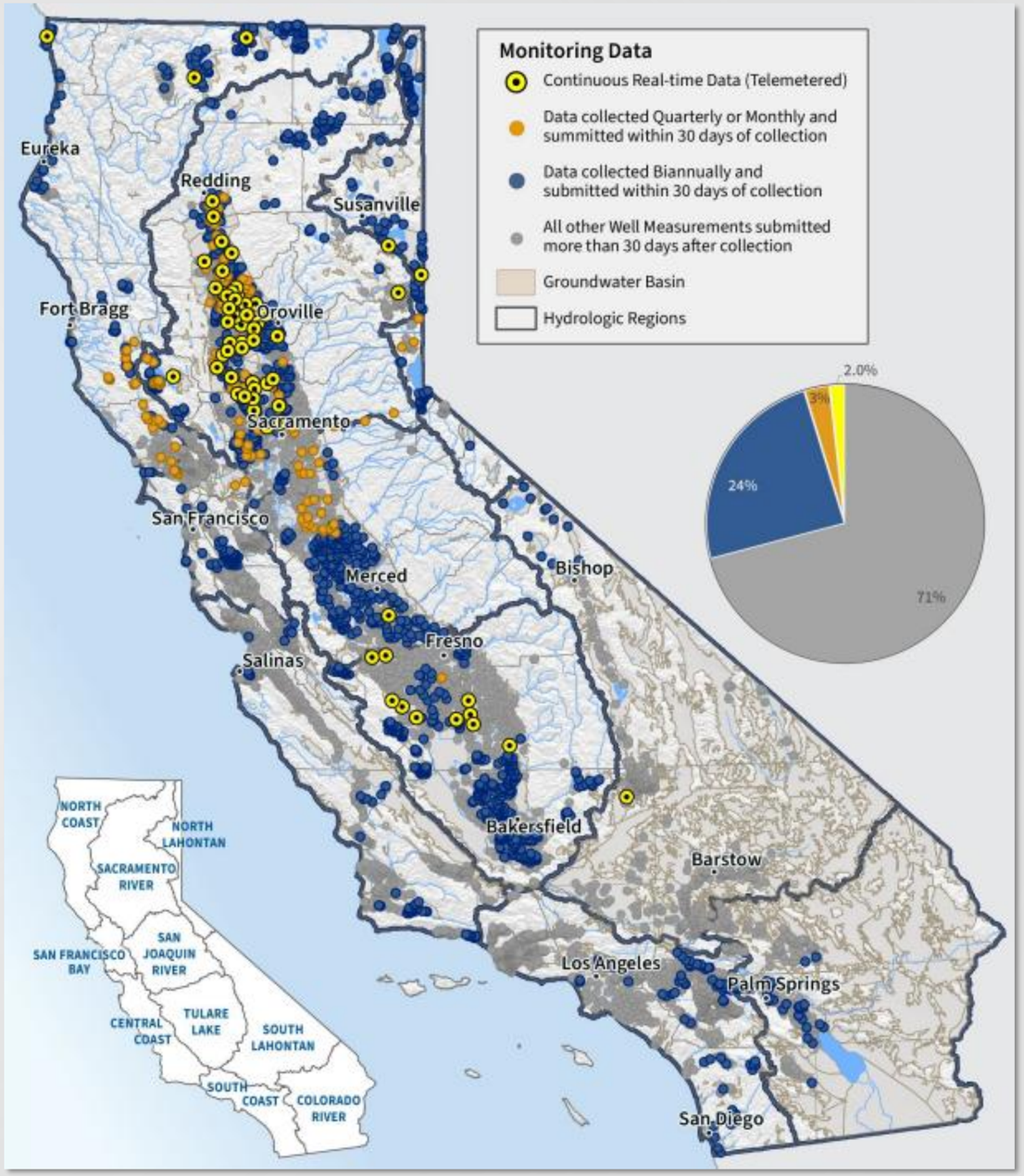
- Tracking Basin Response
- Modern Monitoring Methods
- Coordinated Data Systems
- Data Collection and Submission Trend Improving

Groundwater Storage Monitoring

- Connects Recharge and Extraction
- Indirect Measurement Methods

Beneath the Surface

- **9,000 wells** are monitored statewide plus **191** outside basin areas.
- **Data turnaround is improving:** data **submissions within 30 days double** WY 2019 to WY 2024.
- **Local agencies lead the way,** monitoring **57%** of wells; **DWR covers 18%,** and **federal partners 2%.**
- **SGMA progresses:** nearly **63% of all active wells** are part of the SGMA program.



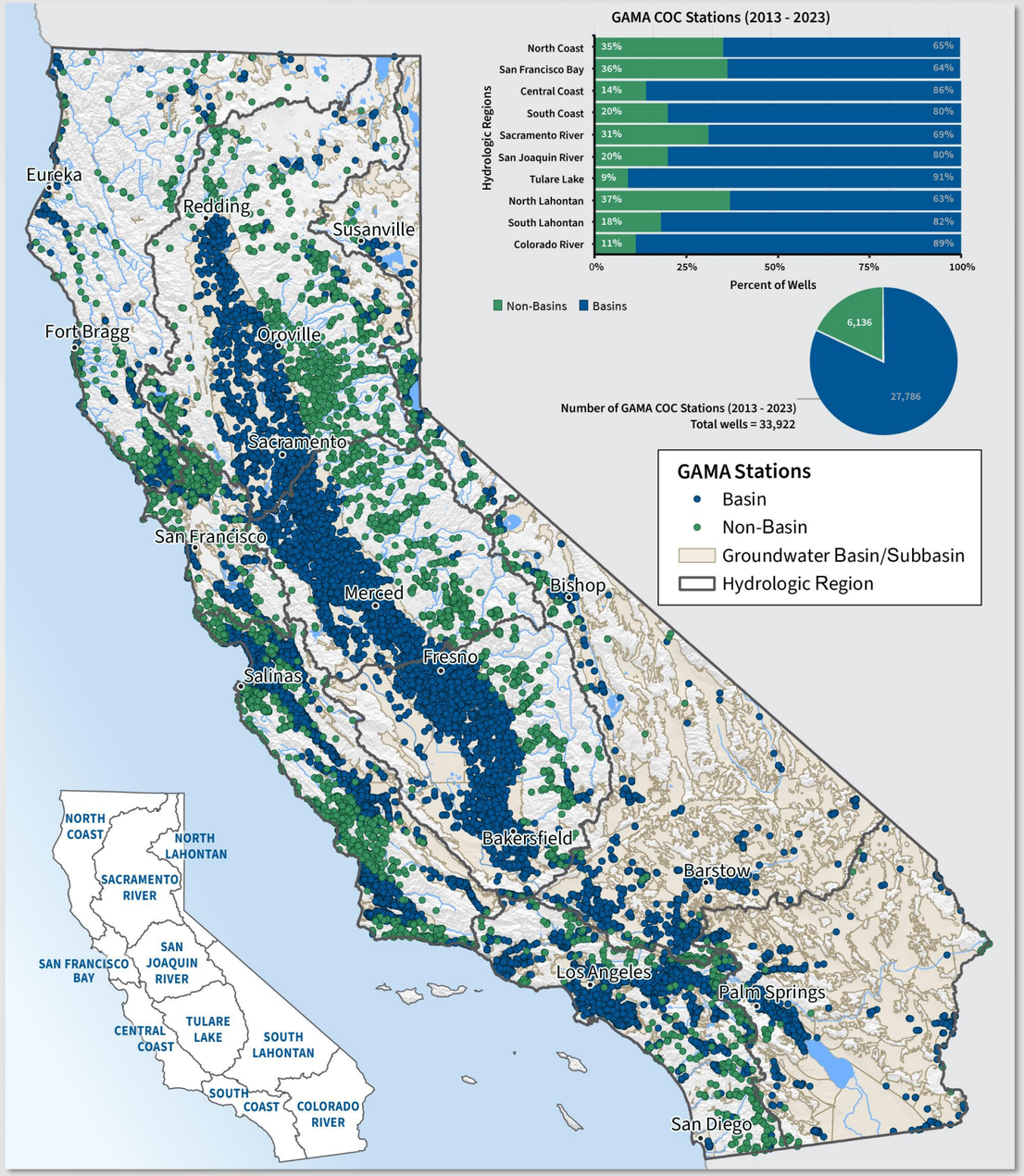
Chapter 5: Groundwater Monitoring

Groundwater Quality

- Detect & Evaluate
- Statewide GAMA Database
- Eight Key Constituents
- SGMA: Locally Tailored Monitoring

Beneath the Surface

- **34,000 groundwater quality wells** analyzed statewide.
- **GAMA database:** more than **25 million records** from **~116,000 unique wells.**
- **Eight key Constituents of Concern:** 1,2,3-TCP, Nitrate, Arsenic, Uranium, TDS, Hexavalent Chromium, PFOA, and PFOS.
- **Nearly half (48%)** of all wells have been **sampled since WY 2014** — showing expanding coverage and new insights.



