
# Stanislaus County

## Sustainable Groundwater Management Act

## Delta-Mendota Subbasin

## Non-District Landowner Event

April 22, 2024

# Agenda

1. Governance of Non-District Lands and County Role in the Sustainable Groundwater Management Act
   Christy McKinnon, Stanislaus Co.
2. Groundwater Sustainability Plan Update
   Anona Dutton, EKI
3. Water Year 2023 Annual Report
   Leslie Dumas, Woodard, & Curran
4. Opportunities for On-Farm Recharge: Successes, Challenges, and Resources
   Rogell Rogers, Sustainable Conservation
5. Closing Thoughts, Questions, Survey
   Christy McKinnon, Stanislaus Co.

Stanislaus County

NORTHERN & CENTRAL DELTA-MENDOTA

# Stanislaus County Department of Environmental Resources Groundwater Resources Division

## NORTHWESTERN DELTA-MENDOTA GSA

## Sustainable Groundwater Management Act

## County Jurisdictional Roles and Subbasin Management Responsibilities

Presented By Christy McKinnon, Water Resources Manager

Delta-Mendota Subbasin Non-District Landowner Event #1

April 22, 2024

# Stanislaus County Priorities and Goals

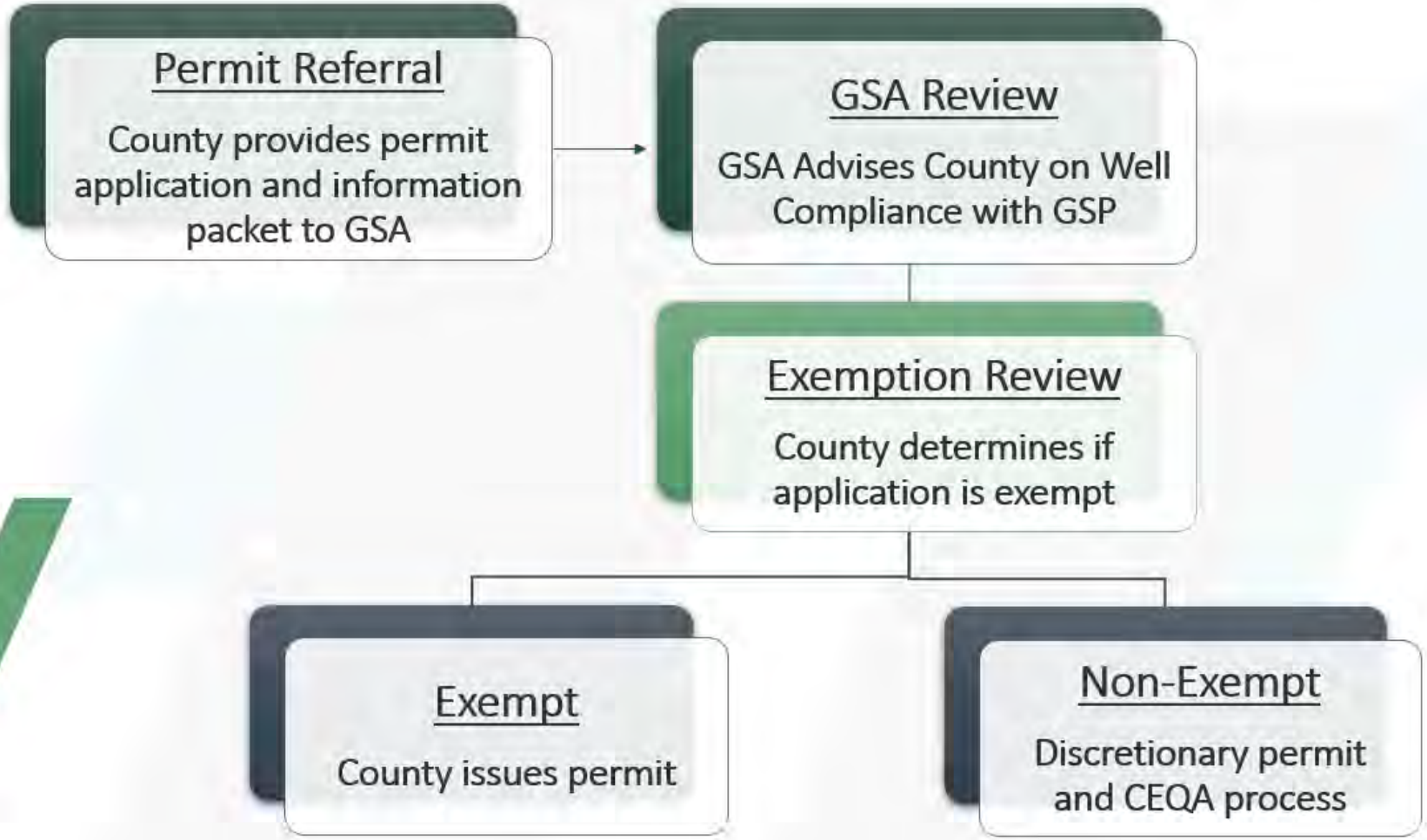
- Enhancing Community Infrastructure
- Deliver Efficient Public Services
- Developing a High-Performing Economy
- Protect agricultural resources
- Ensure reliable water sources- quality and quantity
- Protect our natural resources to improve the quality of life for County residents

**“Groundwater management in California is best accomplished locally” – Gov Jerry Brown**

# Overview of Well Permitting

| | |
|---|---|
| State Well Standards | • DWR Bulletin 74-81/90<br>• Defines minimum statewide standards for water quality protection; Currently being updated by DWR |
| Well Ordinance | • Protects **groundwater quality**; Adopts State Well Standards<br>• Can define local standards that are more restrictive |
| Groundwater Ordinance | • Protects **groundwater quantity** by prohibiting unsustainable extraction<br>• If Groundwater Sustainability Agencies do not find wells consistent with their Groundwater Sustainability Plans, applicants must include substantial evidence extraction is sustainable; Subject to CEQA review |
| Ministerial Permits | • Require little or no judgment or deliberation<br>• Can be issued "over the counter" |
| Discretionary Permits | • Require judgment or deliberation<br>• Trigger requirement of a CEQA review unless Categorically Exempt |

# Stanislaus County Well Permitting Process



# Stanislaus County Groundwater Ordinance

## *Chapter 9.37.050 Exemptions*

- Replacement wells (similar capacity and construction)
- De minimis wells (less than 2 acre-feet/year)
- "Water resources management practices of public water agencies that have jurisdictional authority within the county, and their water rate payers, that are in compliance with and included in … an approved groundwater sustainability plan" (GSP).

## *Chapter 9.37.045 Application*

- Upon adoption of a GSP, the prohibition and requirements of the Groundwater Ordinance shall be applicable to any groundwater well from which the county reasonably concludes extraction is unsustainable.

# Applicability of the County Groundwater Ordinance to Sustainable Groundwater Management

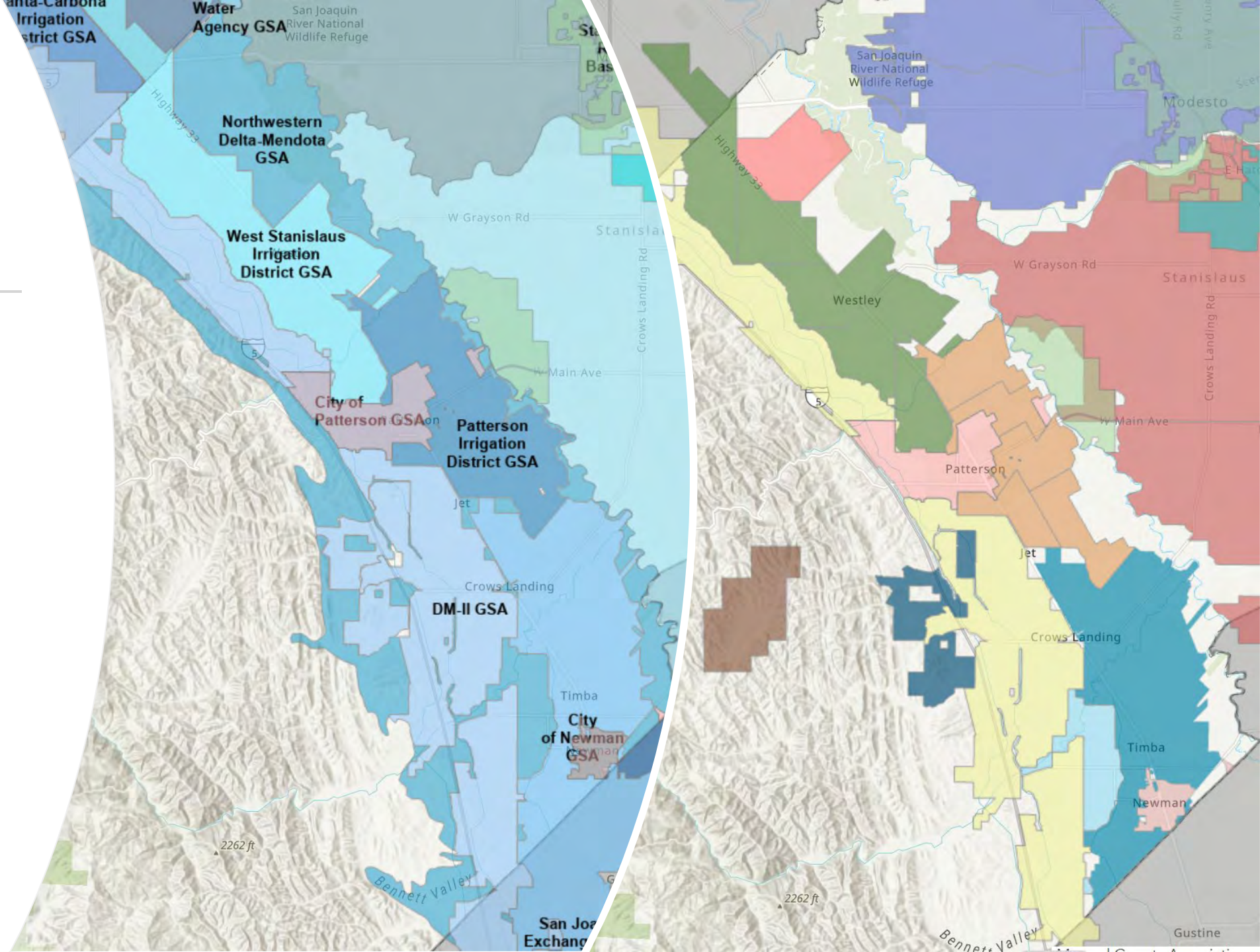
- Adopted in late 2014 as the first Groundwater Ordinance explicitly aligned with the requirements of SGMA
- Developed County-wide discretionary well and groundwater extraction permitting program
- Developed a PEIR for implementation of the discretionary permitting program under a grant from DWR
- Adoption of program to evaluate compliance with Governor’s Executive Order N-7-22

# Groundwater Sustainability Agencies Implement Groundwater Sustainability Plans

GSAs within the Stanislaus County portion of the Delta Mendota Subbasin, (Left).

Irrigation Districts within the Stanislaus County portion of the Delta Mendota Subbasin, (Right)

**North-Western Delta Mendota GSA-** Stanislaus County area of Plan Oversight- non-district lands, El Solyo and Eastin Water Districts.



# Groundwater Ordinance Authorities and County Groundwater Management Program

**Authority to Require Groundwater Monitoring Data Collection (Ch 9.37.065)**

- Individual well and extraction permit monitoring requirements
- Water Use Accounting
- Adoption of regional monitoring requirements

**Authority to Require Investigations (Ch 9.37.045B and 060C)**

- County can require owners/operators of wells to provide substantial evidence of sustainable extraction
- County can perform or require focused investigations to gather data for groundwater management

**Authority to Regulate Extraction (Ch 9.37.060B and C)**

- Groundwater Extraction Permit System
- Enforcement of prohibition against unsustainable extraction

# Questions???

https://www.stancounty.com/er/groundwater/

cmckinnon@envres.org

# DELTA-MENDOTA SUBBASIN
# RESPONSE TO INADEQUATE DETERMINATION

22 APRIL 2024

NON-DISTRICT LANDOWNER WORKSHOP

eki environment & water

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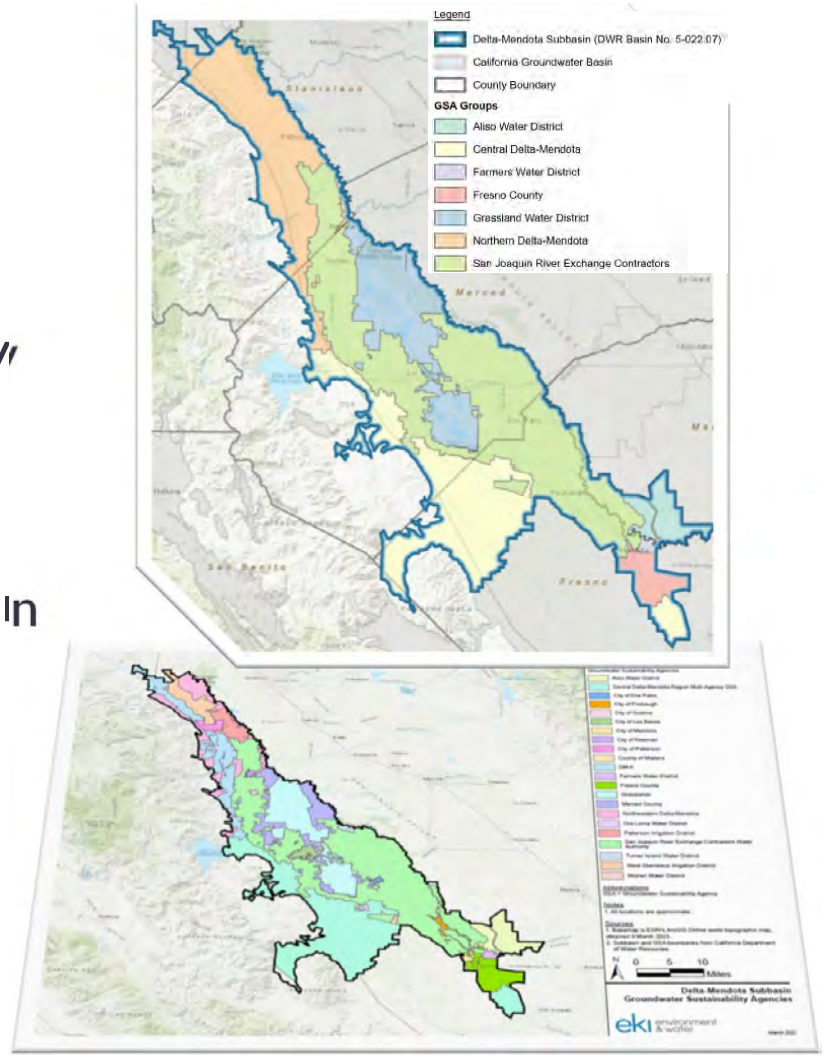
# OVERVIEW

- Delta Mendota Subbasin (Basin) revised Groundwater Sustainability Plan (GSP) overview and timelines
- Stakeholder outreach
- Progress meetings with the State Board
- Summary of GSP corrective actions and important revisions
- Adaptive management framework

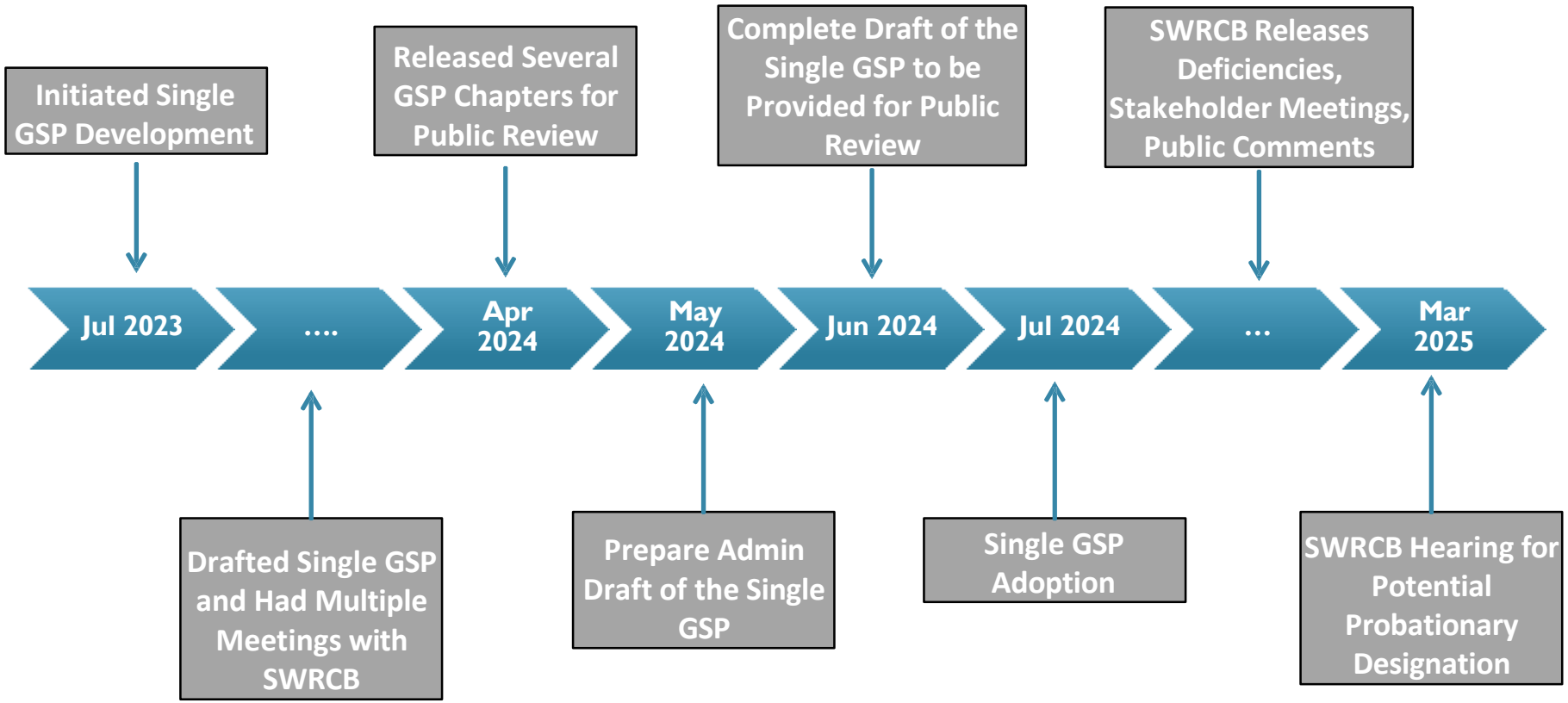
# GSP OVERVIEW AND TIMELINE

# BACKGROUND

- 23 GSAs formed by 2017
- 6 GSPs submitted January 2020
- DWR issued Incomplete letter January 23, 2022
- 6 Revised GSPs submitted July 2022
- DWR issued Inadequate Determination on March 2, 2023
- State Board intervention process triggered