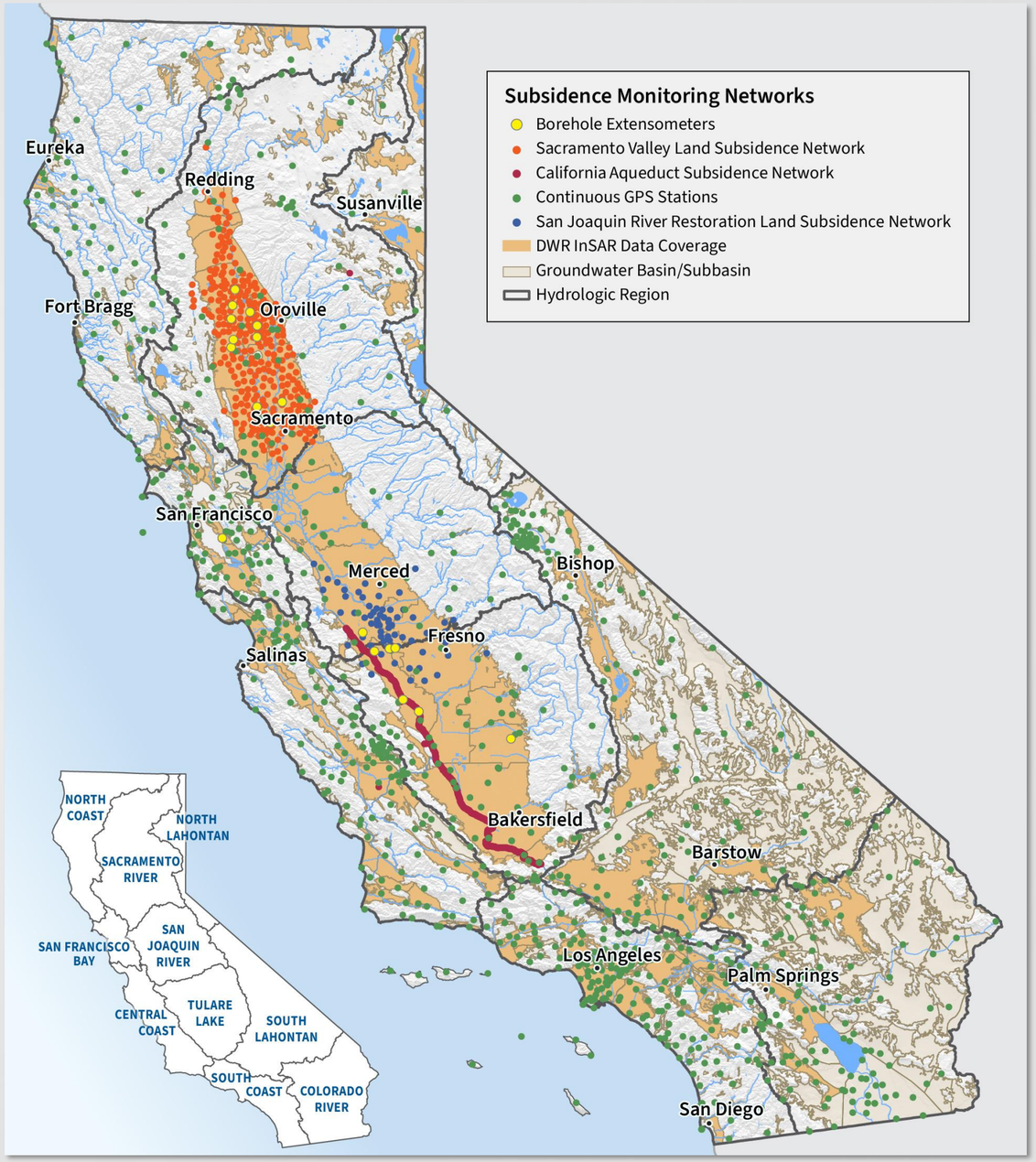
Chapter 5: Groundwater Monitoring

Subsidence

- Historical Methods
- Modern Methods
- Management Support

Beneath the Surface

- **Monitoring since the 1950s:** from early spirit leveling to borehole extensometers.
- **Modern tools, modern reach:** GPS, InSAR, and LiDAR now track land movement statewide in near real time.
- **Expanding network:** 398 continuous GPS stations, 18+ active extensometers, and new corner reflectors improve coverage each year.
- **Open data access:** DWR, USGS, SOPAC, and UNAVCO share subsidence data publicly for science and management.



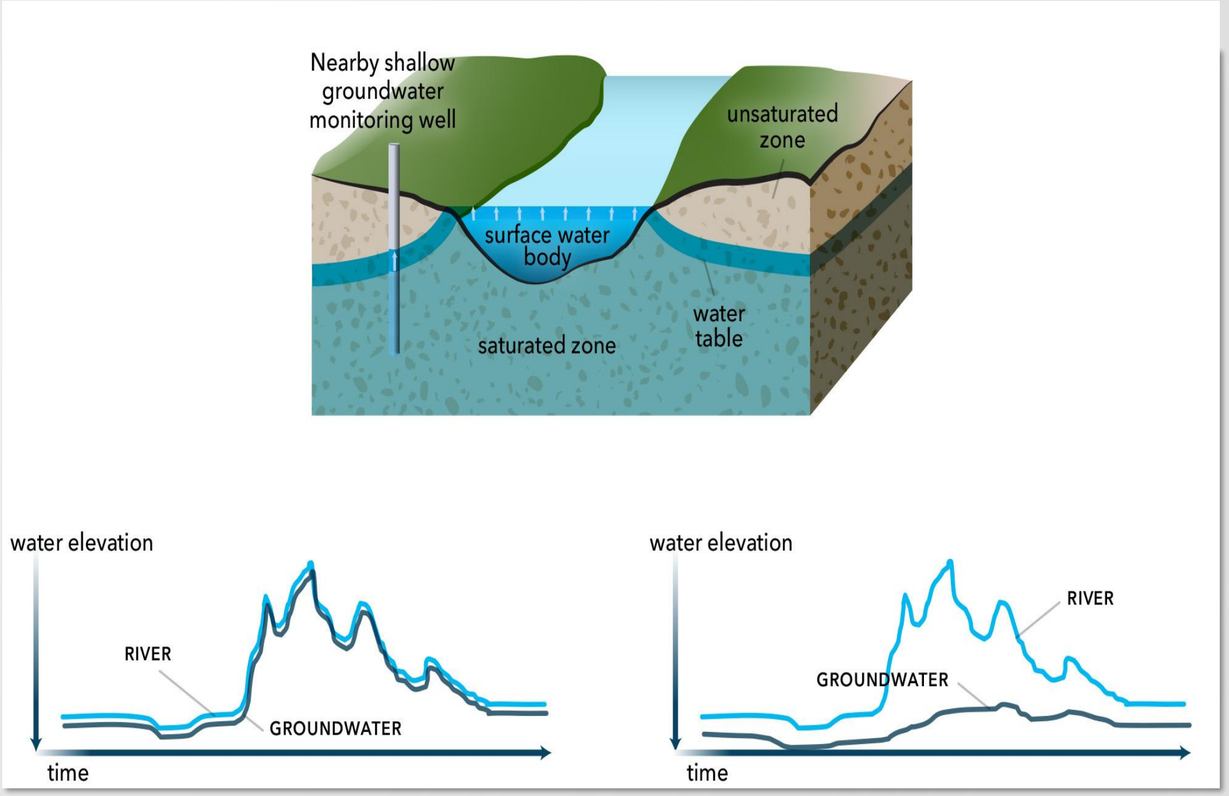
Chapter 5: Groundwater Monitoring

Interconnected Surface Water

- Connected Water Systems
- Monitoring Stream Depletion
- Data Uncertainty Limits

Beneath the Surface

- **Linked systems:** groundwater and surface water flow together through a shared saturated zone.
- **Ecosystem boost:** groundwater inputs sustain streamflow, stabilize habitats, and help keep water cool for aquatic life.
- **Depletion risk:** excessive pumping can lower groundwater levels and reduce streamflow for downstream users and ecosystems.
- **Data & uncertainty:** connectivity depends on well proximity, pumping patterns, and data quality - refined models are helping close the gap.