# GSP TIMELINE




*Regular meetings of CC and TWG on Technical and Policy Issues are conducted throughout the GSP development process*

# STAKEHOLDER ENGAGEMENT

# STAKEHOLDER ENGAGEMENT

- Regular Coordination Committee meetings
- Local GSA Board meetings
- Basin stakeholder workshops (webinar) on revised GSP to be held in April & May 2024
- Collaboration with Water Leadership Institute on 4-part stakeholder engagement series
- Multiple State Board Tours
- Newsletters on revised GSP & SGMA progress
- Draft GSP chapters released for public review in April 2024

# PROGRESS MEETINGS WITH THE STATE BOARD

# SEVEN MEETINGS TO DATE WITH STATE BOARD TO ADDRESS DEFICIENCIES

- Mar 2023 – GSP revision and potential probationary process
- July 2023 – transition to single GSP, water level Sustainable Management Criteria (SMC)
- Sep 2023 – water quality and land subsidence SMC
- Oct 2023 – land subsidence SMC
- Dec 2023 – revisiting water level SMC, well impact analysis, well mitigation program
- Feb 2024 – water quality SMC
- Apr 2024 – water budget and demand management

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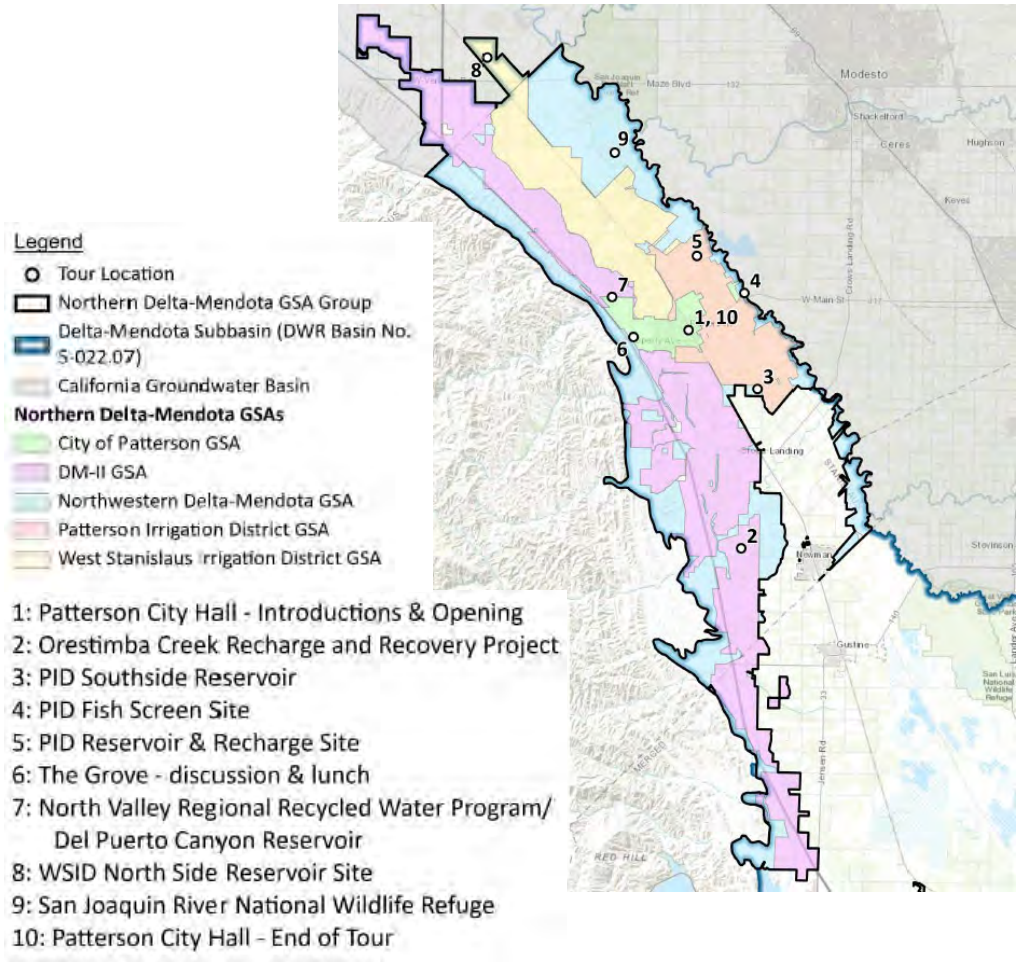
# STATE BOARD TOURS

- November 2023 – Overview of groundwater management partnerships in southern Delta-Mendota
- April 2024 – Overview of water projects and infrastructure in northern Delta-Mendota

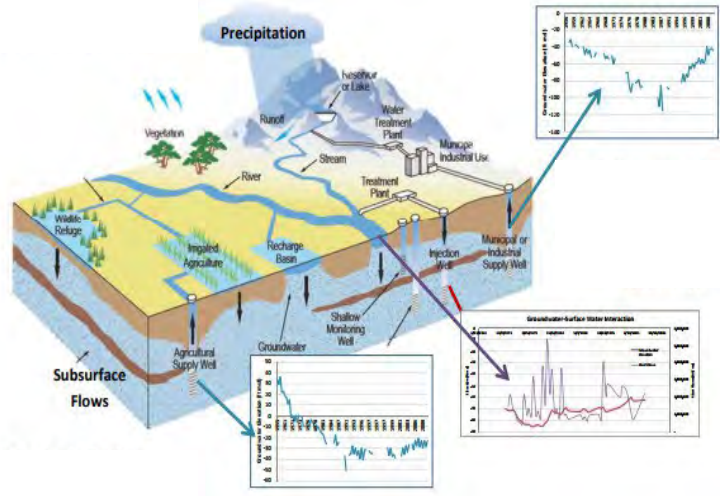



*Tour Locations for the April SWRCB Tour*

# SUMMARY OF PLAN CORRECTIVE ACTIONS AND IMPORTANT REVISIONS

# GSP STRUCTURE AND CONTENT

- Introduction and Plan Area
- Hydrogeological Conceptual Model (HCM)
- Groundwater Conditions Assessment
- Water Budget
- Sustainable Management Criteria (SMCs)
- Monitoring Network
- Projects & Management Actions (P&MAs)
- Plan Implementation




* 23-CCR Sections 352.6 , 354.8-20; www.water.ca.gov/groundwater/sgm/gsp.cfm

# SUMMARY OF DWR DETERMINED DEFICIENCIES

***Deficiency #1:*** *"The GSPs do not use the same data and methodologies"*

***Deficiency #2:*** *"The GSPs have not established common definitions of undesirable results in the Subbasin"*

***Deficiency #3:*** *"The GSPs in the Subbasin have not set sustainable management criteria in accordance with the GSP regulations"*

***Deficiency #4:*** *"The management areas established in the Plan have not sufficiently addressed the requirements specified in 23 CCR § 354.20"*

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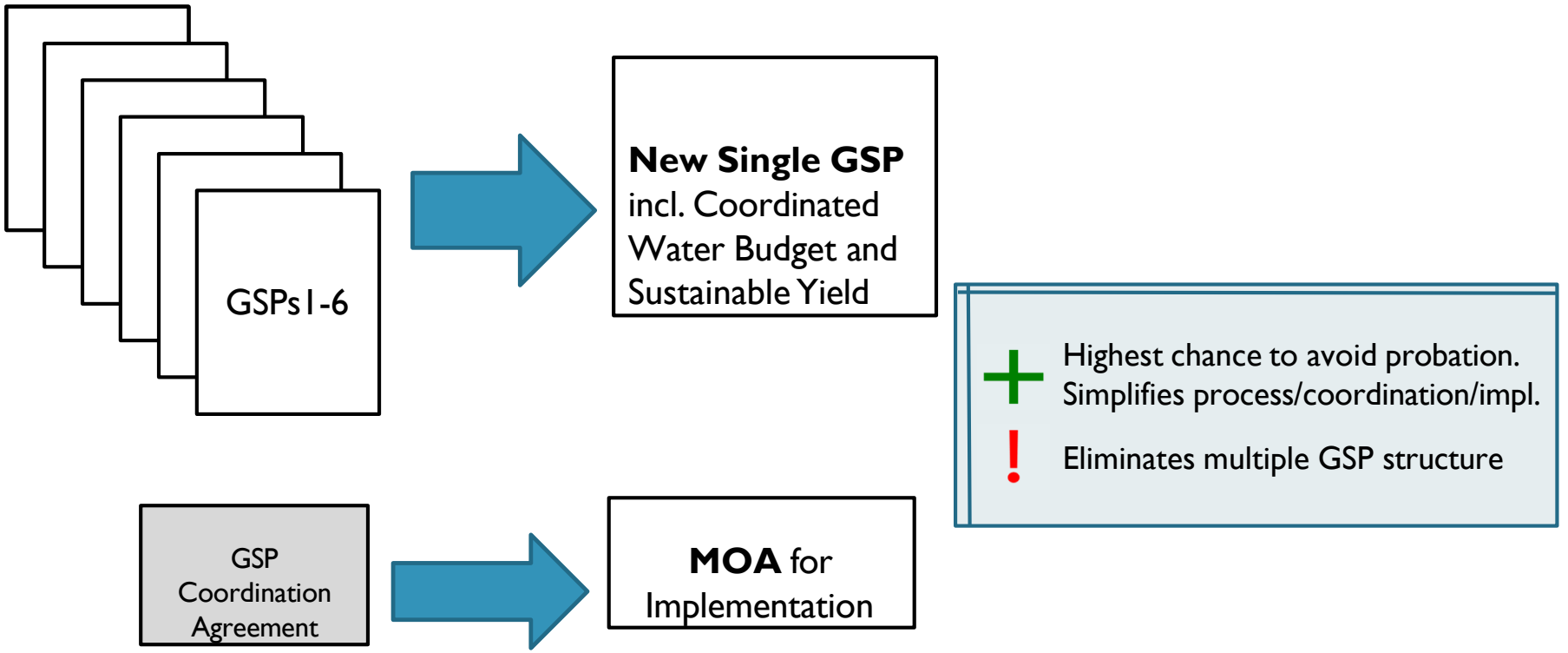
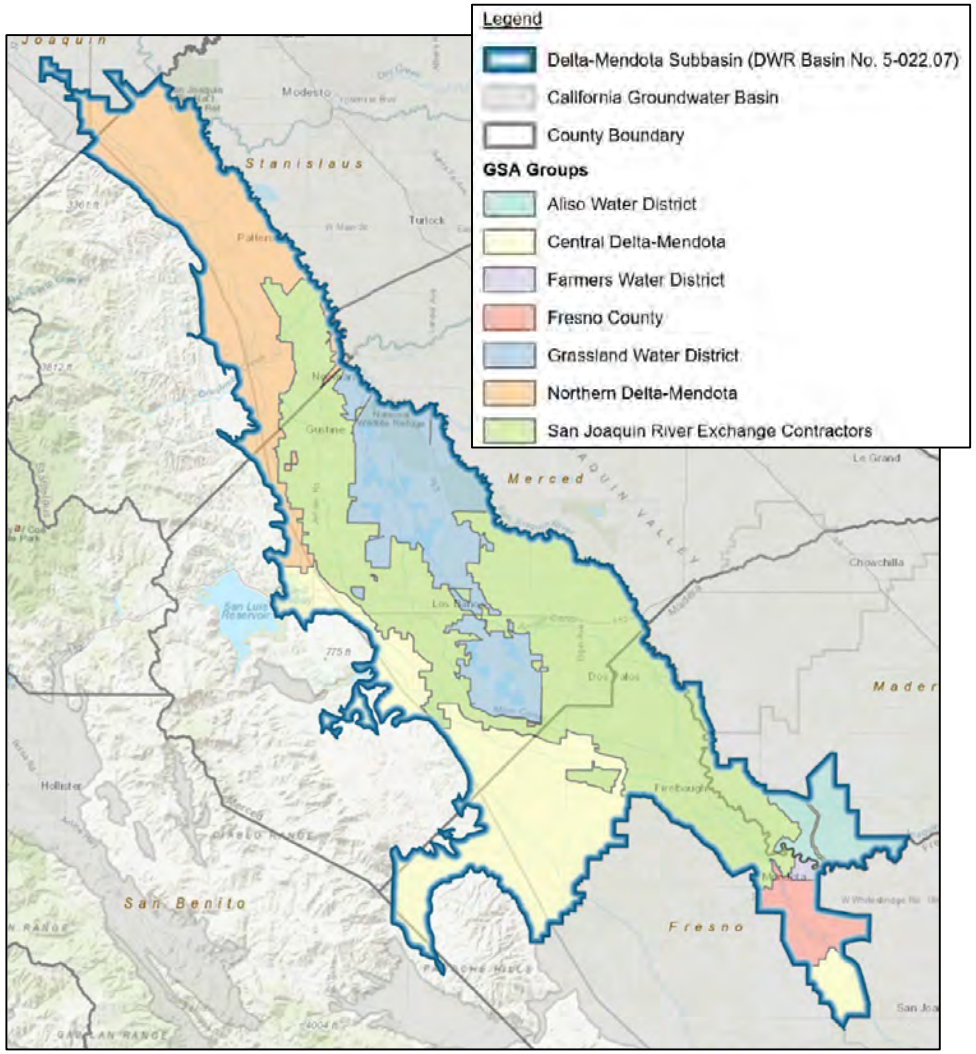
# ADDRESS DEFICIENCY #1 & #4 – PREPARE A SINGLE GSP AND ELIMINATE MANAGEMENT AREAS



# PLAN AREA

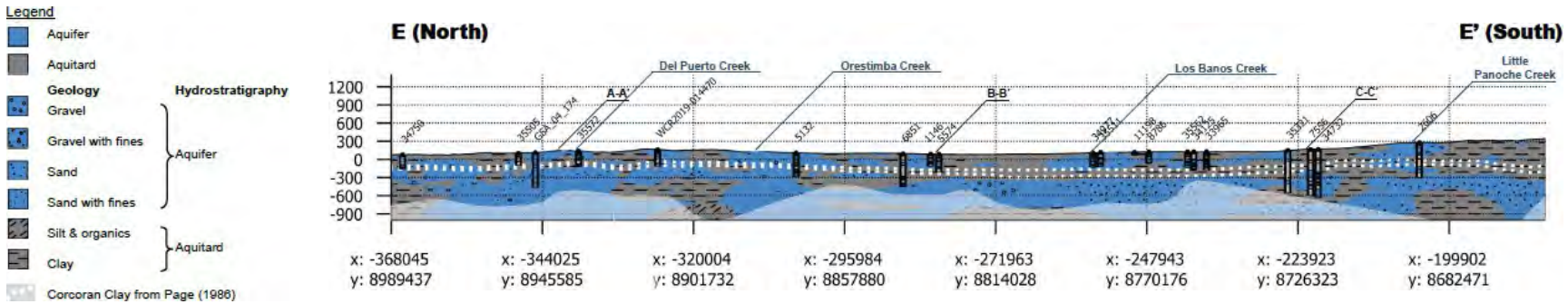
- Defined 7 GSA Groups
- Summary of jurisdictional areas
- Existing water resources and management programs
- Existing and anticipated land use
- Summary of stakeholder engagement



# HYDROGEOLOGIC CONCEPTUAL MODEL

- Developed 3-D HCM model of the Basin using Leapfrog
- Defined two Principal Aquifers – Upper Aquifer and Lower Aquifer
- Developed 6 representative cross-sections depicting major stratigraphic and structural features of the Basin

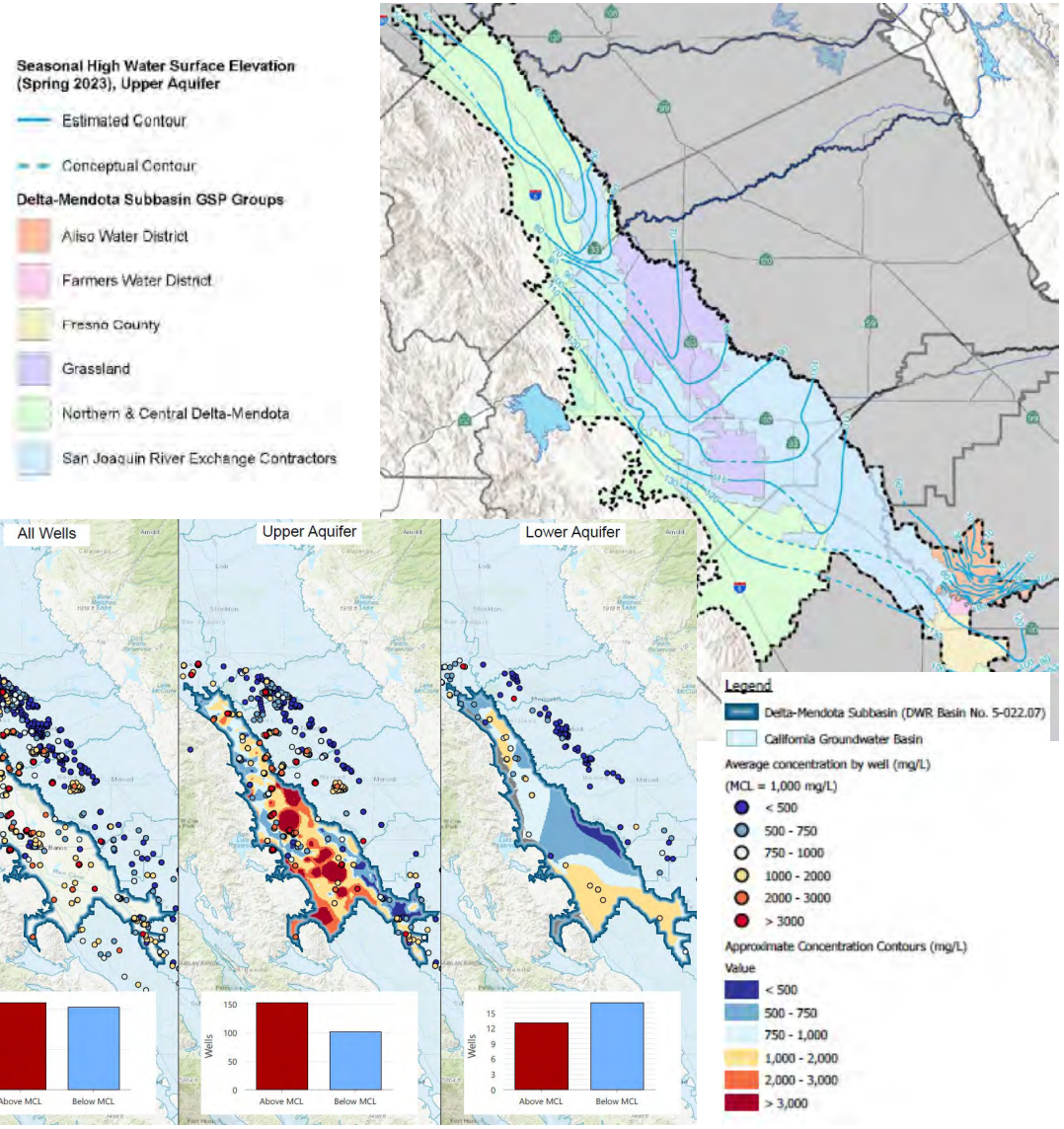
*3-D Model of the Basin*




*Cross section E-E' of the Basin*

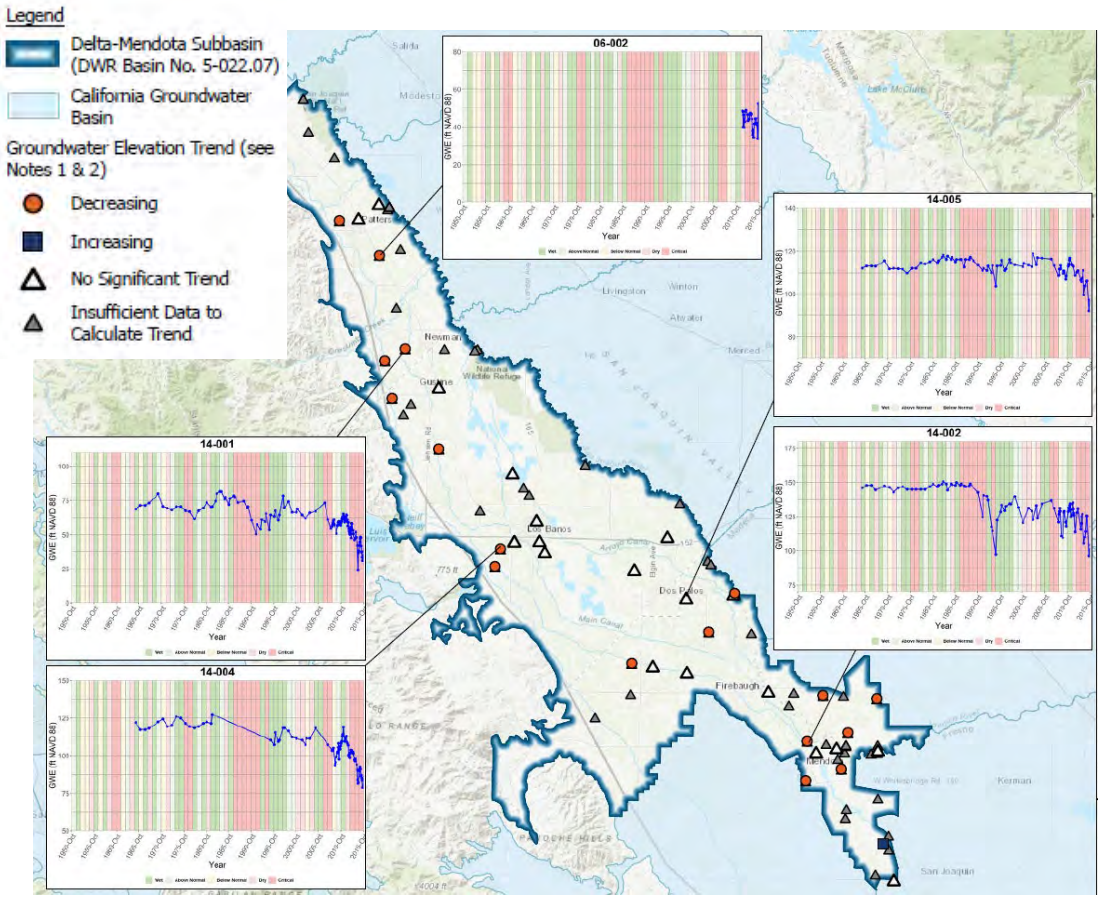
# GROUNDWATER CONDITIONS

- Described current (Water Year 2023) and historical groundwater conditions
- Assessed groundwater elevations, groundwater storage, groundwater quality, land subsidence, interconnected surface water (ISW), and groundwater dependent ecosystems (GDE)



# GROUNDWATER CONDITIONS – GROUNDWATER ELEVATIONS AND STORAGE

- Groundwater generally flows northeastward toward neighboring basins
- Water levels have become more stable in the recent years; however, there are areas of the Basin, especially in the Lower Aquifer, with localized groundwater declines
- Groundwater conditions in adjacent basins have a big influence on Basin conditions



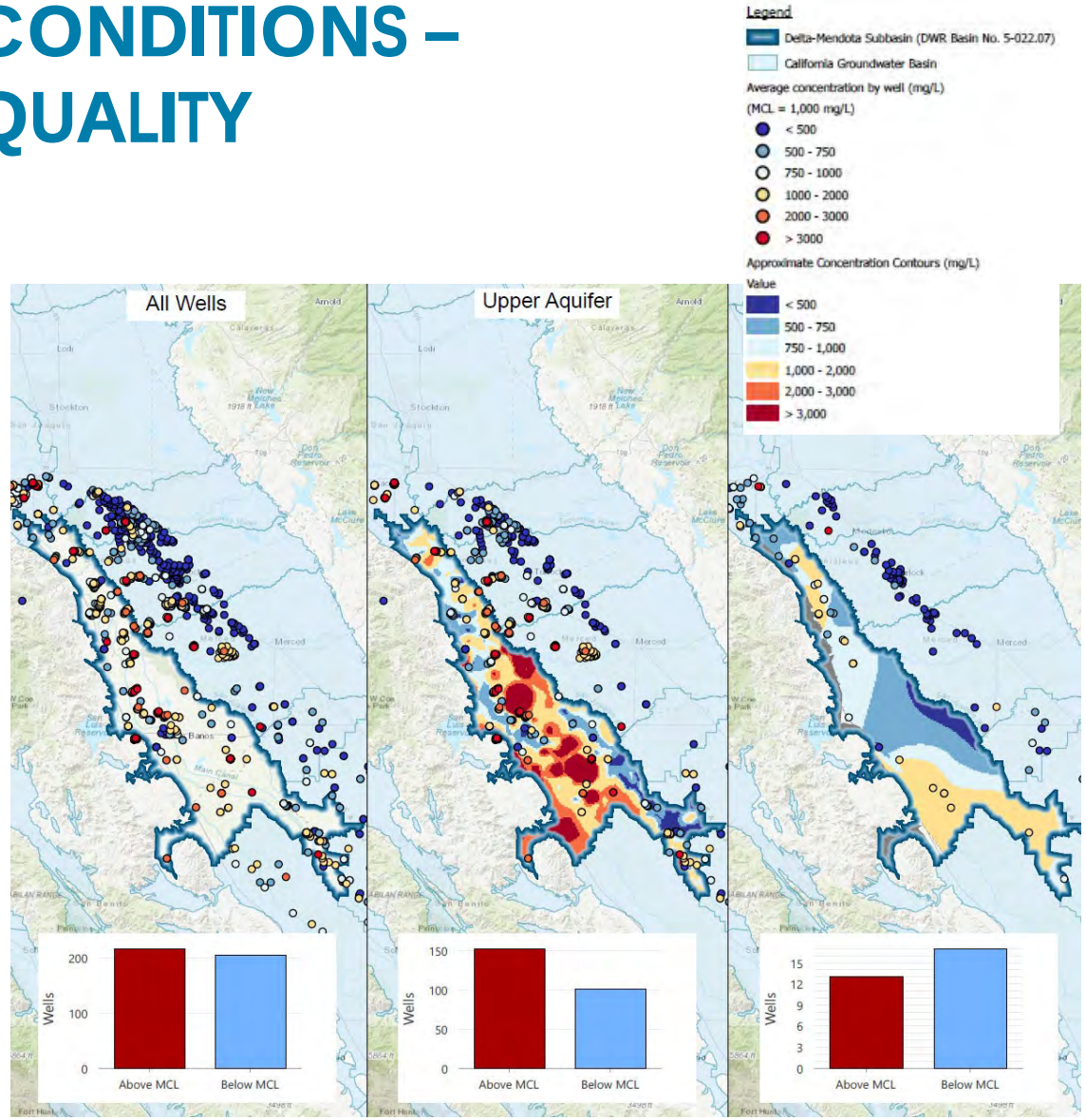

*Long-term hydrograph for the Upper Aquifer*

# STATE BOARD IDENTIFIED THE COCs THEY WANTED TO THE BASIN TO ADDRESS

| Constituent of Concern | Screening Level | Screening Level Type |
|---|---|---|
| **Arsenic** | 10 ug/L | Primary Maximum Contaminant Level (MCL) |
| **Nitrate as Nitrogen** MCL | 10 mg/L | Primary |
| **Nitrate and Nitrite as** MCL **Nitrogen** | 10 mg/L | Primary |
| **1,2,3-TCP** MCL | 0.005 ug/L | Primary |
| **Gross Alpha** MCL **Radioactivity** | 15 pCi/L | Primary |

# GROUNDWATER CONDITIONS – GROUNDWATER QUALITY

- Four of the six COCs (TDS, As, CR+6, Gross Alpha) are present due to the geology of the Basin aquifers as documented in studies dating back to the early 1900s
- These COCs are either very widespread (TDS) or have very limited occurrence pre-2015 and minimal change post-SGMA

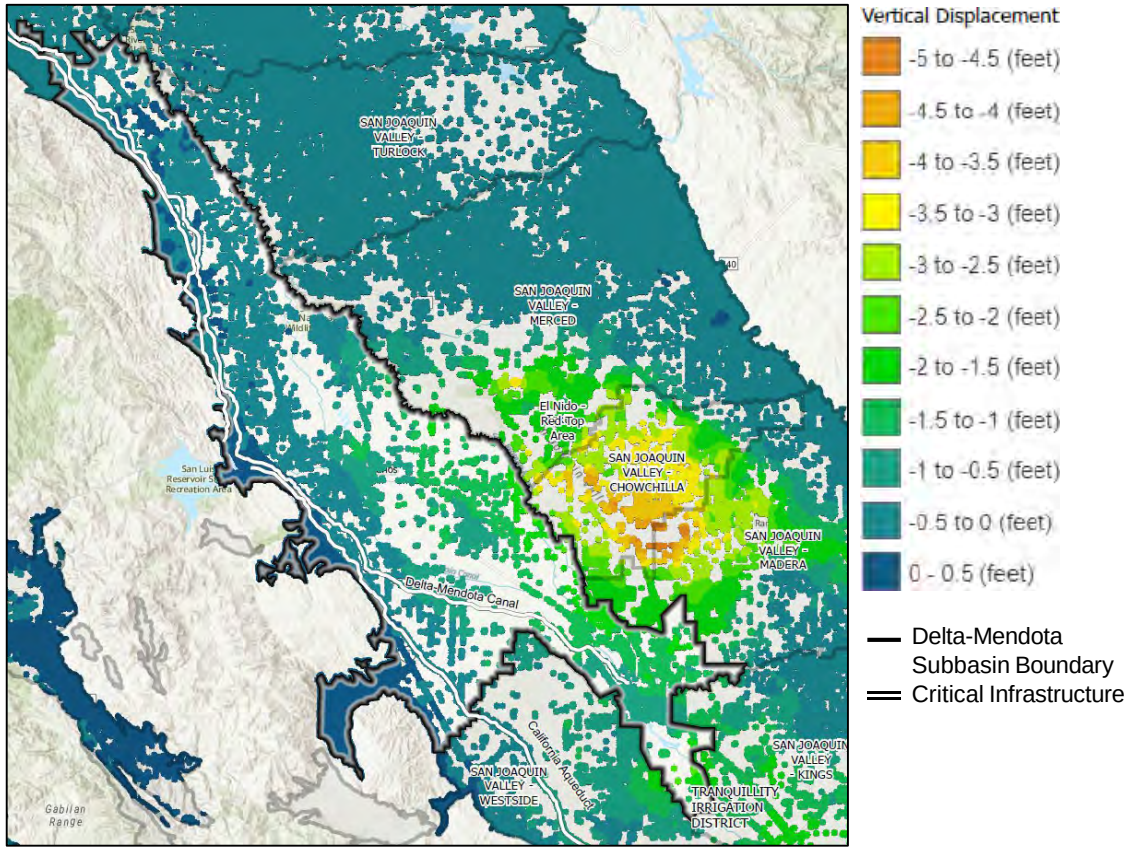



*Pre-SGMA TDS Concentration (2005-2014)*

# GROUNDWATER CONDITIONS – LAND SUBSIDENCE

- Subsidence hotspots are located outside of the Basin and is impacting conditions in the Basin
- GSAs have done extensive work to understand causes and identify actions to mitigate subsidence in the Basin

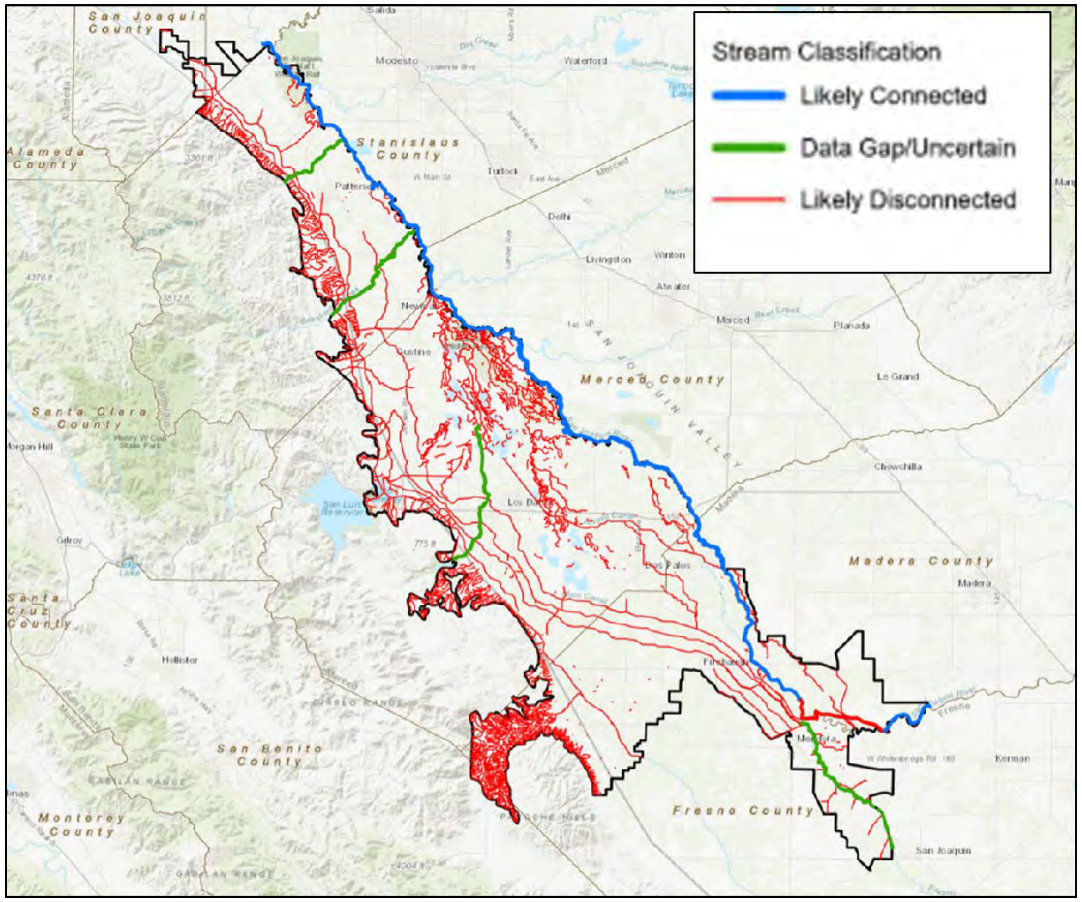
Vertical displacement June 2015 – June 2023