Chapter 5: Groundwater Monitoring

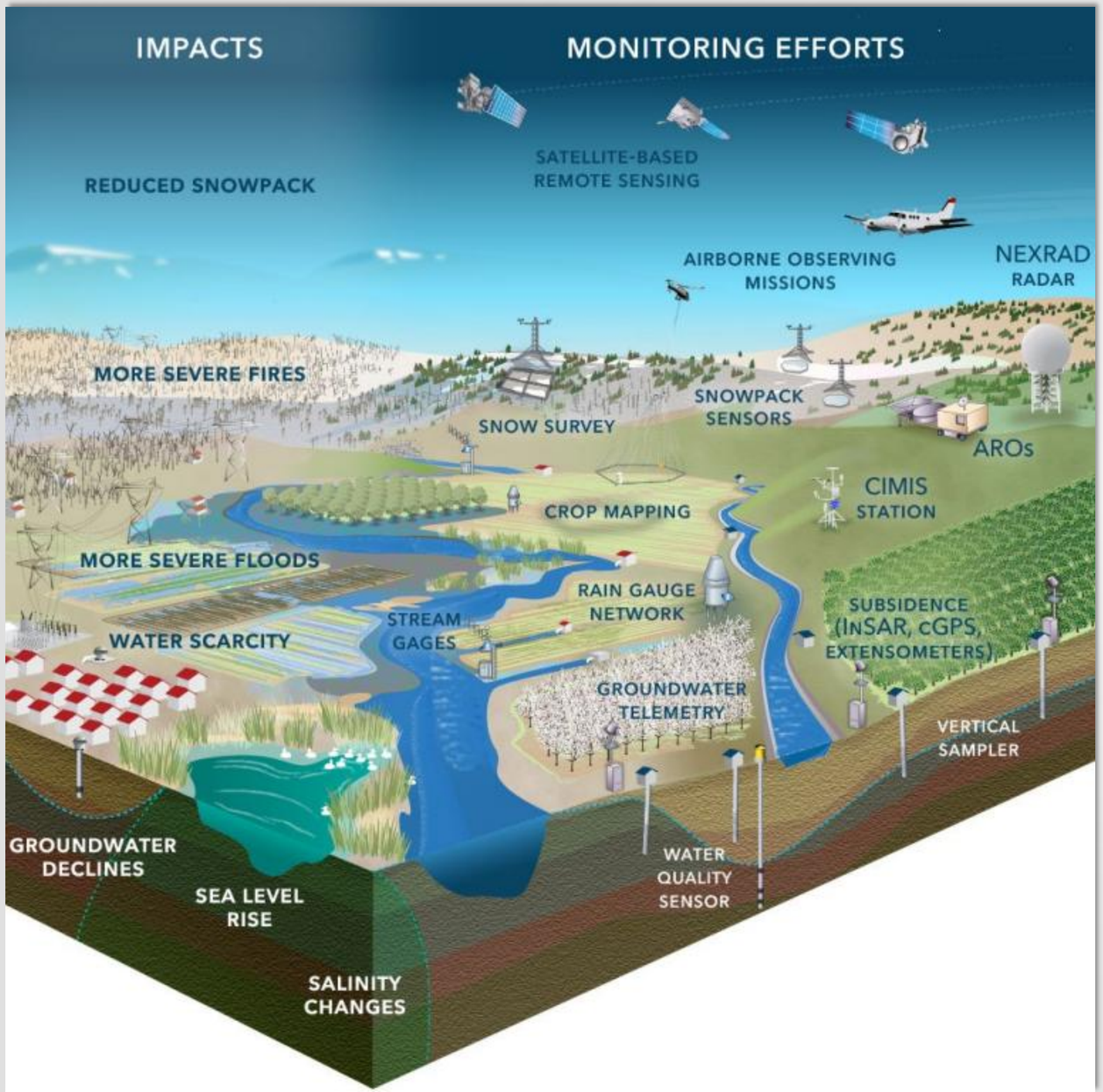
Seawater Intrusion

- Coastal Aquifer Threat
- Rising Sea Levels
- Chloride & TDS Tracking and Analytical Tools

Beneath the Surface

- **Key indicators:** high levels of **Chloride (~19,000 mg/L)** and **Total Dissolved Solids (~35,000 mg/L)** signal when seawater begins to push inland.
- **Mind the gaps:** some coastal basins still have limited monitoring coverage, leaving uncertainty in intrusion trends.
- **Statewide effort:** since **2011, 36 basins** have been actively monitored and more than **90%** include detailed water-quality data.

Chapter 5: Groundwater Monitoring



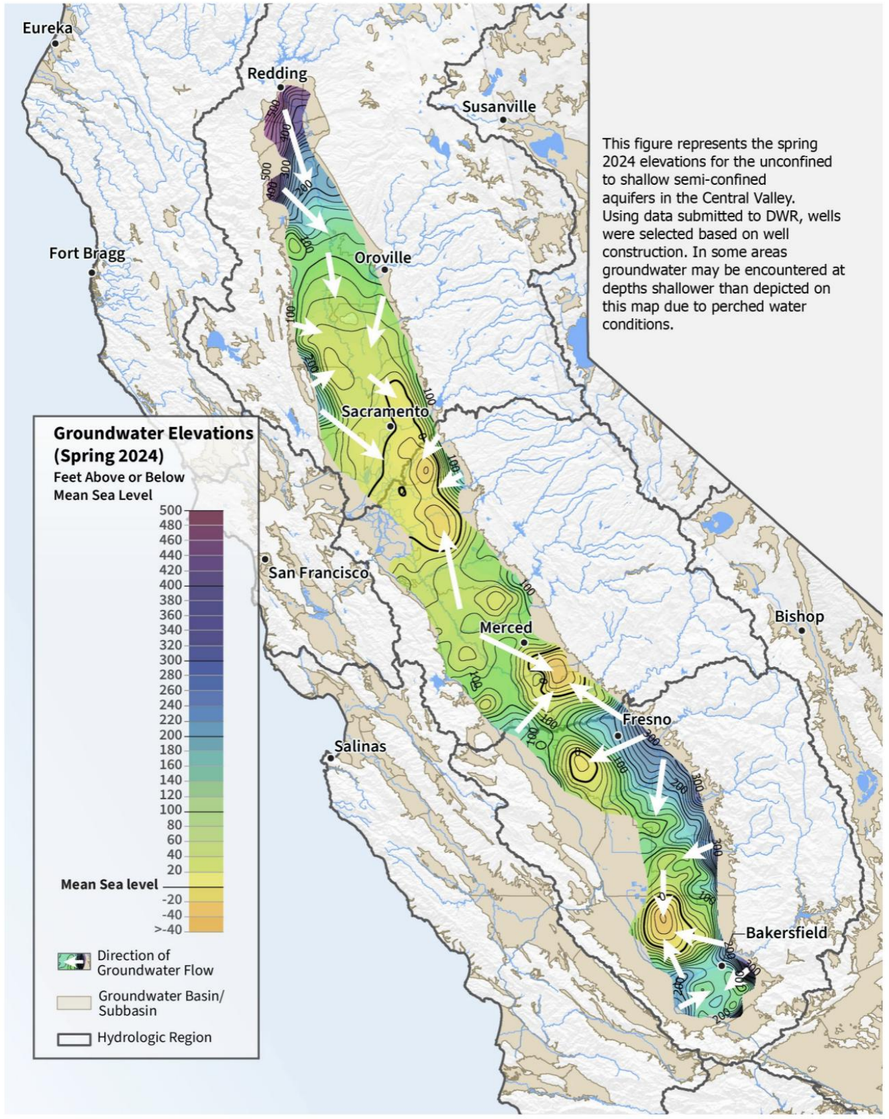
- Reliable data supports accurate forecasts, enabling informed and **adaptive groundwater management**
- **Integrating Models & Data** helps **predict groundwater** availability and quality, guiding better **decision-making**
- **Statewide Transparency** is enhanced through groundwater accounting **supported by consistent monitoring**
- **Proactive Management** means **using data to anticipate** and prepare for droughts, floods, and climate change impacts
- **Forecasting Groundwater Resilience** requires building on **Monitoring Foundations**
- *Forecasting begins with monitoring – resilience depends on it.*

CalGW Update 2025

Chapter 6

Chapter 6: Groundwater Conditions

Figure 6-3 Groundwater Surface Elevation Contour Map for the Central Valley (Spring 2024)

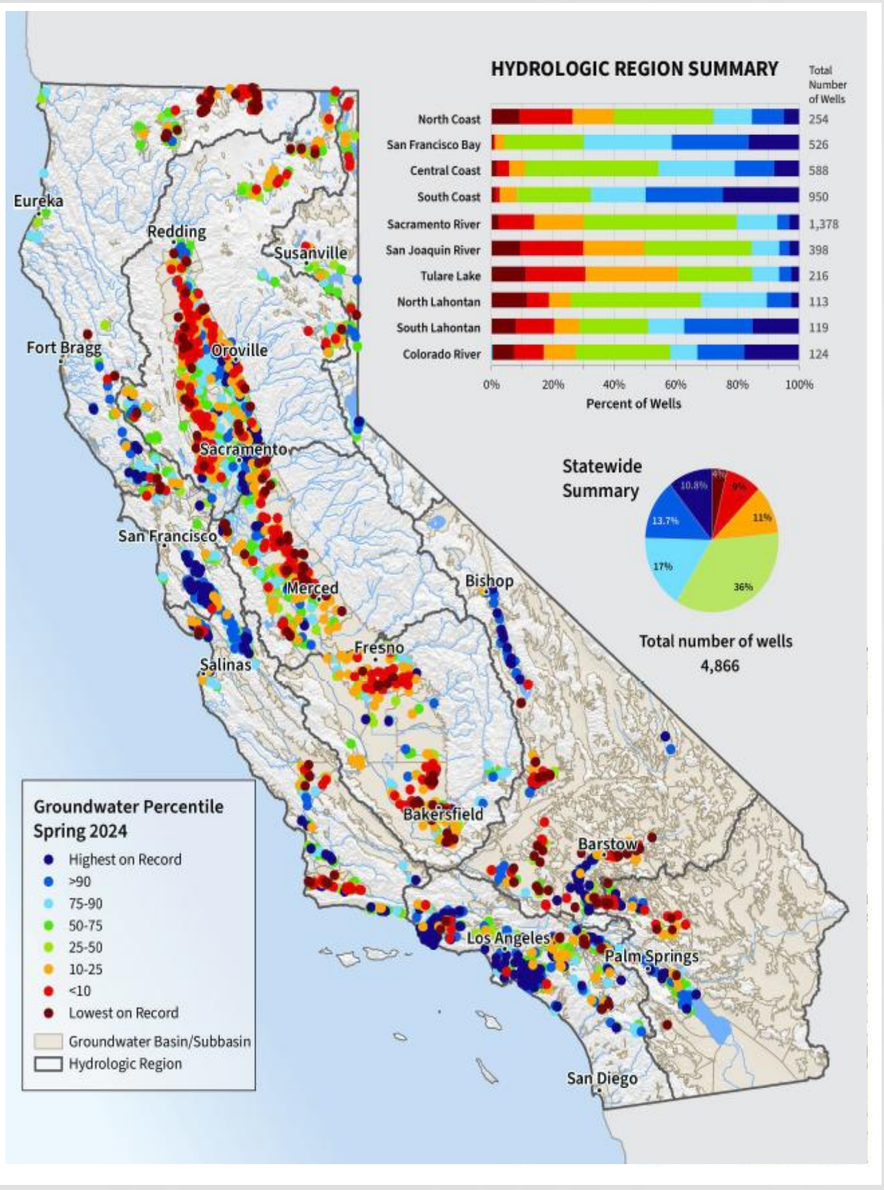


Introduction

- Chapter 6 relies on data collected from the monitoring networks described in Chapter 5
- Groundwater conditions are organized around the sustainability indicators
- Conditions are influenced by complex natural factors, human activities, hydrology and management practices
- Near-term and long-term analysis are provided

Sustainability Indicators	Lowering GW Levels	Reduction of Storage	Degraded Quality	Land Subsidence	Surface Water Depletion	Seawater Intrusion

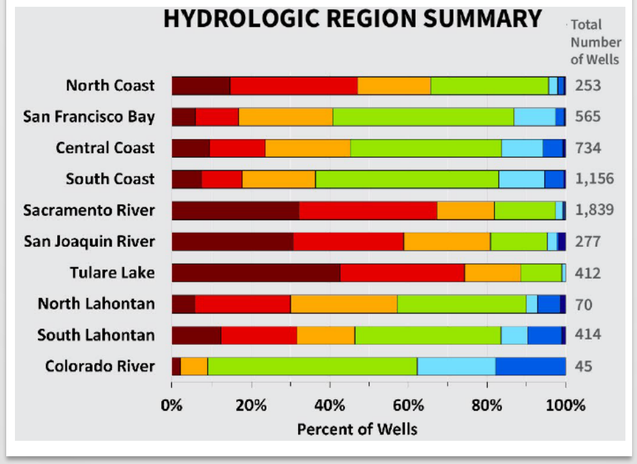
Chapter 6: Groundwater Conditions



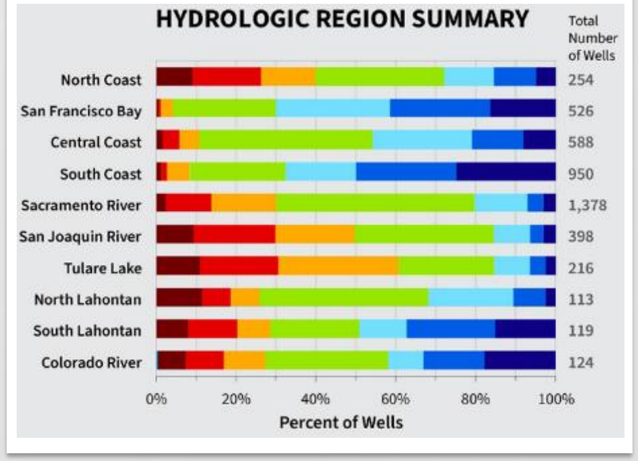
Groundwater Levels

- Fundamental information for assessing conditions
- Used to show groundwater elevation and depth to groundwater
- Enables a comparison of conditions using different snapshots in time
- Provides insights into depletion, recharge, and changes in storage
- Conditions improved after the 2020-2022 drought, but long-term trends show significant declines in some areas

Conditions as of Fall 2022 (Aug, Sep, Oct)



Conditions as of Spring 2024 (Mar, Apr, May)



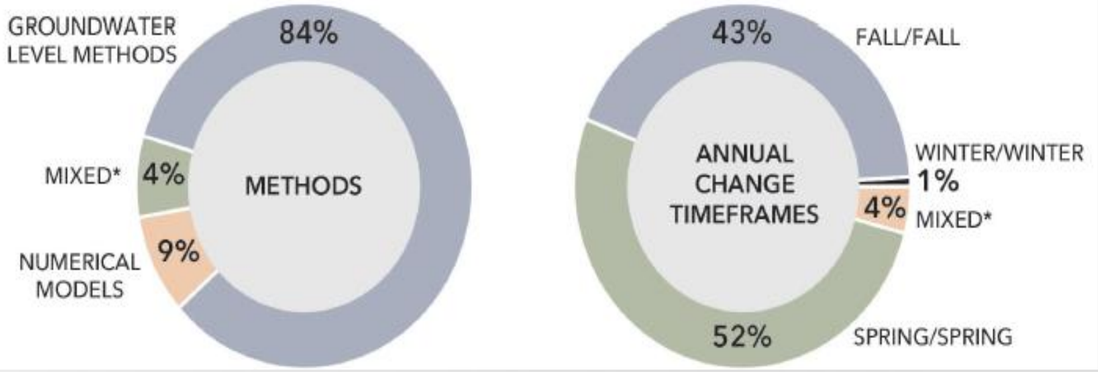
Chapter 6: Groundwater Conditions

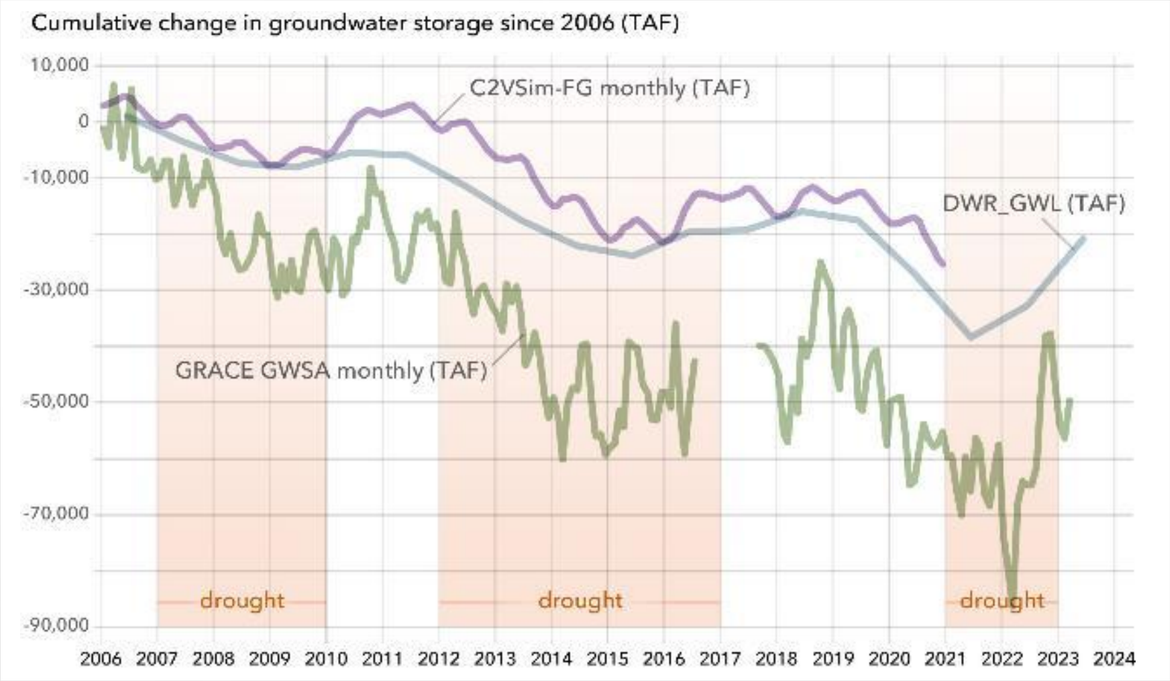
Change in Groundwater Storage

- The change in groundwater storage is estimated with models, analysis of groundwater levels, and remote sensing through satellites
- Trends are similar, but results vary due to:
  - Method
  - Area covered
  - Aquifer characterization
  - Time period

- In general, since 2019:
  - The greatest losses in groundwater storage occurred in WY 2021 and 2022
  - The greatest increases in storage occur in WY 2023 and 2024

Figure 6-10 Mix of Change in Groundwater Storage Estimation Methods and Timeframes used in Annual Reports for Basins within the Central Valley