TRE Altamira InSAR

# GROUNDWATER CONDITIONS – ISW

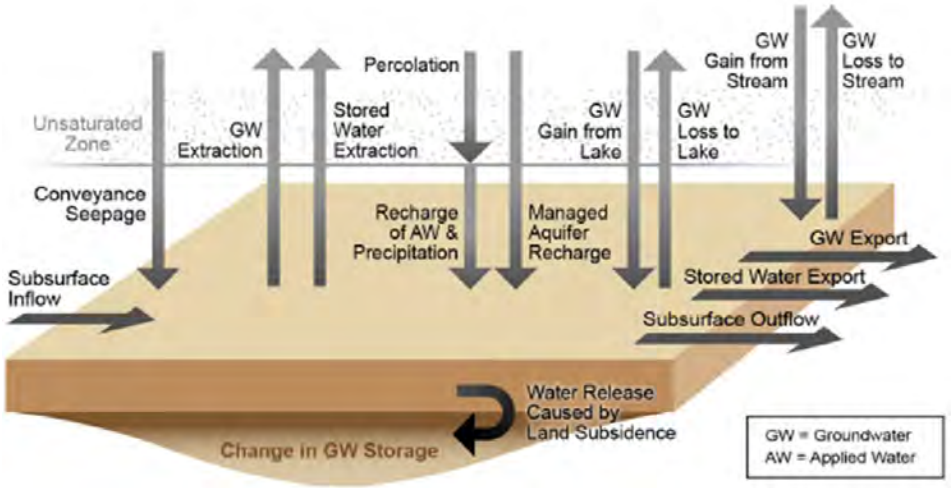
- Sections of San Joaquin River are identified as "likely ISW"
- Fresno Slough, Los Banos Creek, Orestimba Creek, and Del Puerto Creek are identified as "potential ISW"




*Identified ISW within the Basin*

# WATER BUDGET

- Used CVHM2-SJV (Model) to produce consistent Basin-wide water budgets
- Enhanced Model resolutions within the Basin using refined datasets
- Extended Model through WY 2023
- Incorporated multiple climate change scenarios for projected water budget




*From: DWR Handbook For Water Budget Development With or Without Models*

# WATER BUDGET SUMMARY

- Historical, current, and projected overdrafts ranged from 124,009 (~24% of average annual pumping) to 166,000 (~31% of average annual pumping)

**Historical, Current, and Projected Water Budget (All Values in Average AFY)**
**Inflow (+) / Outflow (-)**

| Recharge | Drain and ET from Unsaturated Zone | Net Subsurface Flow/ Leakage | Stream-Groundwater Interaction | GW Extraction | Change in GW Storage | Unrecoverable Loss of Storage Caused by Land Subsidence | Overdraft |
|---|---|---|---|---|---|---|---|
| **Historical (2003-2018)** | | | | | | | |
| 358,834 | -103,411 | 5,875 | 22,111 | -410,281 | -23,981 | -102,890 | -126,871 |
| **Current (2019-2023)** | | | | | | | |
| 420,335 | -107,950 | 9,776 | 58,741 | -546,516 | -2,593 | -163,019 | -165,613 |
| **Projected (2024-2073)** | | | | | | | |
| 360,329 | -79,746 | 49,679 | 70,769 | -525,042 | -24,710 | -99,300 | -124,009 |

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# SUMMARY OF DWR DETERMINED DEFICIENCIES

***Deficiency #1:*** *"The GSPs do not use the same data and methodologies"*

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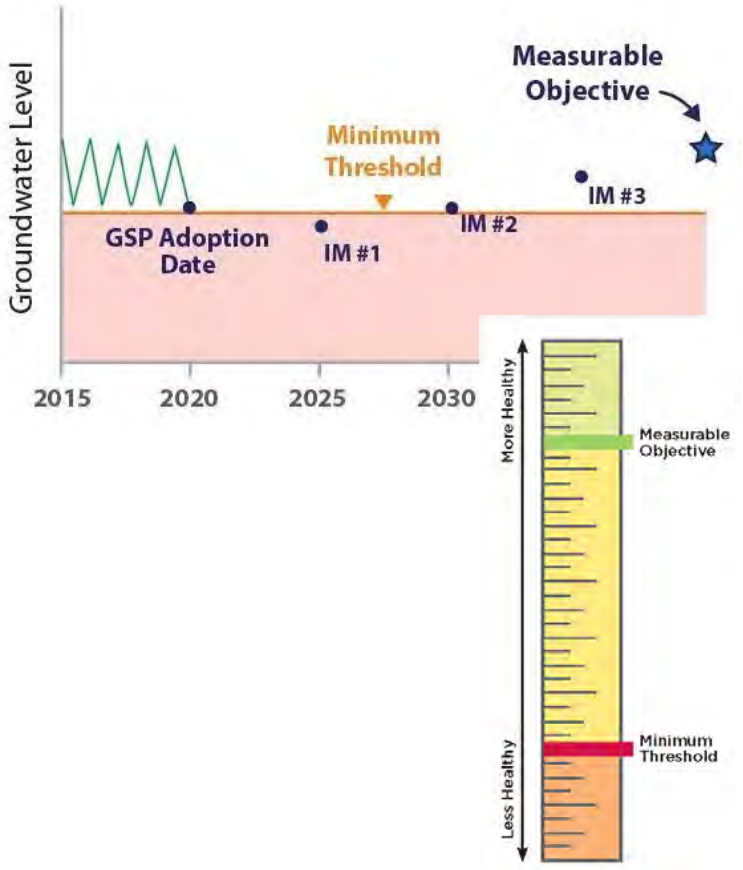
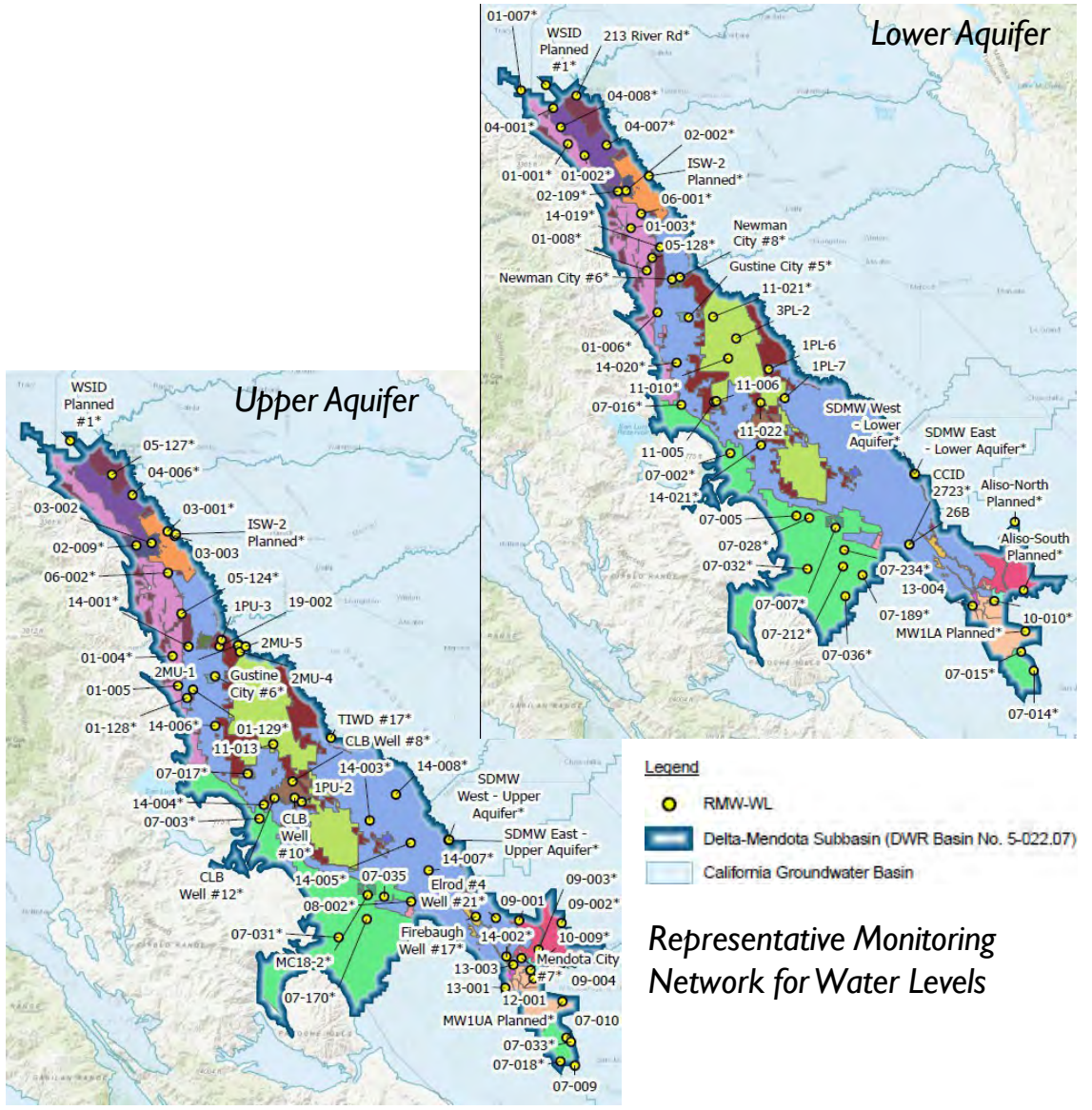
# SUSTAINABLE MANAGEMENT CRITERIA

- **Sustainability indicators (SIs)** are the six effects that, when significant and unreasonable, become undesirable results
- **Minimum thresholds (MTs)** are the quantitative values representing groundwater conditions at a representative monitoring site that, when exceeded, may cause an undesirable result(s)
- **Measurable Objectives (MOs)** are quantitative goals that reflect the basin's desired groundwater conditions and allow the GSA to achieve the sustainability goal within 20 years
- **Interim Milestone (IM)** is a target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan



# REPRESENTATIVE MONITORING NETWORK

- 110 water level Representative Monitoring Sites (RMS)
- 91 water quality RMSs
- 35 land subsidence RMSs, alongside with InSAR monitoring
- 25 ISW RMSs




*Representative Monitoring Network for Water Levels*

# REVISED UNDESIRABLE RESULT CRITERIA

One of the following conditions occur as a result of groundwater management within the Basin:

- MTs are exceeded at 25% or more of Representative Monitoring Wells (RMWs) for two consecutive years; OR
- More than 10 drinking water wells are reported as dry in any given year and no more than 170 drinking water wells are cumulatively reported dry by 2040

- Reduction in usable groundwater storage of more than 10% in each aquifer relative to the Fall 2014 usable groundwater storage volume

- Not applicable

- MTs for a groundwater quality COC are exceeded in 25% of the RMWs for three consecutive years and are caused by groundwater management within the

- The extent or rate of inelastic subsidence exceeds the applicable MT at any Representative Monitoring Site (RMS) as a result of groundwater management within the Basin, based on a 5-year moving average

- In development

# REVISED MT AND MO

- MT: Set at 2015 low water level*
- MO: Set at 2015 high water level*

* If 2015 data are not available, use 2015 interpolated values as MO and MT based on raster or historical data

- Measured using groundwater levels as proxy

- Not applicable

- MT: Greater of MCL or baseline conditions
  - "Baseline": Average measured concentrations in either: (1) last year prior to 2015; or if no data are available from 2010-2014, (2) first year after 2014, plus maximum annual range
- MO: MCL

- MT: Set as 2 ft total (cumulative) subsidence between 2020 and 2040, maximum 5-year average rate of 0.2 feet per year.
- MO: No additional cumulative subsidence beyond 2040; 5-year average rate = 0 ft/yr

- In-development

# SMC JUSTIFICATION

- Consistent with Potential Action GL-6 from Tulare Lake staff report:

  *In general, setting groundwater level MTs at or above 2015 groundwater elevations* ***would avoid undesirable results*** *for other sustainability indicators beyond undesirable results that occurred before, and had not been corrected by, January 1, 2015.*

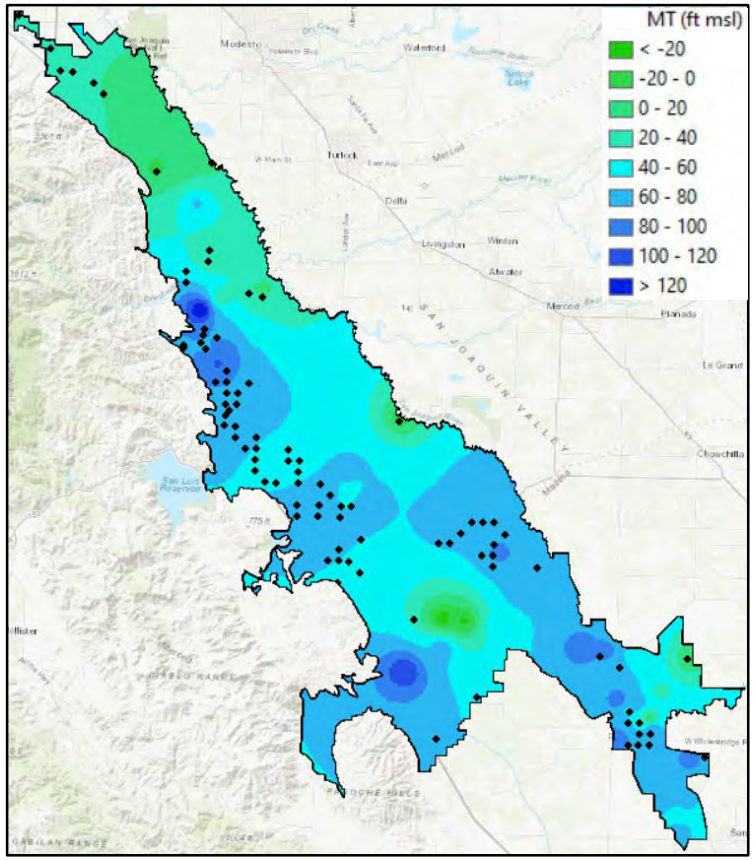
- The resultant SMCs are designed to not have negative effects on other Sustainability Indicators (CCR 354.28(B)).
- The resultant SMCs and Basin-wide well mitigation plan are protective of beneficial uses & users.
- Any new exceedance will have to be evaluated in accordance with the MT avoidance / exceedance policy that will be in the GSP to assess if they are due to GW recharge or extraction.

# DRAFT PRODUCTION WATER WELL IMPACTS ANALYSIS RESULTS

| Scenario | Dewatered Production Water Well Count | Estimated Depletion of Supply* (AFY) | Percentage of Total Groundwater Use |
|---|---|---|---|
| #1:Worst Case (all MTs exceeded) | 160 | 15,160 | 2.68% |
| #2: High-End Bracketed (RMW with highest # of wells) | 139 | 12,690 | 2.25% |
| #3: Low-End Bracketed (RMW with lower # of wells) | 0 | 0 | 0% |
| #4: Stochastic Prediction (5,000 realizations) | 41 | 4,026 | 0.71% |

** Used average WY 2022 annual pumping rate of 10 AF/well for urban/domestic/municipal wells and 236 AF/well for other production wells*

- Based on DWR Reported Dry Wells, 21 wells have gone dry since 2015, with a few more dry wells reported directly to GSA representatives



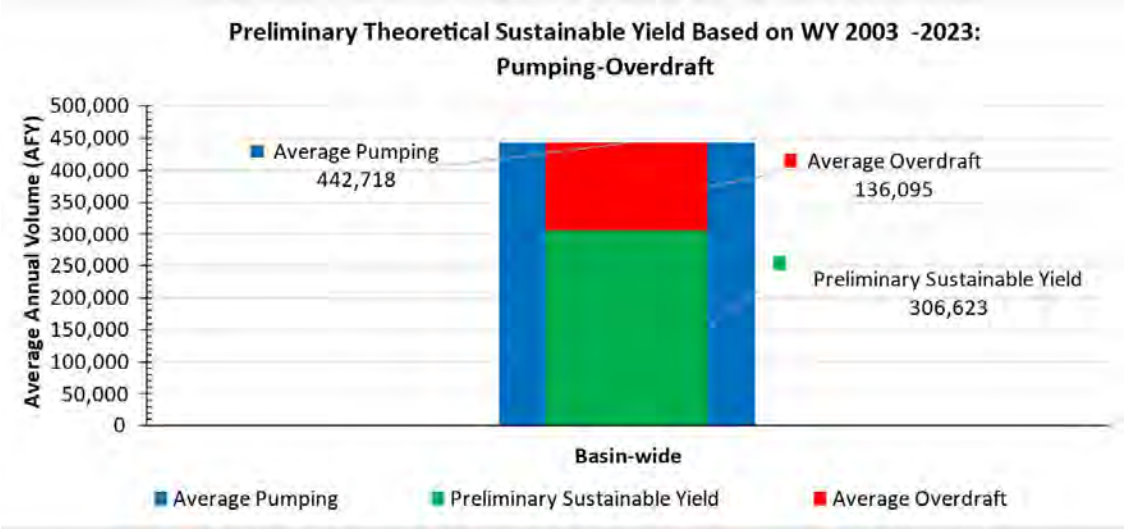

*Upper Aquifer Wells potentially dewatered at MTs under Worst Case*

# ADAPTIVE MANAGEMENT FRAMEWORK

# SUSTAINABLE YIELD (SY)

- SGMA defines sustainable yield as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result" (CWC, §10721(w)).