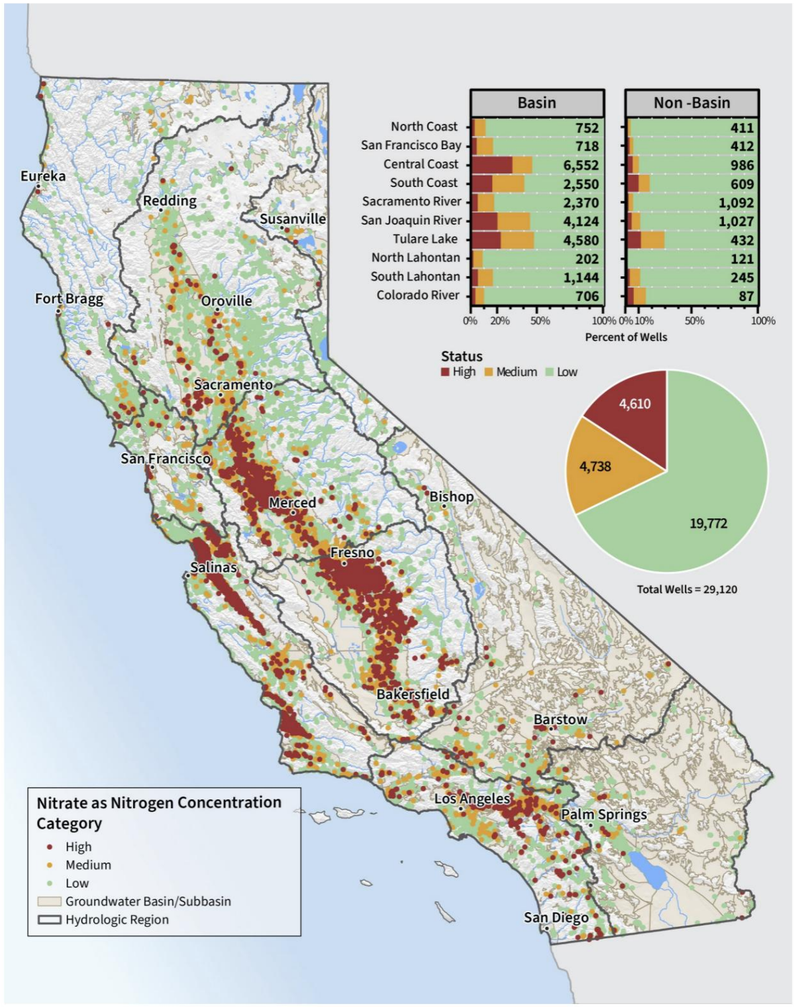


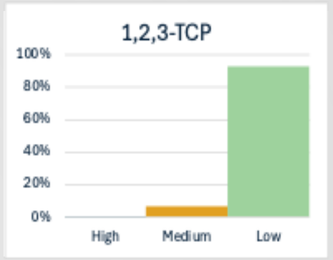
Chapter 6: Groundwater Conditions

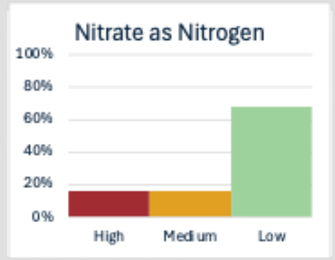
Groundwater Quality - Contaminants of Concern

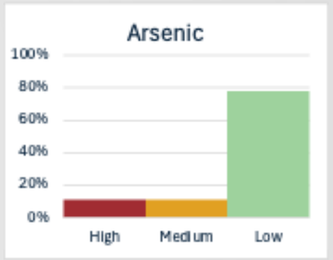
- Groundwater quality varies widely
- Analysis compares raw data to MCLs/SMCLs/NLs
- Nitrate, PFOA, PFOS had the most frequent exceedances
- 8 COCs were selected to highlight statewide trends in groundwater quality
- Data are from SWRCB GAMA Program

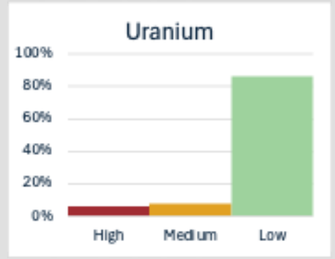
Figure 6-20 Geographic Distribution of Nitrate as Nitrogen Concentrations Detected in Groundwater (Water Years 2014-2023)