- SY = Average Pumping-Average Overdraft
- SY: ~307,000 AFY



# GSAs HAVE IDENTIFIED PROJECTS & MANAGEMENT ACTIONS (P/MAs) TO ACHIEVE THE BASIN'S SUSTAINABILITY GOAL

- Pumping reduction
- Increase Supply Augmentation Projects
  - Recharge
  - Recycled water
  - Stormwater capture
  - Construction of new surface water storage projects
  - Water exchange/transfers/purchases
- Potential targets to achieve:
  - 127,000 AFY based on Historical Period (2003-2018)
  - 136,000 AFY based on Historical and Current Periods (2003-2023)


| Average Annual Volume (AFY) of P/MAs to be Implemented by WY 2040 in Basin | |
|---|---|
| Pumping Reduction | Supply Augmentation |
| 44,100 AFY | 104,600 AFY |

# SEVEN-PART PUMPING REDUCTION FRAMEWORK

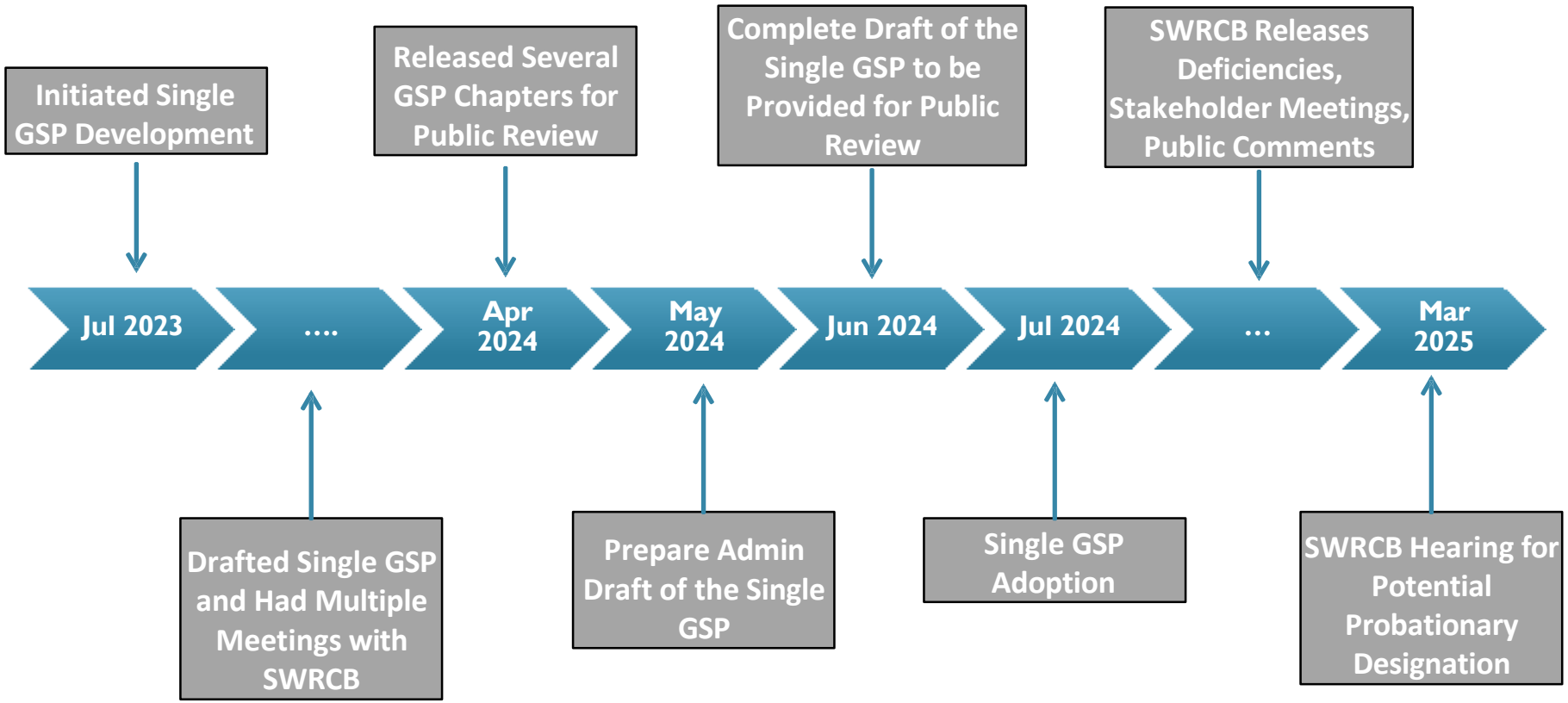
1) **Monitoring and data collection policy**
   - Quarterly groundwater level measurements (monthly in hotspot areas identified by GWL-MT avoidance policy) and annual water quality sampling (semi-annual in hotspot areas identified by WQ-MT exceedance policy)
   - Meter GW production, or estimate with an equivalently effective method
   - Replace composite or active production RMWs with dedicated monitoring wells
2) **Overdraft mitigation policy**
   - GSAs will collectively reduce total pumping by at least 42,000 AFY
   - Incremental reduction in overdraft from 20% by 2026 to 100% by 2030
   - May include pumping reduction achieved under Subsidence mitigation policy
3) **GWL-MT avoidance policy**
   - Define RMW-specific groundwater level triggers and zone of influence
   - Develop RMW-specific pumping reduction plan
4) **WQ-MT exceedance policy**
   - Define RMW-specific groundwater level triggers
   - Investigate cause of exceedance → Pumping/GWL decline or other management actions
   - Develop and implement mitigation plan
5) **Subsidence mitigation policy**
   - Set trigger as 3-year moving average rate of subsidence that exceeds 0.2 ft/year
   - Lower aquifer pumping will be limited to 0.25 AF/acre within the zone of influence (0.5 mile of critical infrastructure)
6) **Groundwater allocation backstop**
   - Consistent with process outlined in the MOA, if GSA(s) have GWL MT exceedances for two consecutive years and/or fail to achieve their minimum pumping reduction required under the overdraft mitigation policy, GSA(s) will be required to implement a groundwater allocation program
7) **Special Conditions for Drinking Water Suppliers**
   - Drinking water suppliers are exempt from pumping restrictions but will impose water conservation measures as needed.
   - Suppliers will participate in monitoring and will investigate changing pumping from Lower to Upper Aquifer if feasible.

eki

# PUMPING REDUCTION POLICY TIMELINES

- CC directed policy to be included in the GSP: April 2024
- Planned GSP Adoption by GSAs (inclusive of policies): July 2024
- Boots on the Ground / Implementation Plan Development by GSAs: By October 2024
- Implementation: By January 2025

# GSP TIMELINE




*Regular meetings of CC and TWG on Technical and Policy Issues are conducted throughout the GSP development process*

# HOW TO ENGAGE

- Review the draft chapters posted on the SLDMWA website
- Attend regular public meetings hosted by GSAs and/or CC
- Attend the stakeholder workshop (webinar) on revised GSP

# QUESTIONS

eki environment & water

# Delta-Mendota Subbasin WY 2023 Annual Report

**Leslie Dumas**

**Senior Technical Leader**

**April 22, 2024**

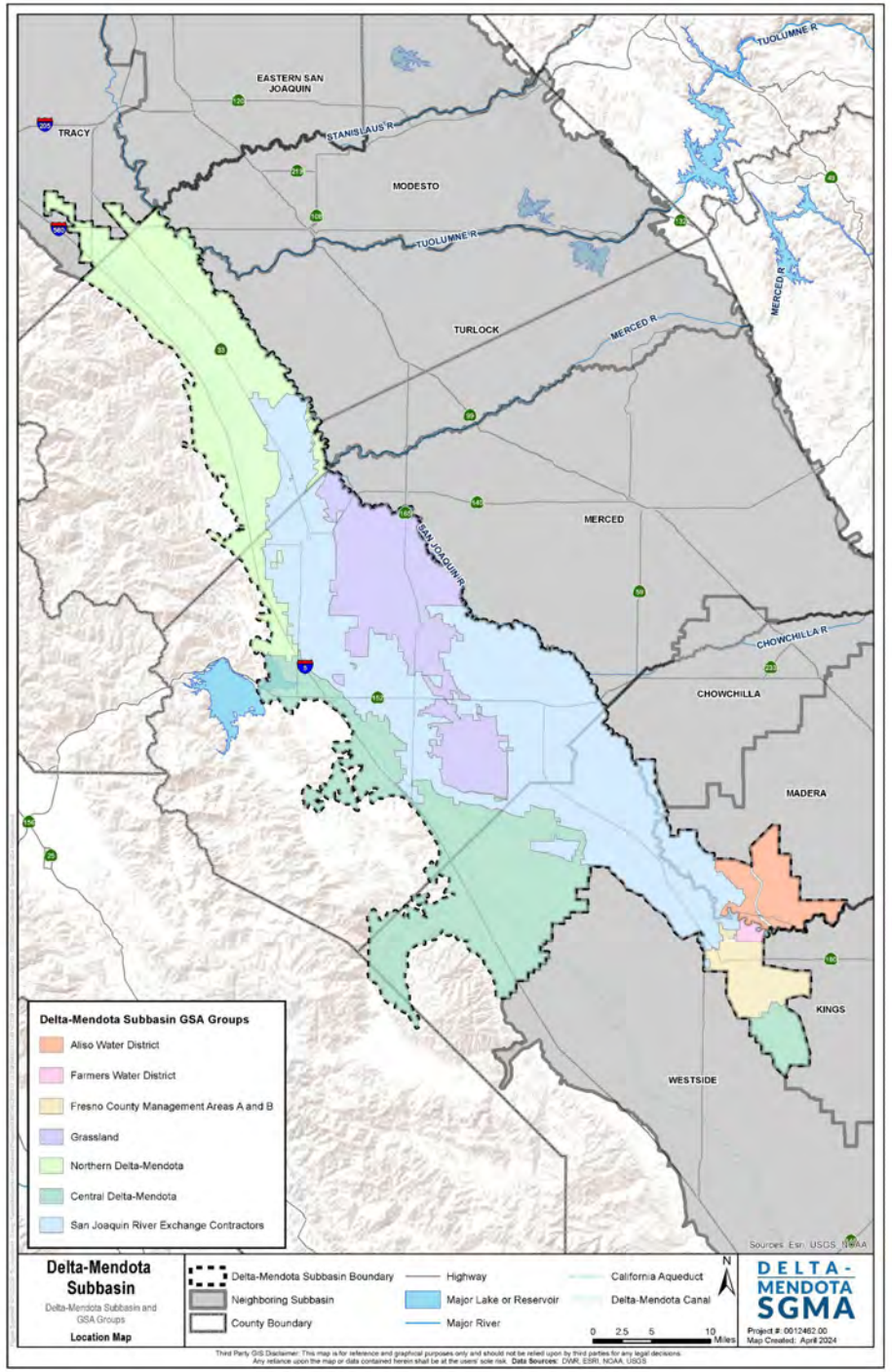
Woodard & Curran

# Water Year (WY) 2023 Annual Report

- Water Year 2023 Annual Report submitted to DWR by April 1, 2024 deadline
- Required elements include:
  - Executive summary
  - Groundwater level contour maps
  - Groundwater level hydrographs
  - Groundwater extraction
  - Surface water use
  - Total water use
  - Change in storage maps and graphs
  - Description of implementation progress


Woodard & Curran

# Seven GSP Regions in the Delta-Mendota Subbasin

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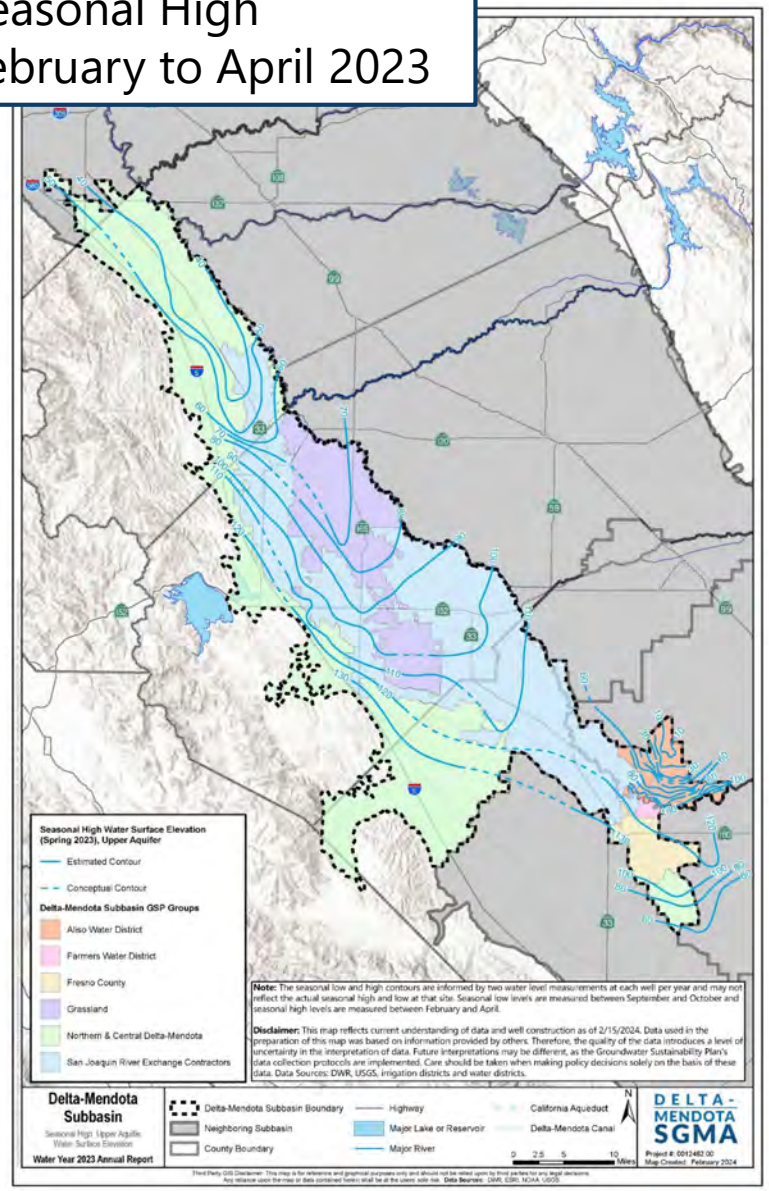
# Sustainability Goal

- The sustainability goal for the Delta-Mendota Subbasin was established to succinctly state the objectives and desired conditions of the Subbasin that culminates in the absence of undesirable results by 2040:

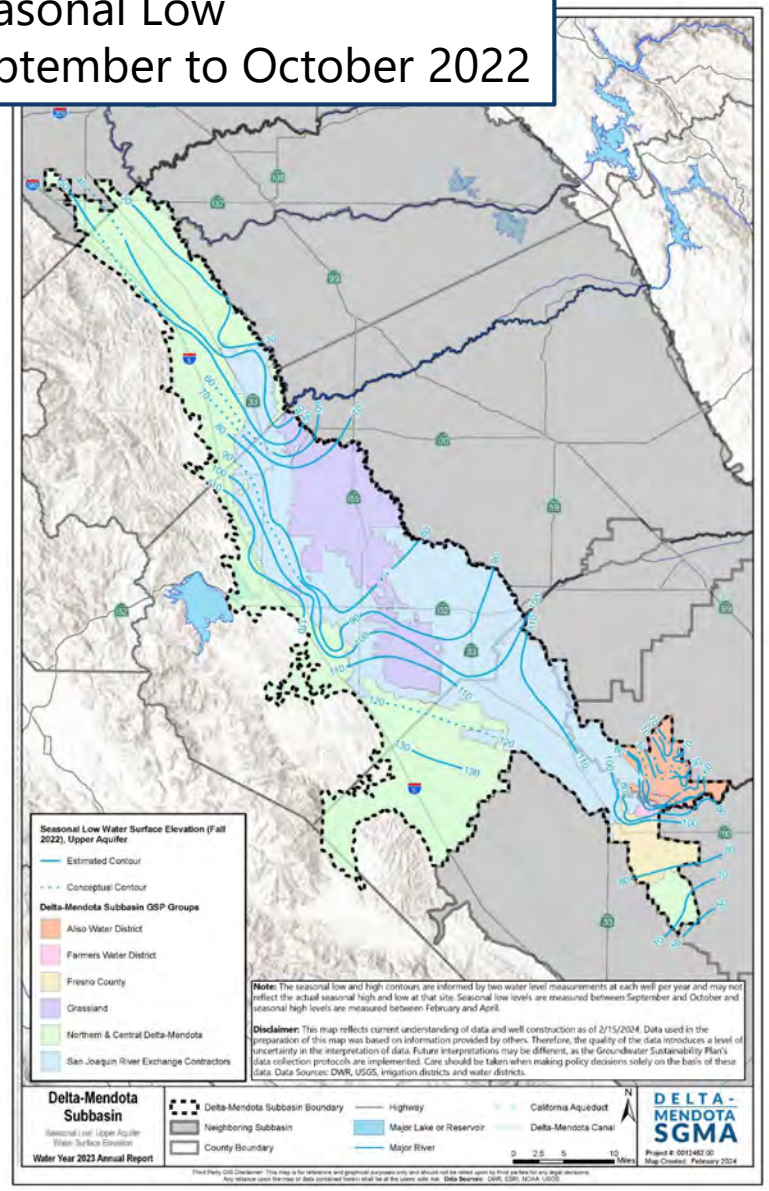
  *The Delta-Mendota Subbasin will manage groundwater resources for the benefit of all users of groundwater in a manner that allows for operational flexibility, ensures resource availability under drought conditions, and does not negatively impact surface water diversion and conveyance and delivery capabilities. This goal will be achieved through the implementation of proposed projects and management actions to reach identified measurable objectives and milestones through the implementation of the Groundwater Sustainability Plan, and through continued coordination with neighboring subbasins to ensure the absence of undesirable results by 2040.*