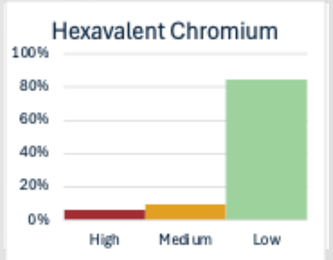


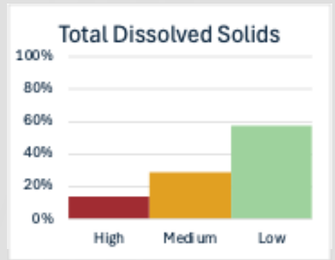


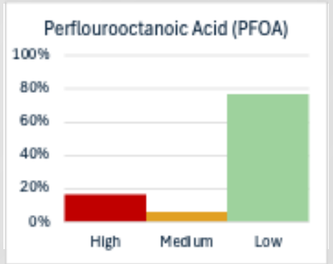


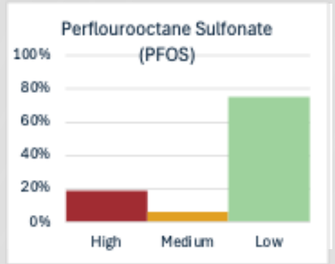




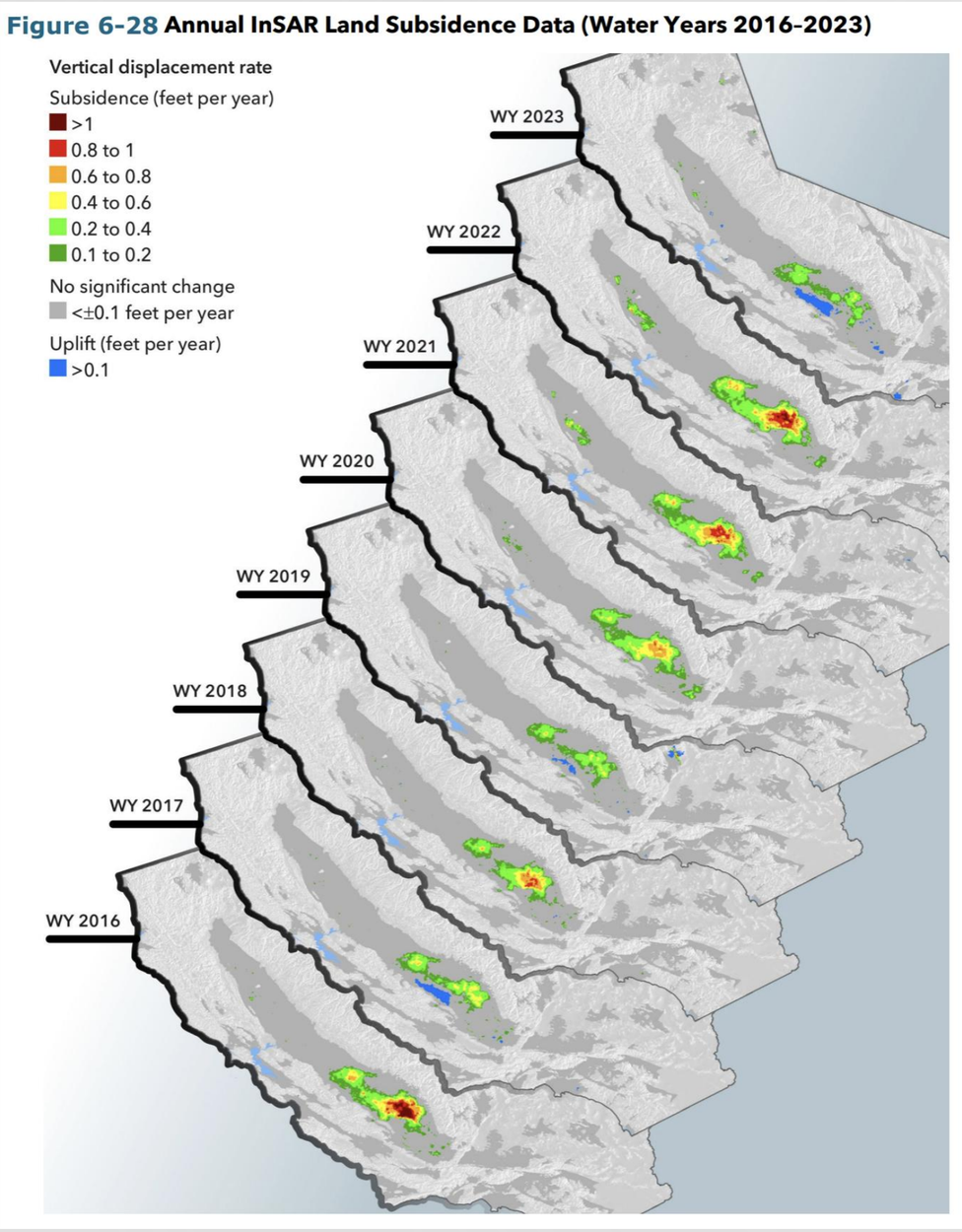






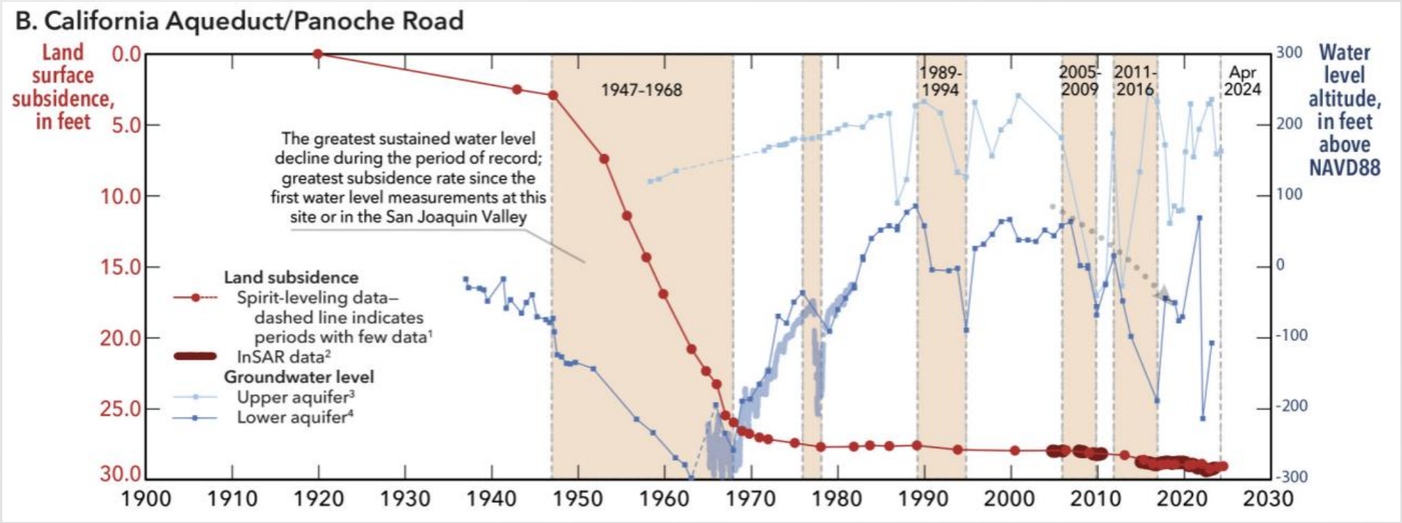


Chapter 6: Groundwater Conditions



Land Subsidence

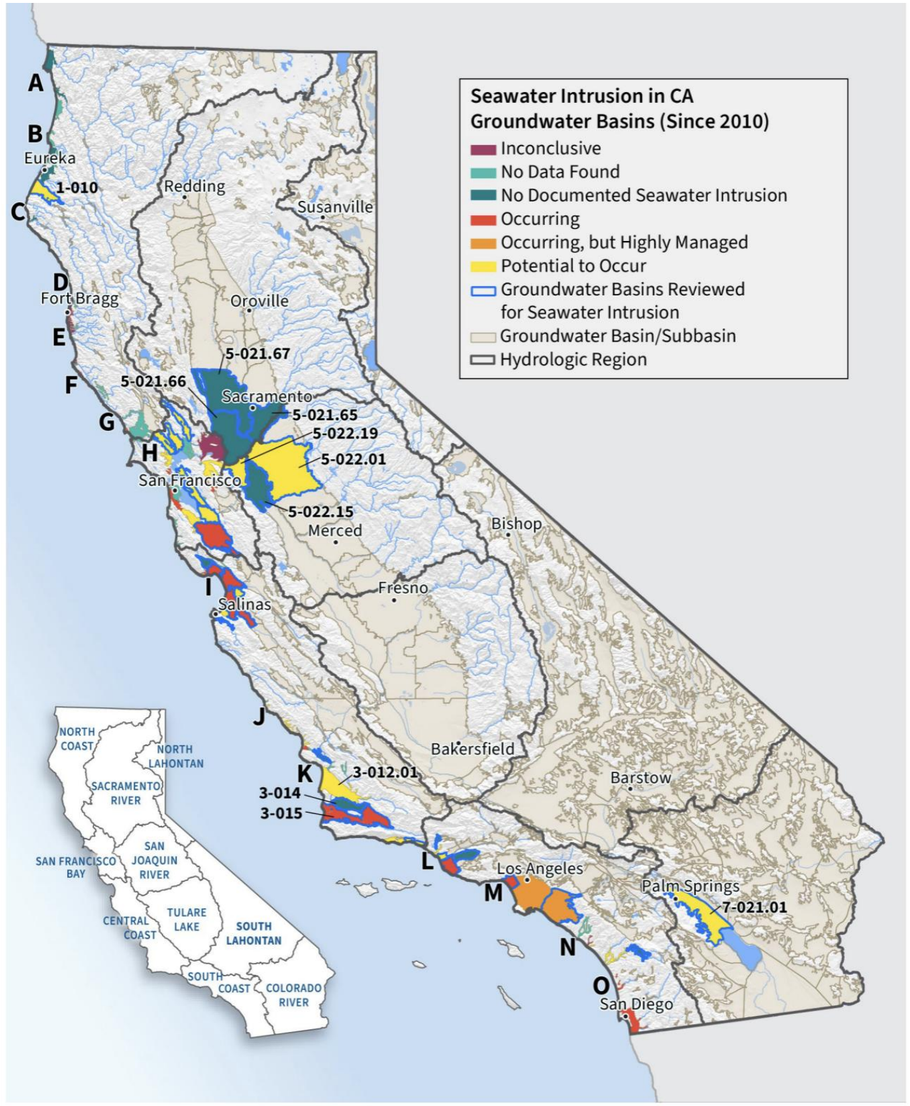
- Excessive groundwater extraction leads to land subsidence and permanent loss of storage
- Inelastic land subsidence occurs when groundwater levels drop below the *critical head*
- Subsidence rates accelerated during drought periods
- Subsidence of more than 4,000 sq mi occurred from WY 2019-2023
- Management actions to keep water levels above the *critical head* are necessary to minimize land subsidence



Chapter 6: Groundwater Conditions

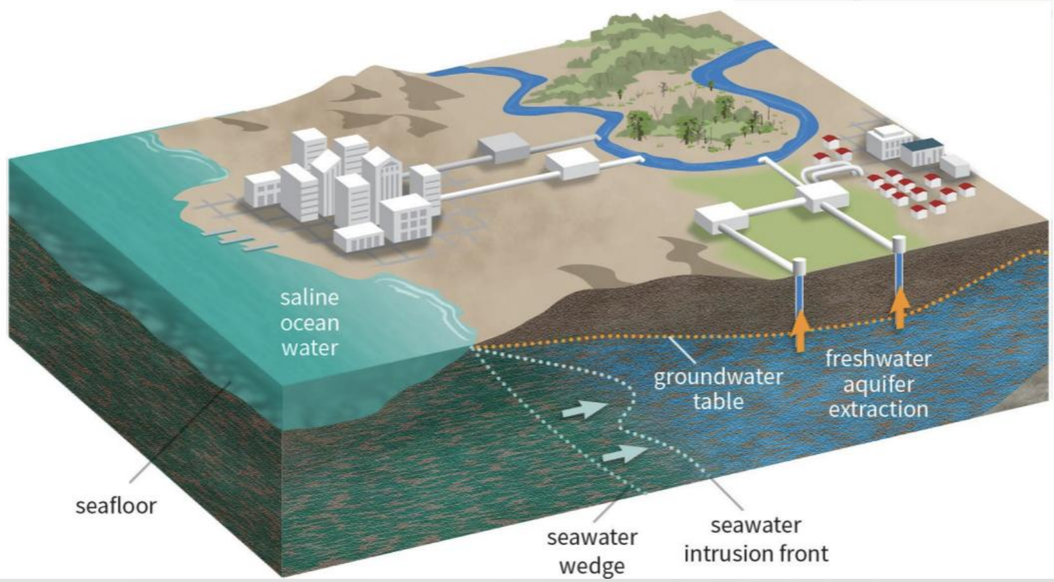
Seawater Intrusion - Coastal Vulnerability

Figure 6-34 Status of Seawater Intrusion in Groundwater Basins



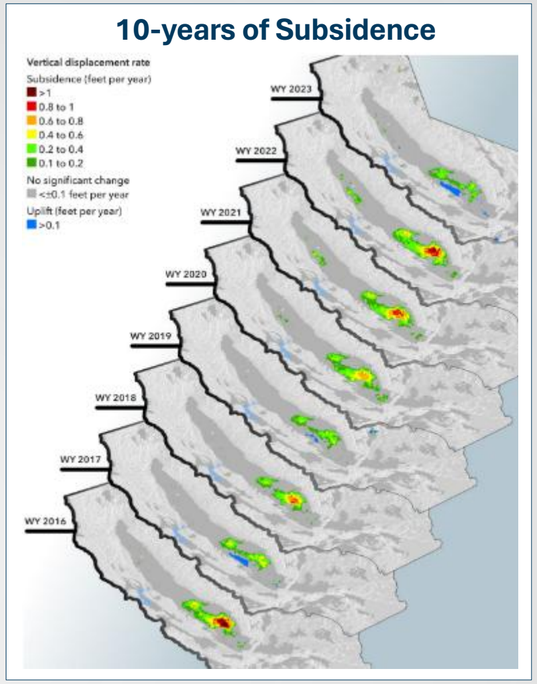
- Declining groundwater levels onshore can cause a change in the hydraulic gradient
- Monitoring groundwater levels and chloride concentrations are methods used to measure seawater intrusion
- Of 98 coastal basins, 24 showed recent seawater intrusion and 33 are vulnerable