# Groundwater Level Contour Maps – Upper Aquifer

Seasonal High
February to April 2023




Seasonal Low
September to October 2022

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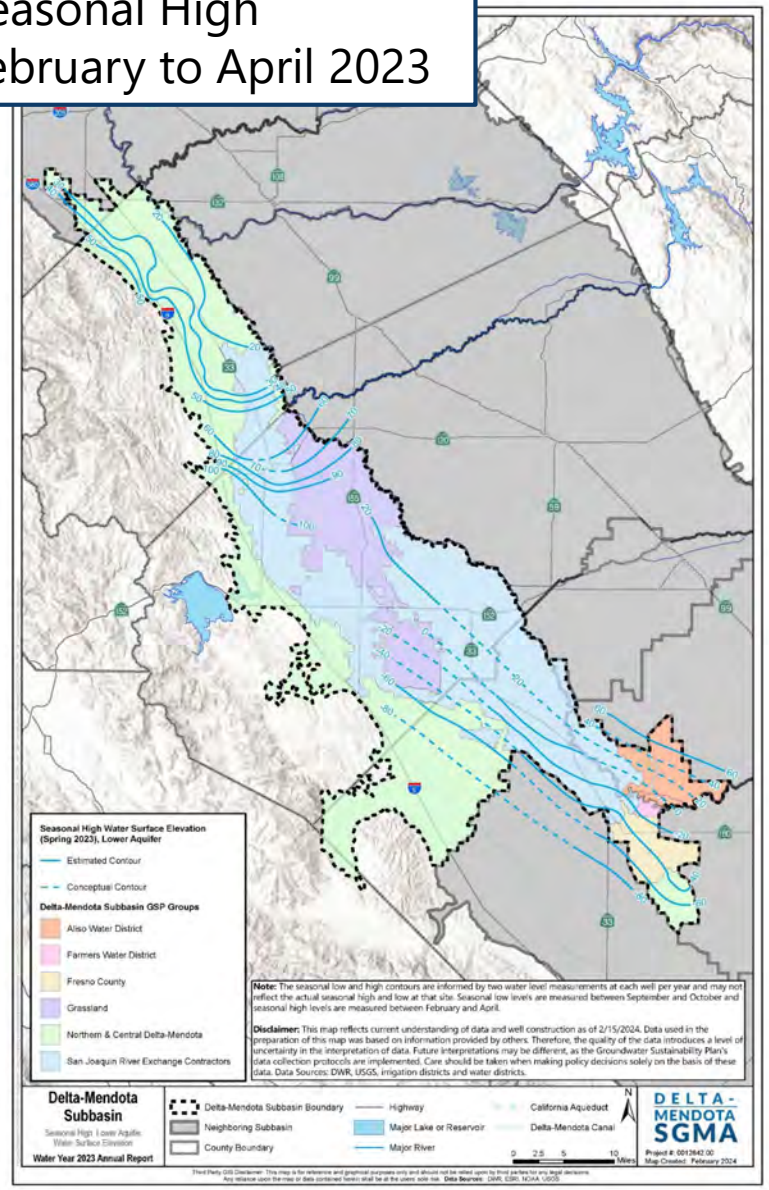
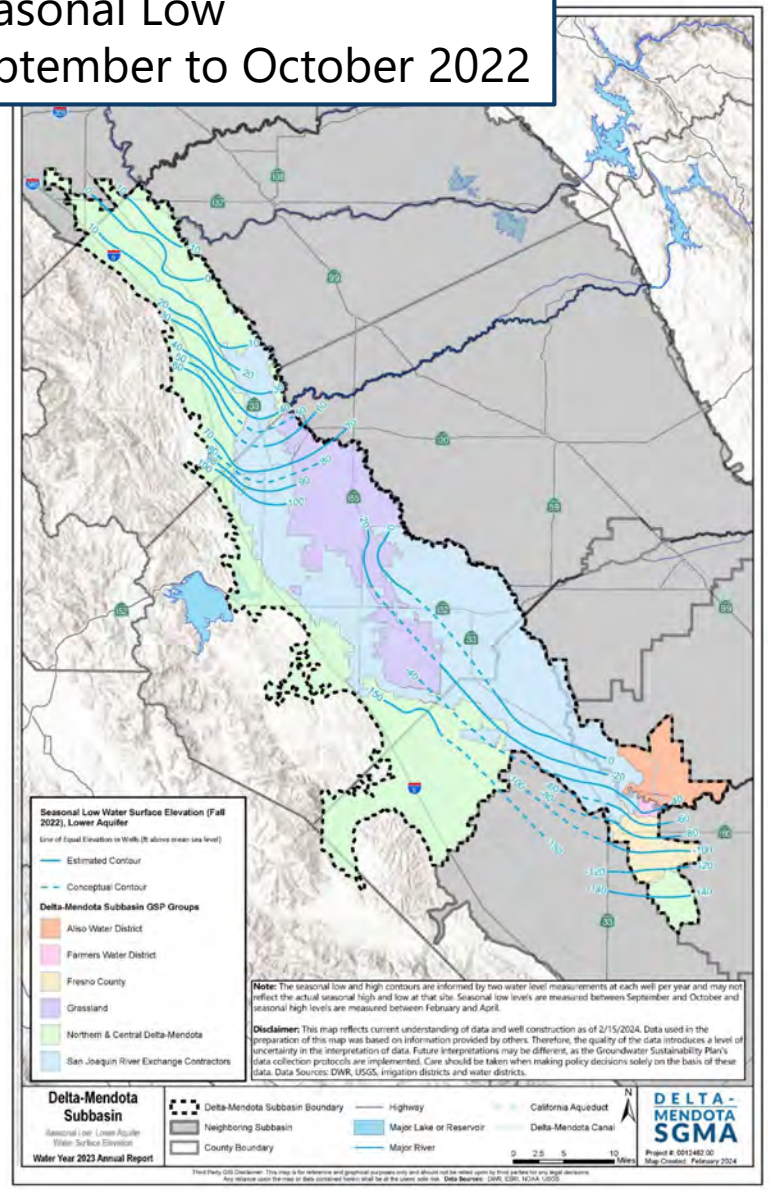
# Groundwater Level Contour Maps – Lower Aquifer

Seasonal High
February to April 2023




Seasonal Low
September to October 2022

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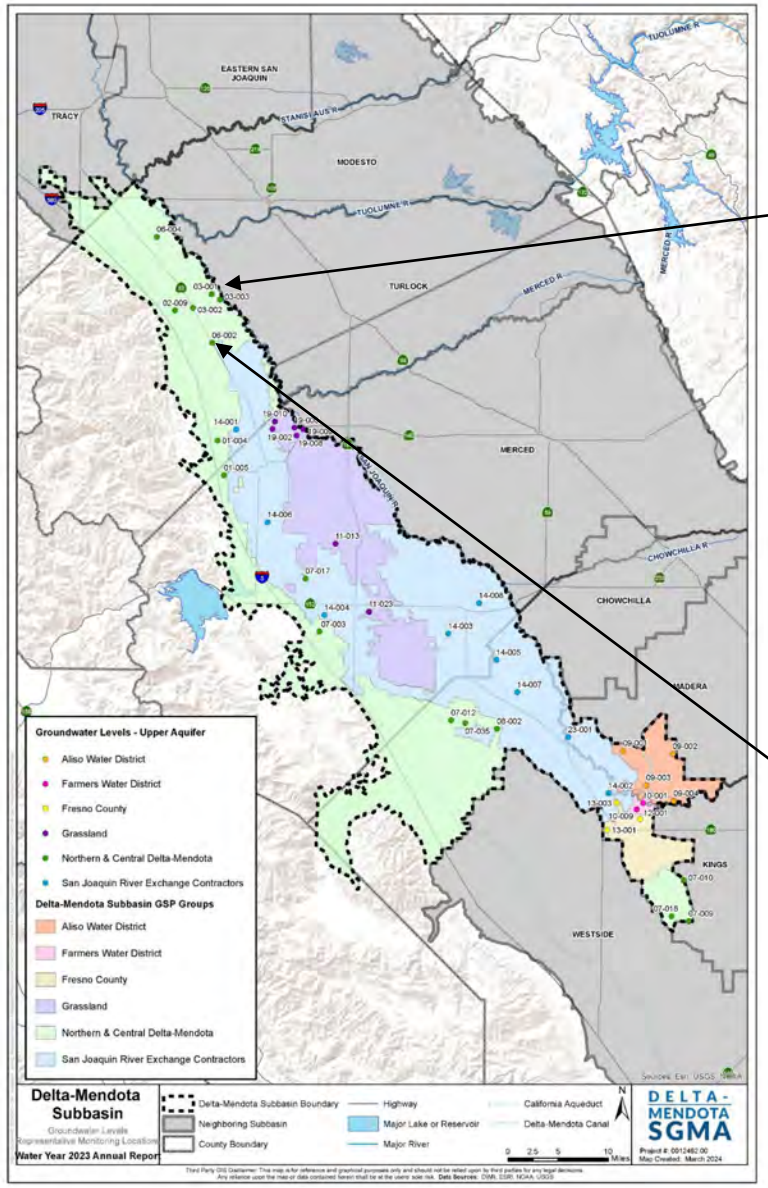
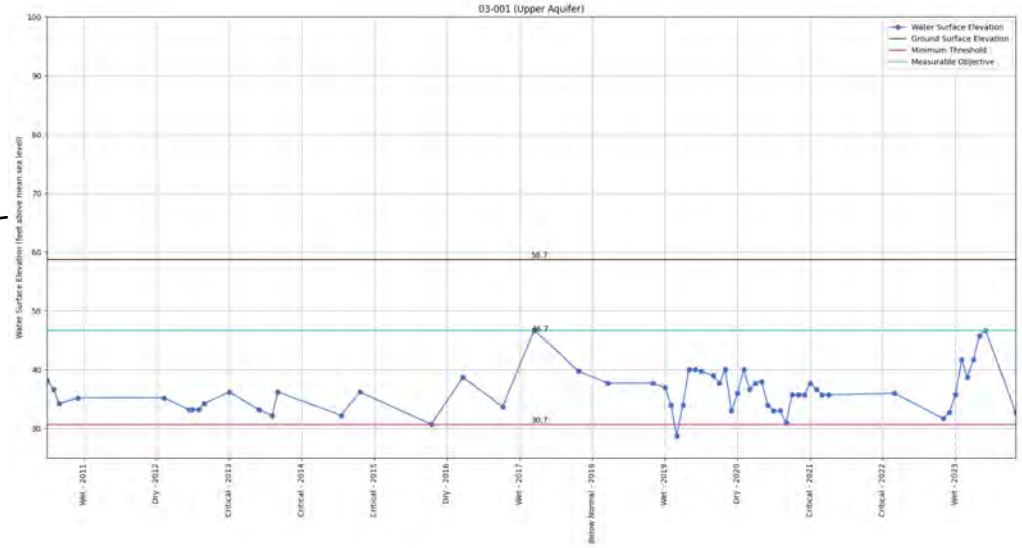
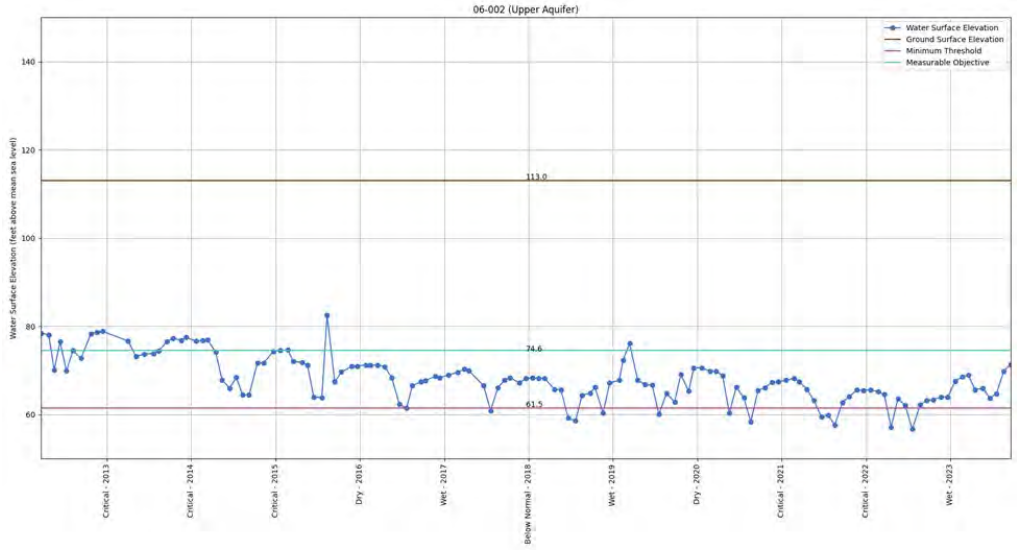
# Groundwater Level Hydrographs – Upper Aquifer

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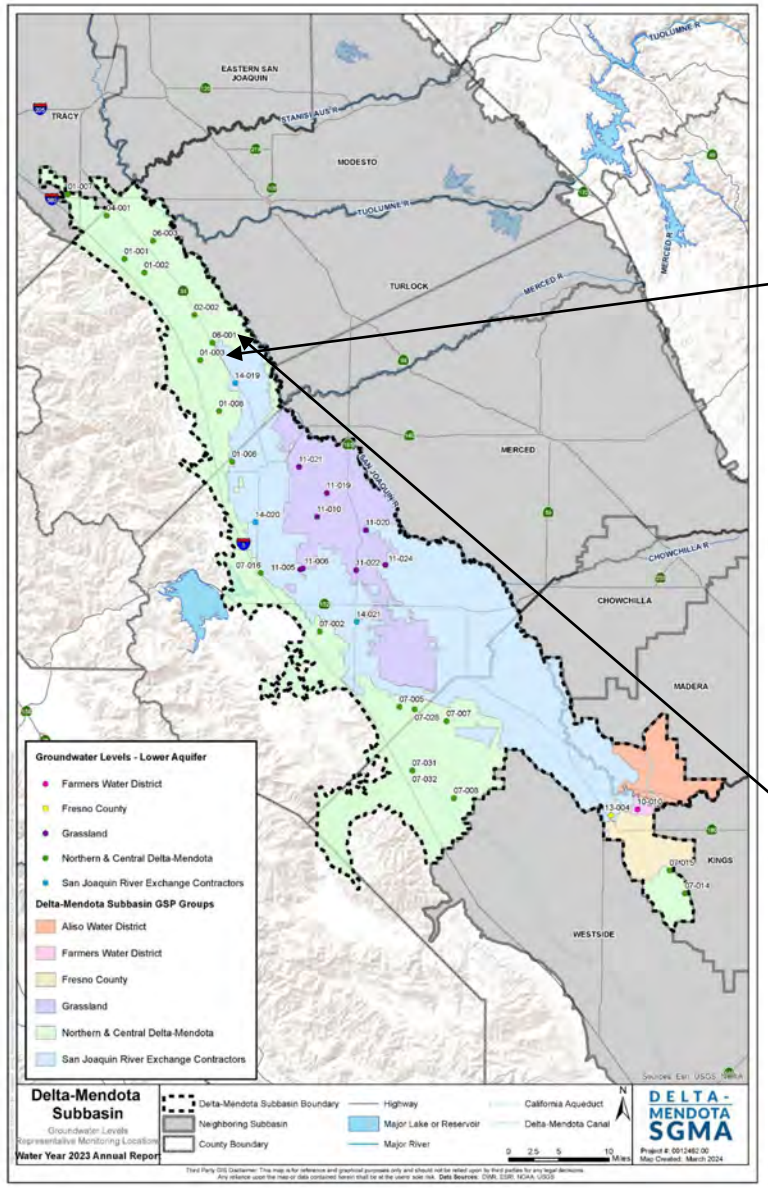
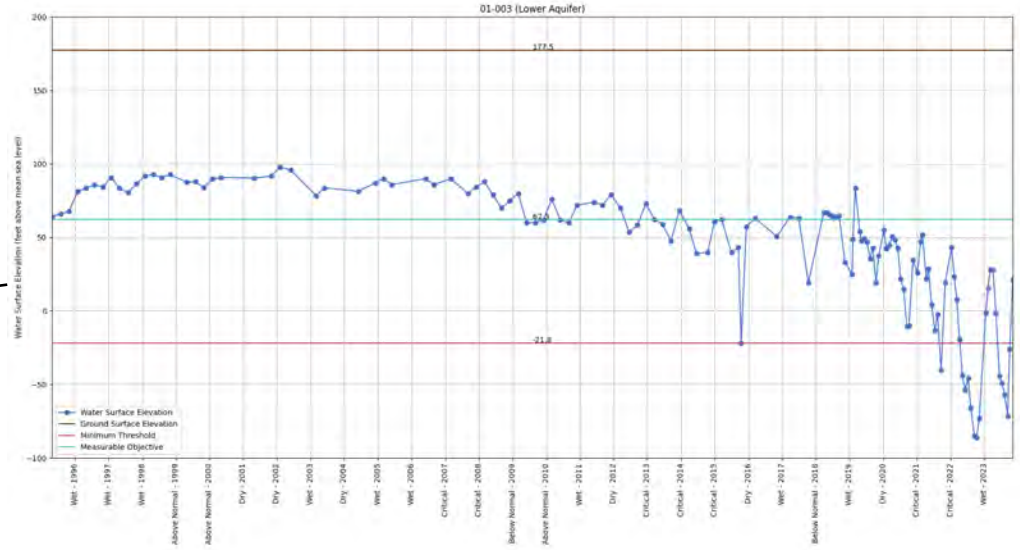
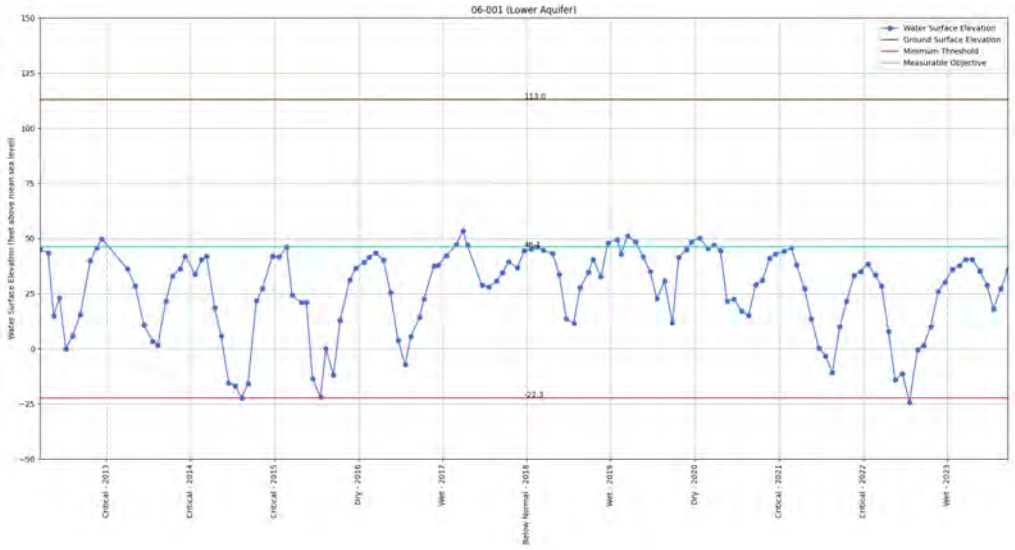
# Groundwater Level Hydrographs – Lower Aquifer