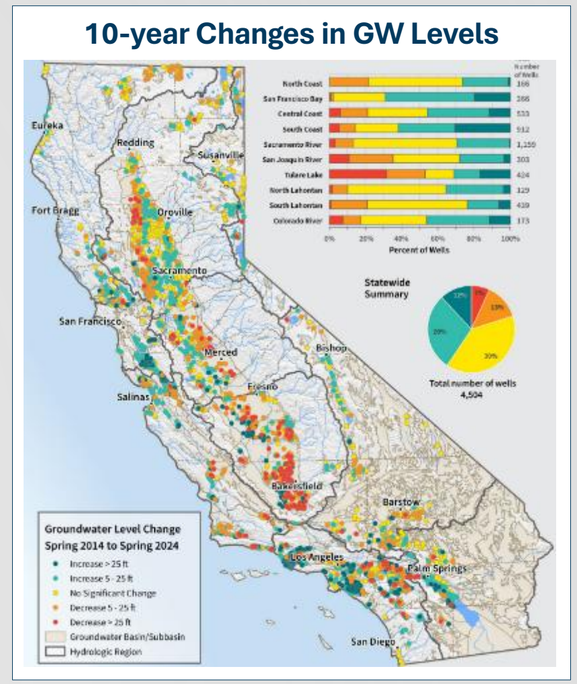
Figure 6-33 Schematic Showing the Seawater Intrusion Front in a Coastal Aquifer

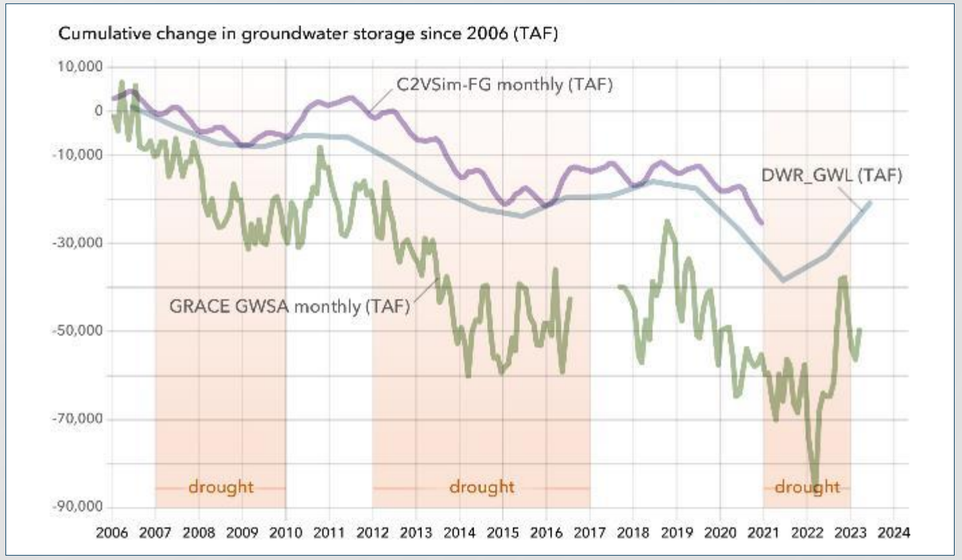


Chapter 6: Groundwater Conditions

- Data-Driven Sustainability
- Expanding data and information for more informed decision making
- Analysis leads to improved monitoring networks
- Orienting analysis around sustainability indicators provides consistency and focus







Beneath the Surface

- **Conditions overview:** While wet years (WY 2023/2024) provided some recovery, long-term trends confirm significant depletion, requiring sustained management efforts.
- **Challenges:** Future subsidence must be minimized by ensuring groundwater levels are raised or maintained above critical heads specific to each region.

CalGW Update 2025

Chapter 7

Chapter 7: Regional Groundwater at a Glance

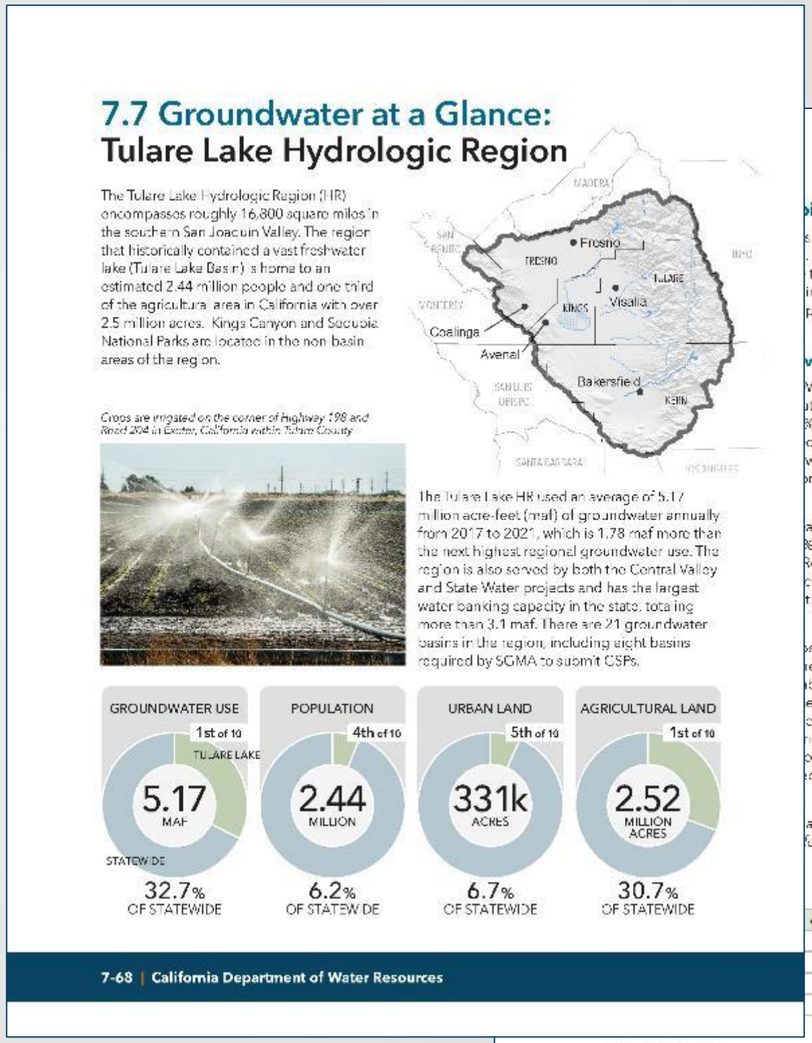
Hydrologic Region Summaries

- Data-rich & graphics heavy
- 12 pages for each of the 10 hydrologic regions
- Based on the statewide data presented in Chapters 1 through 6

Chapter 7: Regional Groundwater at a Glance

Hydrologic Region Summaries

- Groundwater at a Glance
- Land & Water Use
- Climate Change Vulnerability (new since 2020)
- Water Shortage Vulnerability (new since 2020)
- Groundwater Management
- Groundwater Recharge (new since 2020)
- Well Infrastructure
- Groundwater Levels
- Groundwater Quality
- Groundwater Assistance
- Basin Map
- Basin List

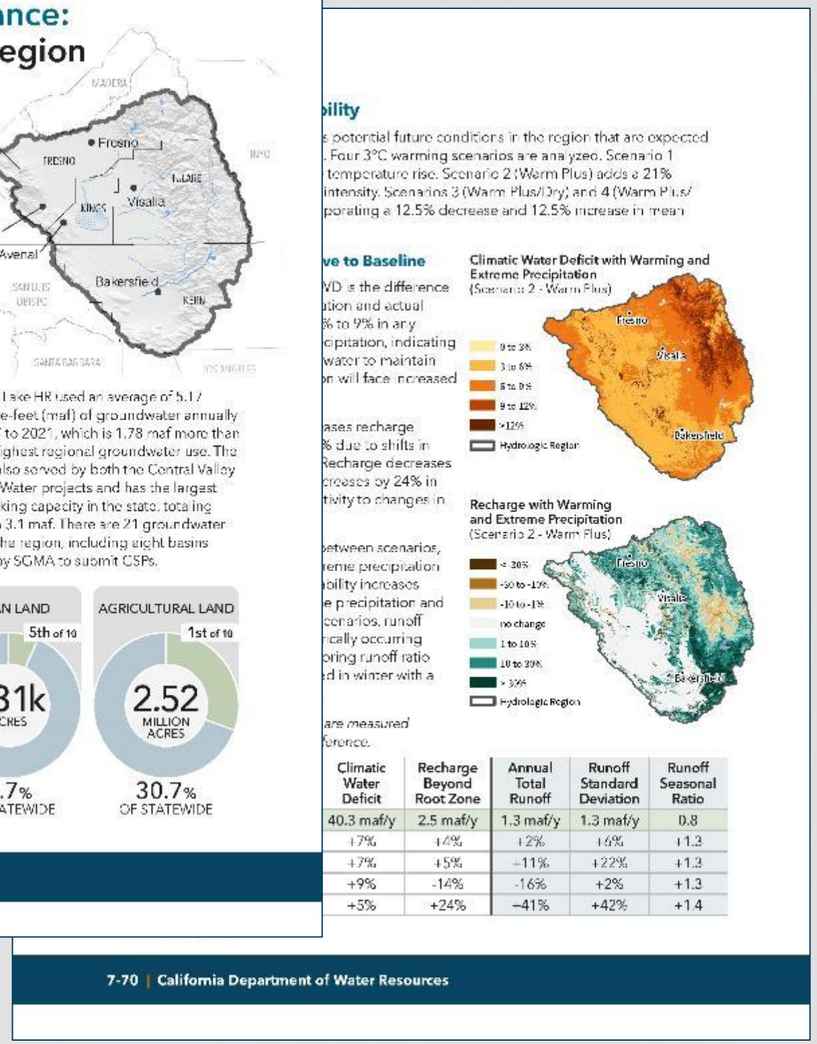


7.7 Groundwater at a Glance:
Tulare Lake Hydrologic Region

The Tulare Lake Hydrologic Region (HR) encompasses roughly 16,800 square miles in the southern San Joaquin Valley. The region that historically contained a vast freshwater lake (Tulare Lake Basin) is home to an estimated 2.44 million people and one third of the agricultural area in California with over 2.5 million acres. Kings Canyon and Sequoia National Parks are located in the non basin areas of the region.