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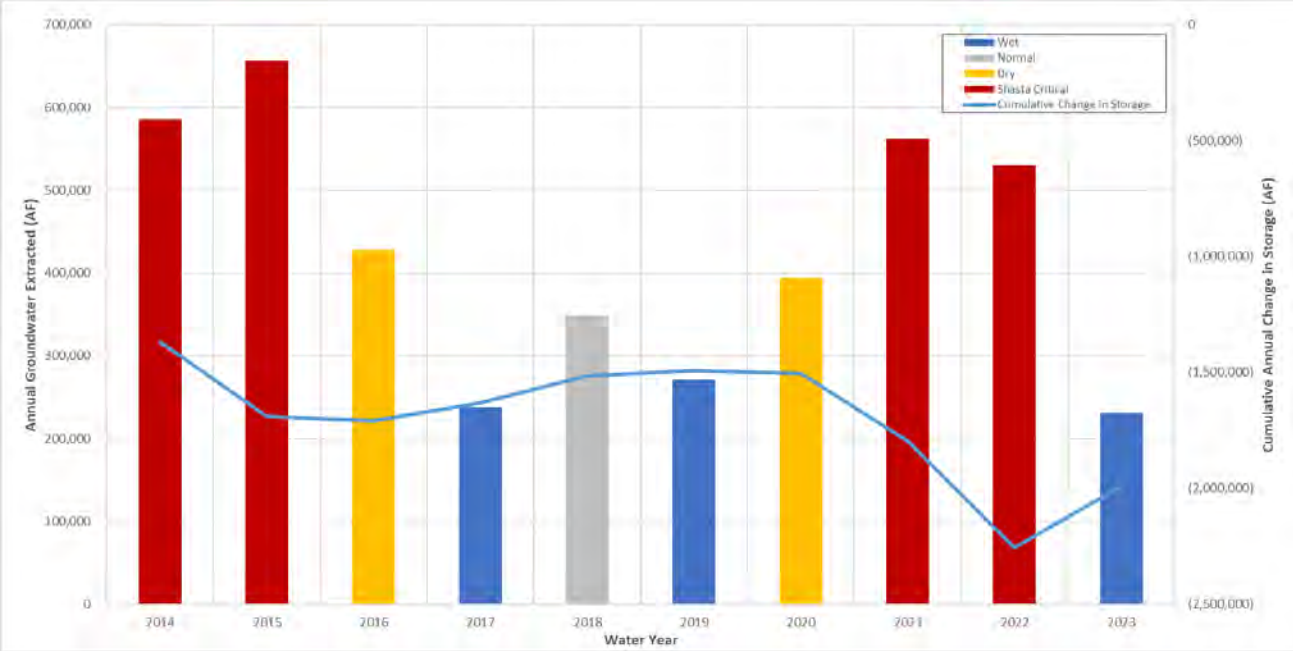
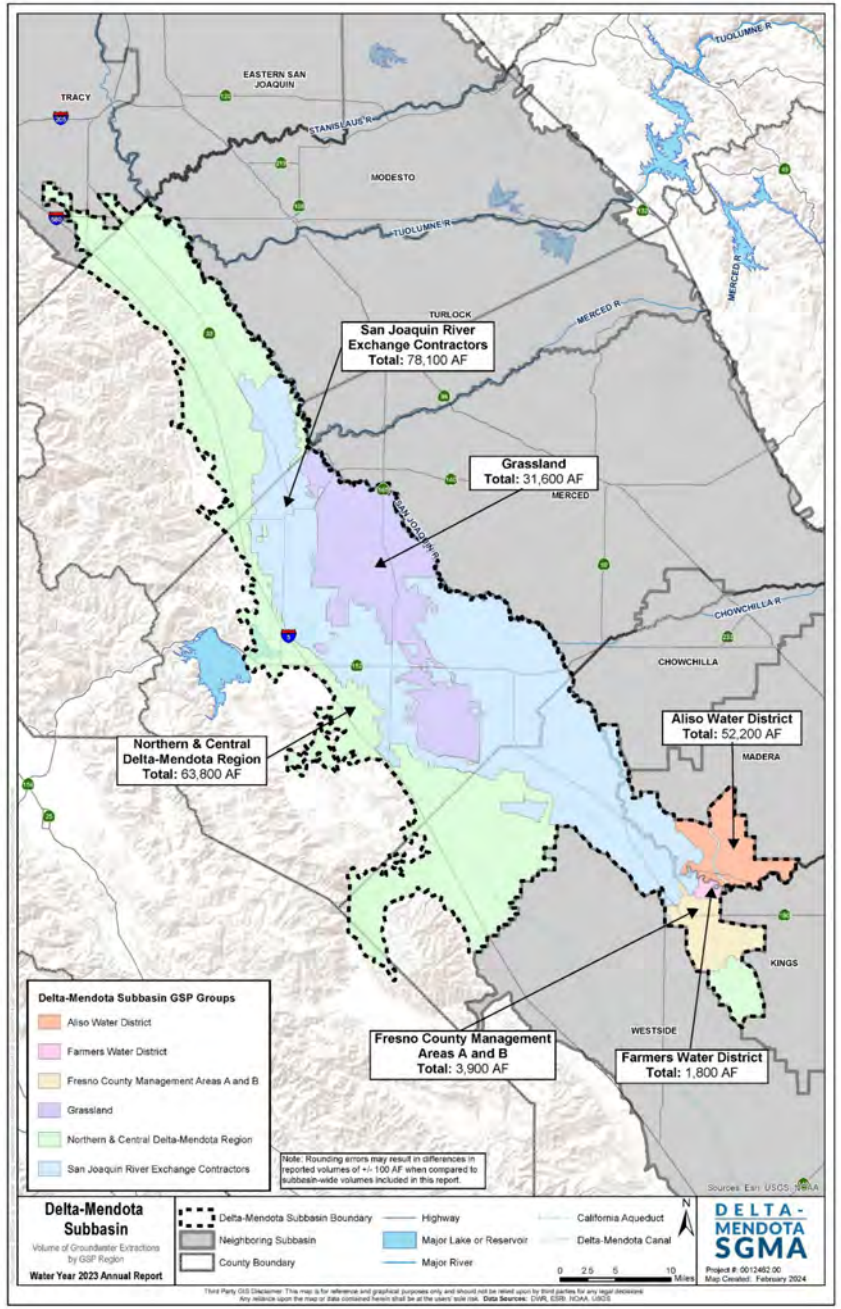
# Groundwater Extraction

| Water Use Sector | WY2023 Total (AF) | Measurement Method (Direct or Estimate) [1] | Measurement Accuracy (%) |
|---|---|---|---|
| Urban/Domestic/Municipal | 20,700 | Estimate | Unknown |
| Industrial | 5,800 | Estimate | Unknown |
| Agricultural | 181,300 | Estimate | Unknown |
| Managed Wetlands | 20,600 | Direct | Unknown |
| Managed Recharge | 2,900 | Direct | 0-5% |
| Native Vegetation | 0 | N/A | N/A |
| Other: Outside Subbasin | 0 | N/A | N/A |
| **Total** | **231,300** | **Estimate** | **Unknown** |

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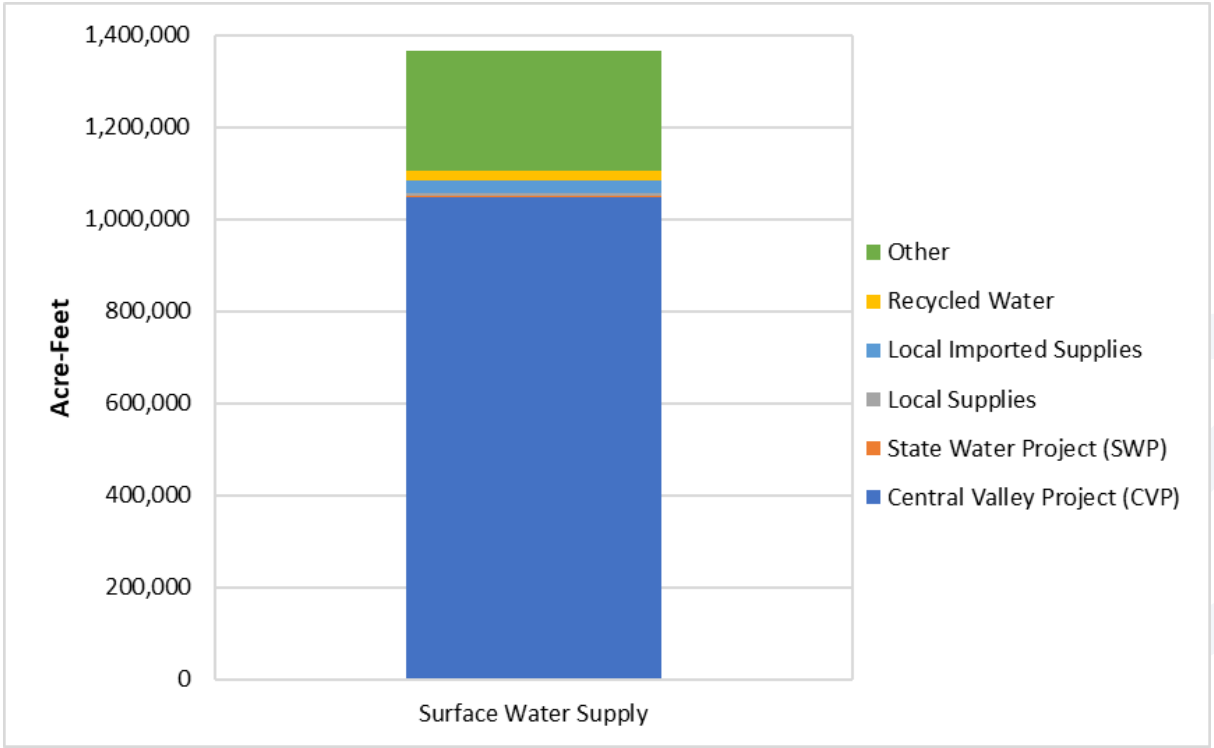
# Surface Water Use

| Surface Water Source | WY2023 Total (AF) | Methods Used to Determine |
|---|---|---|
| Central Valley Project (CVP) | 1,048,900 | Meters |
| State Water Project (SWP) | 700 | Meters |
| Colorado River Project | -- | -- |
| Local Supplies [1] | 5,900 | Meters |
| Local Imported Supplies | 27,400 | Meters |
| Recycled Water | 21,700 | Meters |
| Desalination | -- | -- |
| Other [2] | 262,000 | Meters |
| **Total** | **1,366,600** | **Meters** |

[1] Surface water supplies sourced from local creeks, which include any naturally-occurring surface water course other than the Kings or San Joaquin Rivers.

[2] Surface water supplies sourced from the Kings and/or San Joaquin Rivers.

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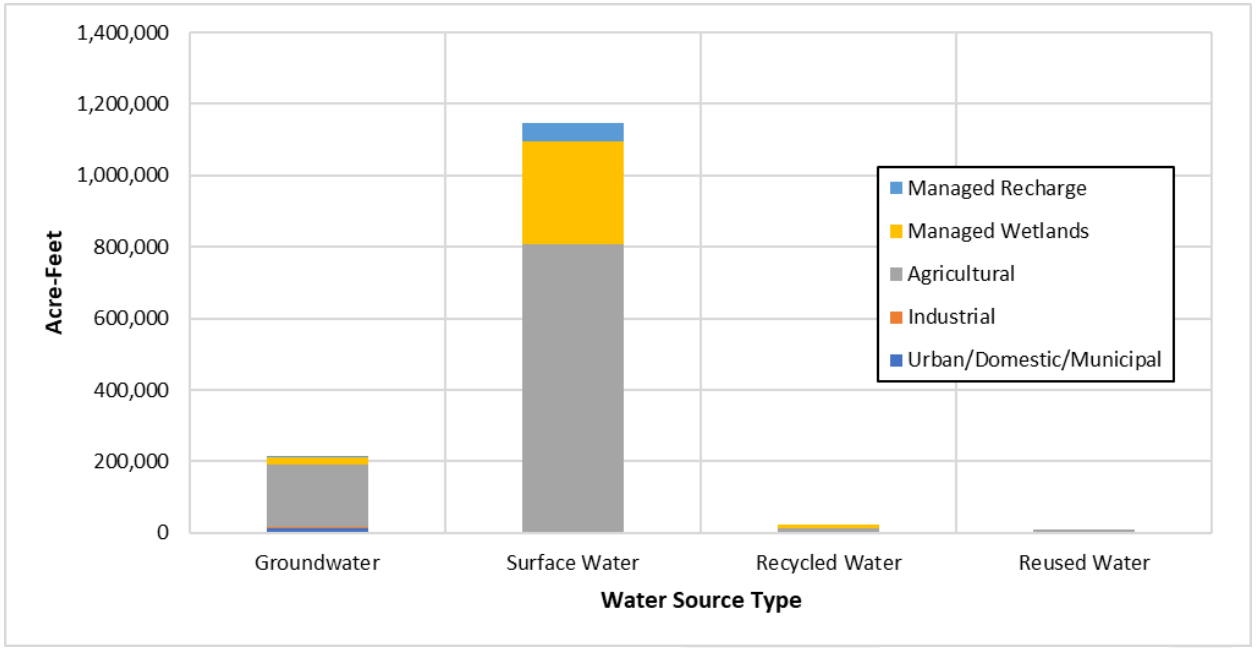
# Total Water Use

| Water Use Sector | WY2023 Total (AF) |
|---|---|
| Urban/Domestic/Municipal | 15,100 |
| Industrial | 2,600 |
| Agricultural | 1,005,700 |
| Managed Wetlands | 317,500 |
| Managed Recharge | 53,600 |
| Native Vegetation | 0 |
| Other: Outside Subbasin | 0 |
| **Total** | **1,394,500** |

| Water Source Type | WY2023 Total (AF) |
|---|---|
| Groundwater | 216,200 |
| Surface Water | 1,146,800 |
| Recycled Water | 21,700 |
| Reused Water | 9,800 |
| Other | 0 |
| **Total** | **1,394,500** |