Crops are irrigated on the corner of Highway 198 and Road 204 in Exeter, California within Tulare County.

The Tulare Lake HR used an average of 5.17 million acre-feet (maf) of groundwater annually from 2017 to 2021, which is 1.78 maf more than the next highest regional groundwater use. The region is also served by both the Central Valley and State Water projects and has the largest water banking capacity in the state, totaling more than 3.1 maf. There are 21 groundwater basins in the region, including eight basins required by SGMA to submit GSPs.



bility

s potential future conditions in the region that are expected
. Four 3°C warming scenarios are analyzed. Scenario 1
temperature rise. Scenario 2 (Warm Plus) adds a 21%
intensity. Scenarios 3 (Warm Plus/Dry) and 4 (Warm Plus/
porating a 12.5% decrease and 12.5% increase in mean

ve to Baseline

VD is the difference
ution and actual
% to 9% in any
cipitation, indicating
water to maintain
n will face increased

ases recharge
% due to shifts in
Recharge decreases
creases by 24% in
tivity to changes in

between scenarios,
reme precipitation
bility increases
e precipitation and
scenarios, runoff
ically occurring
oring runoff ratio
ed in winter with a

are measured
ference.

Climatic Water Deficit with Warming and Extreme Precipitation
(Scenario 2 - Warm Plus)

Recharge with Warming and Extreme Precipitation
(Scenario 2 - Warm Plus)

Climatic Water Deficit	Recharge Beyond Root Zone	Annual Total Runoff	Runoff Standard Deviation	Runoff Seasonal Ratio
40.3 maf/y	2.5 maf/y	1.3 maf/y	1.3 maf/y	0.8
+7%	+4%	+2%	+6%	+1.3
+7%	+5%	+11%	+22%	+1.3
+9%	-14%	-16%	+2%	+1.3
+5%	+24%	–41%	+42%	+1.4

CalGW Update 2025

Next Steps & Resources

CalGW Update 2025 – Next Steps & Resources

10/20/25
Public Draft CalGW Update 2025 Released

12/05/25
45-Day Public Comment Period Closes

Spring 2026
Final Release

- CalGW Bulletin 118: www.water.ca.gov/CalGW
- CalGW Semi-Annual Updates: https://data.cnra.ca.gov/dataset/california-s-groundwater-semi-annual-conditions-updates
- CalGW Live: https://sgma.water.ca.gov/CalGWLive
- Fact Sheet on Draft CalGW Update 2025 & Public Review in English & Español

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CALIFORNIA DEPARTMENT OF WATER RESOURCES

Water Basics | What We Do | Programs

Current | History | Statewide Reports | Regional Reports | Basin Descriptions | Basin Boundary GIS Data

Draft California's Groundwater Informational Resources

The draft documents can be accessed below:

Report Highlights – English ***Statewide Report: Chapters 1-6*** ***Statewide Report: Chapter 7 Regional Summaries*** ***Report Highlights – Spanish***

Additional content also released as part of the Draft CalGW Update 2025 includes the following:

- Appendix A: Findings and Recommendations
- Appendix B: Glossary
- Appendix D: Citations, Reference Materials, and Links
- Appendix I: Update on Land Subsidence in California

California's Groundwater: Bulletin 118 – Update 2025

California's Groundwater: Bulletin 118 – Update 2025 (CalGW Update 2025) is the State's most up-to-date compendium of statewide data and information on groundwater resources and its management. CalGW Update 2025 consists of a summary Highlights (English, Spanish), a detailed statewide report, and a series of appendices. If you experience difficulty viewing or downloading the files, or wish to request printed copies of the Highlights or statewide report documents, please send your request to CalGW@water.ca.gov. Please note: for paper records copied by the Department of Water Resources, a fee of 15 cents per page will be charged if records consist of 150 pages or more. A charge of $5.00 per media disk or the actual cost of a flash drive will be charged if records are provided in electronic form.

Updated daily

California's Groundwater Live

A user-friendly interactive website that allows users to explore, analyze, and visualize the latest groundwater data and information for California.

Updated twice a year

California's Groundwater Semi-Annual Updates

CalGW Semi-Annual Updates are more frequent supplements to the comprehensive CalGW Updates, and also provide additional perspective on the near-real-time data availability through CalGW Live.

Additional Resources

Fact sheet on *California's Groundwater Update 2025* and

Resources in Spanish

Fact sheet on *California's Groundwater Update 2025:* Hoja

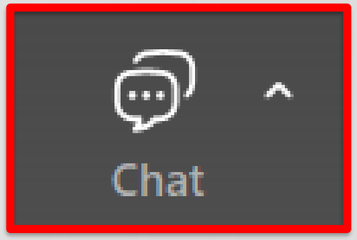
Reminder: Public Comments are accepted throughout the webinar & will be noted.

CalGW Update 2025

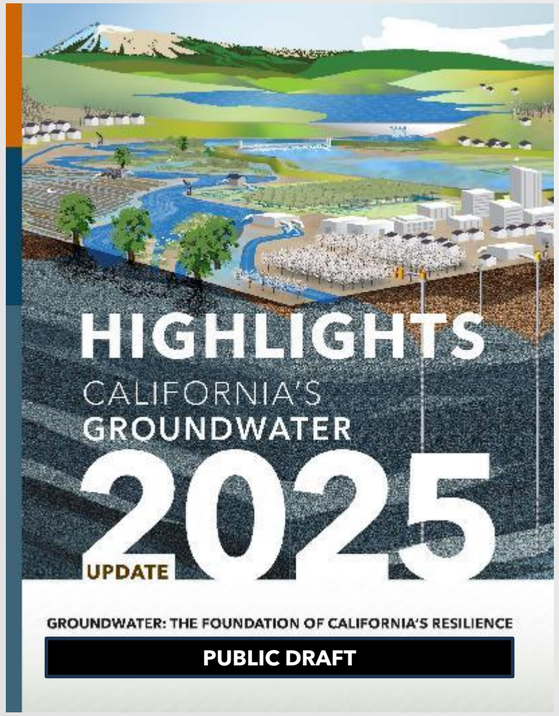
Question & Answer Portion

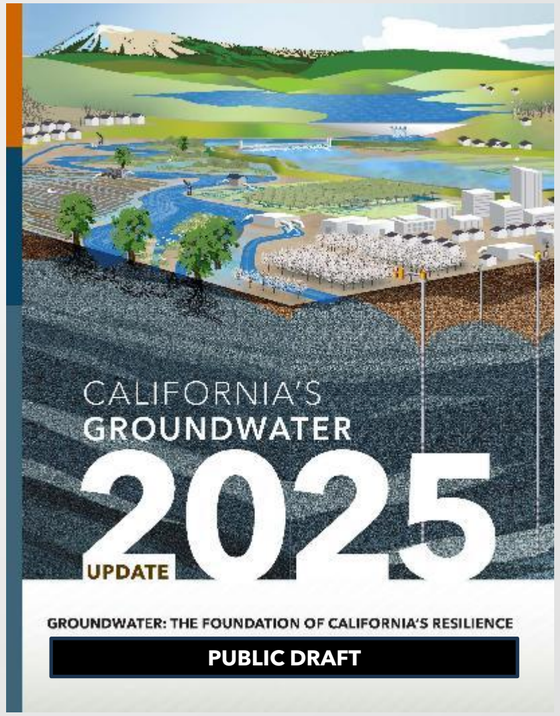
Webinar Questions & Comments

- Use the **Zoom Chat feature** to ask clarifying questions & provide public comments to us now
  - Designate a “Q” for questions
  - Clarifying questions will be prioritized & answered
  - Comments will be noted
  - Please provide longer comments to CalGW@water.ca.gov



THANK YOU!


HIGHLIGHTS
CALIFORNIA'S
GROUNDWATER
2025
UPDATE
GROUNDWATER: THE FOUNDATION OF CALIFORNIA'S RESILIENCE
PUBLIC DRAFT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