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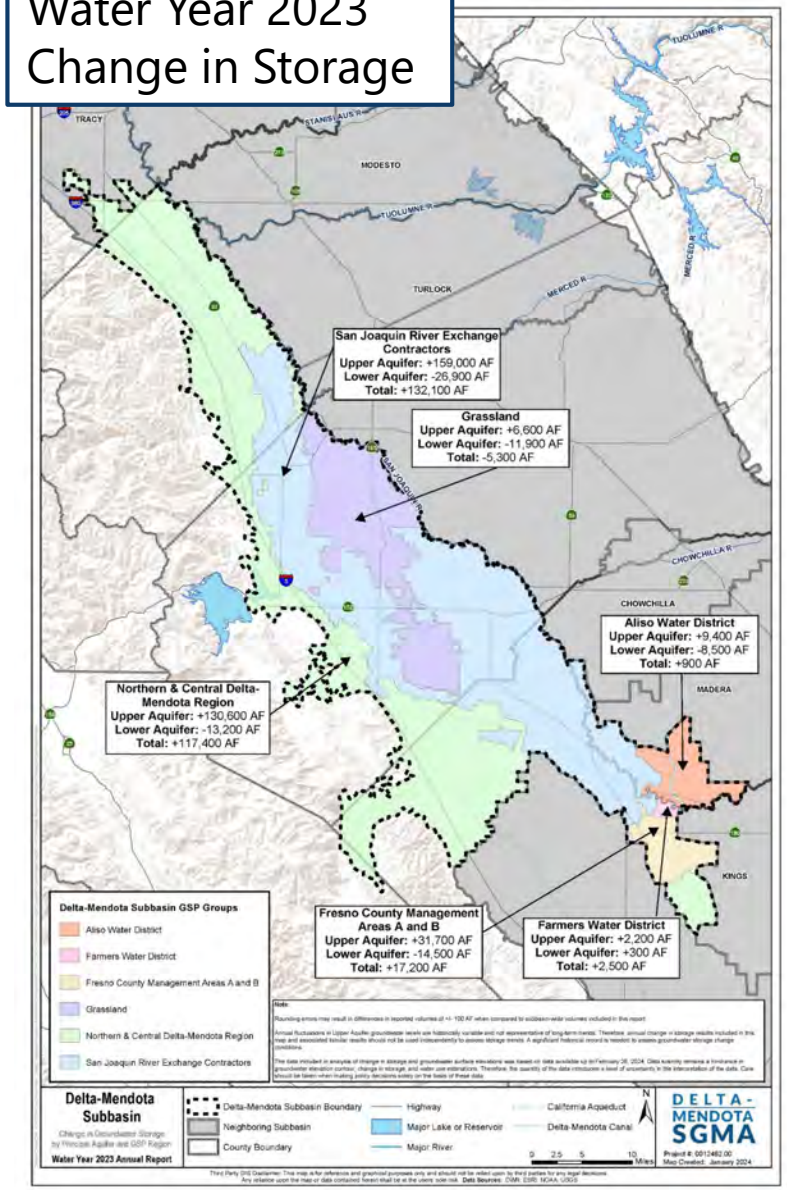
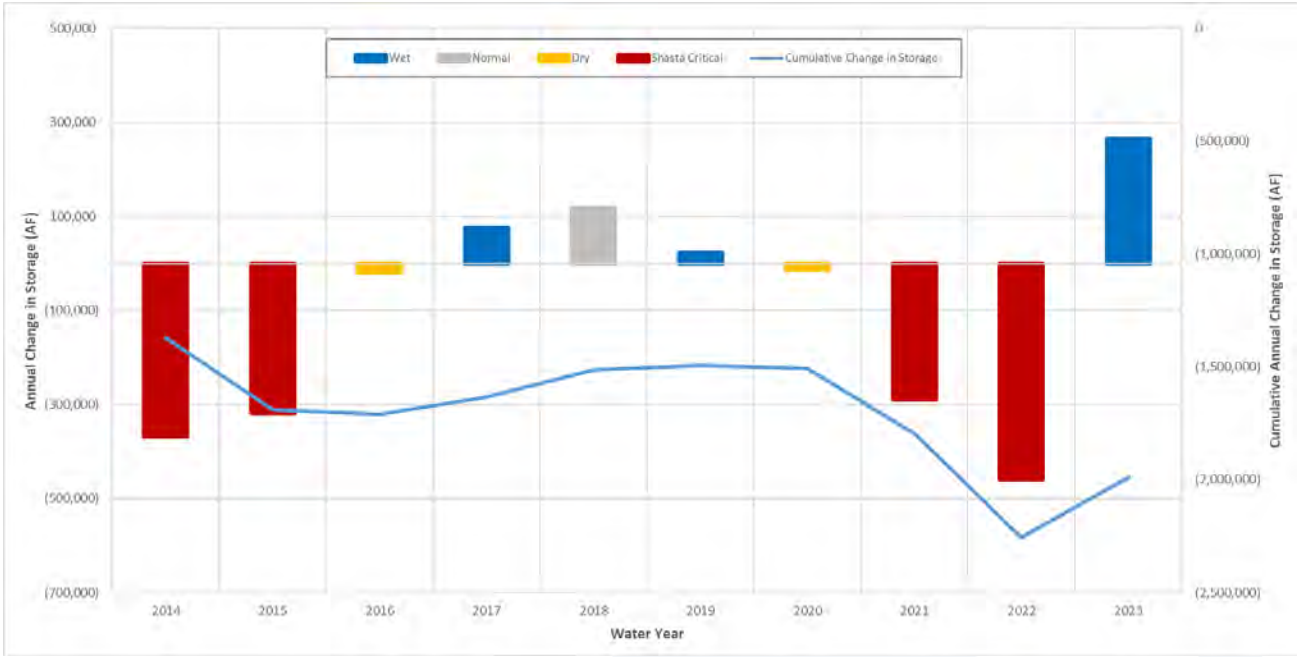
# Change in Groundwater Storage

Water Year 2023
Change in Storage

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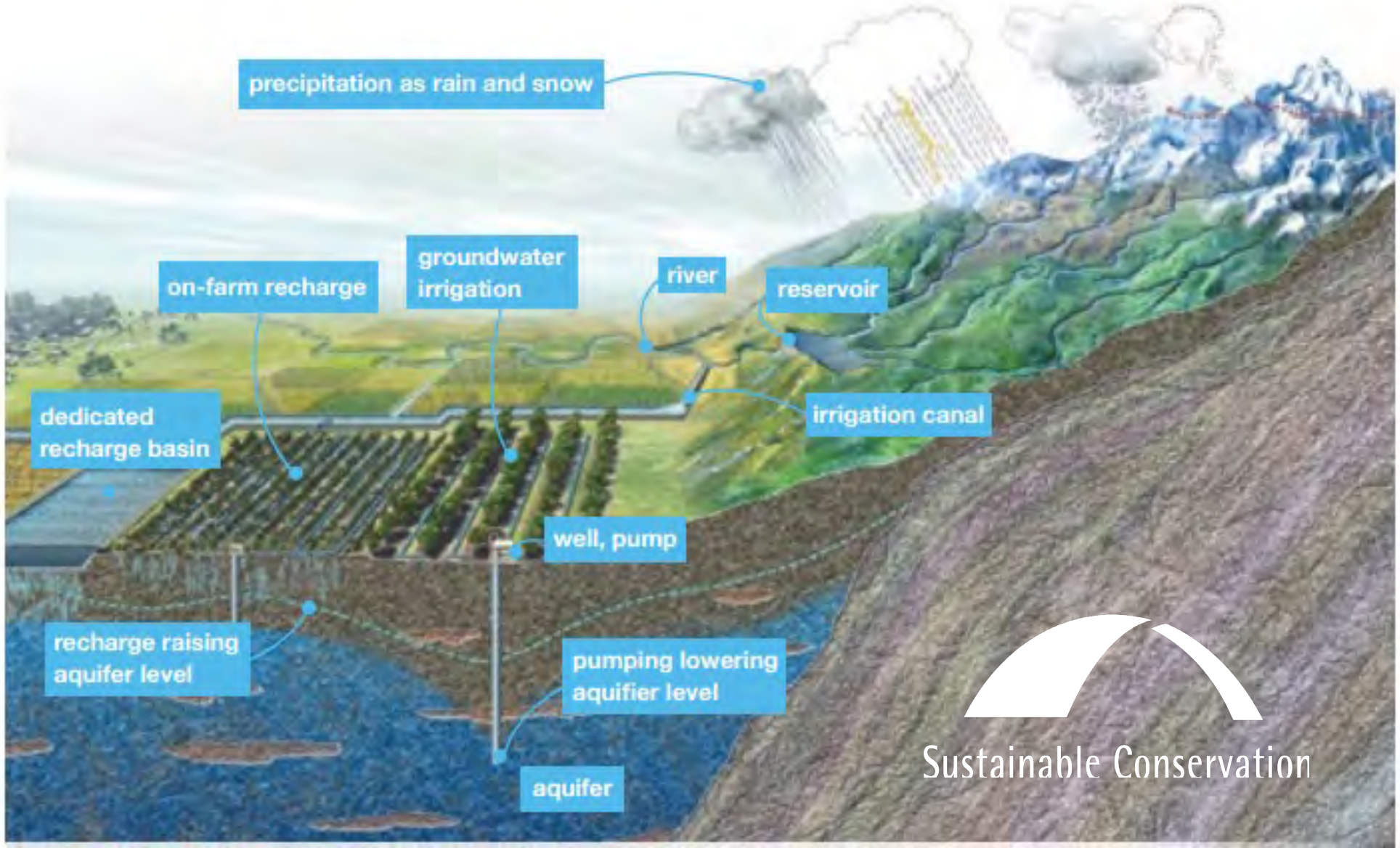
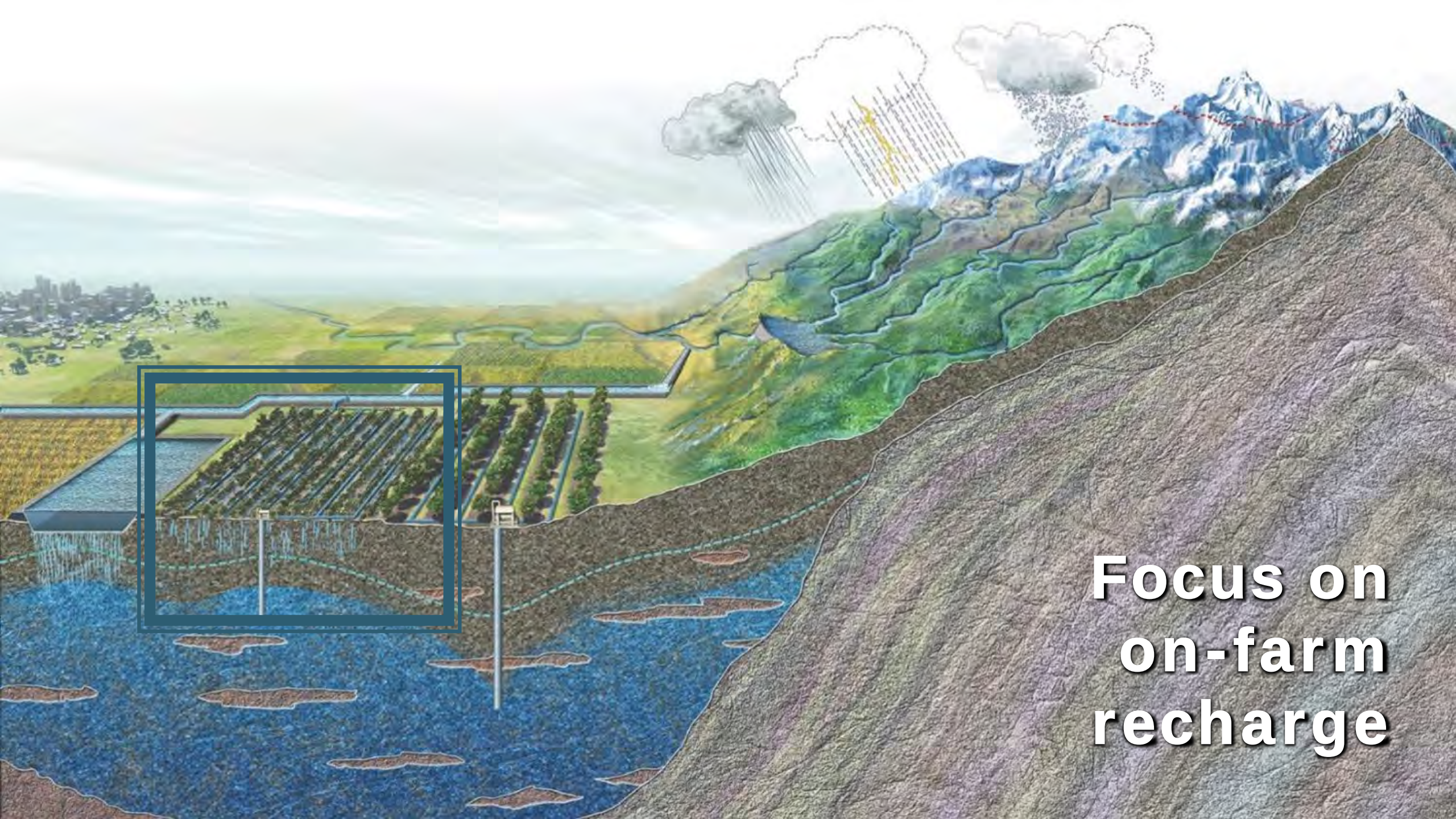
# Implementation Progress

- Progress toward implementation reported individually for each of the six GSP regions
- Subbasin-wide implementation activities during WY2023 included:
  - Preparation of single GSP
  - Monthly Delta-Mendota Subbasin Coordination Committee meetings
  - Monthly meetings with State Water Resources Control Board and Department of Water Resources to discuss single GSP development process
  - Two subbasin tours held with State Water Resources Control Board representatives
  - Implementation of projects and management actions
  - Implementation of grant-funded projects, including several groundwater recharge projects, interconnected surface water and subsidence monitoring network improvements, and outreach and engagement

# Overview of recharge






Focus on
on-farm
recharge

# Key Benefits of On-farm Recharge

## grower-implemented, cost-effective, sustainable practice

- Restore overdrafted aquifers
- Meet SIGMA Regulations to restore ground water levels by 2040. Promote farmland longevity
- Dilute Legacy Nitrate Nitrogen levels in ground water
- Dilution of salinity levels in rootzone to promote Healthy plant growth and development

# Successes, Challenges, and lessons learned for On Farm Recharge in winter 2023

My strategy for promoting On Farm Recharge (OFR): talk with local farmers, talk with the farmer's PCA's & CCA's and talk with the local irrigation district managers and ground water sustainability agencies.

- 5 steps to achieve successful OFR
  - Determine if water is available for diversion and does the farmer have water rights
  - Determine the Recharge suitability rating
  - Choose the method of recharge that best fits the farm site
  - Select the best recharge field design for enhanced water infiltration rate
  - Select a person(s) to manage the recharge event in the field (record important data and ensure no unintended consequences during the recharge or flood event).

# Is this program a good fit?

<u>Choose the recharge practice:</u>

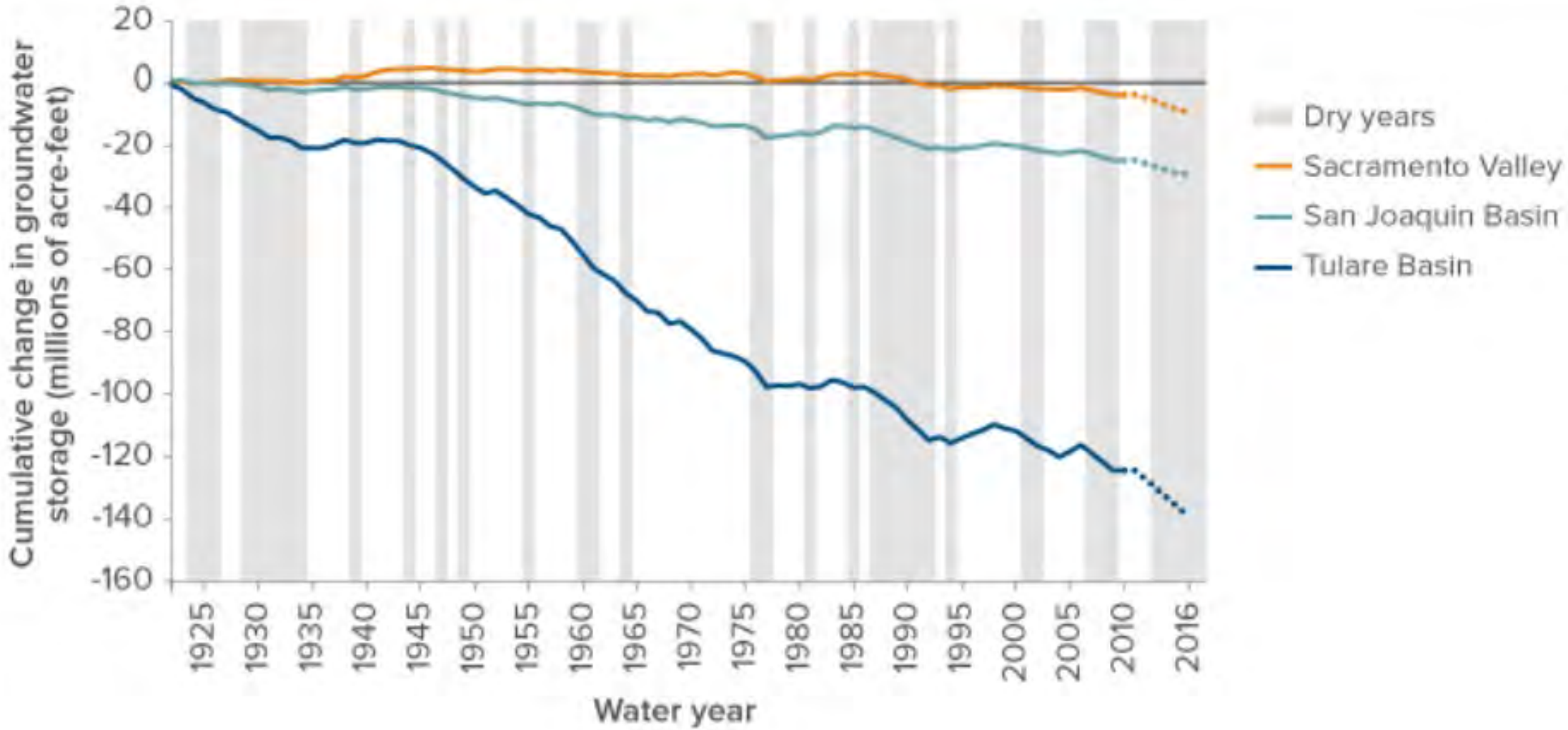
Recharge trench or basin

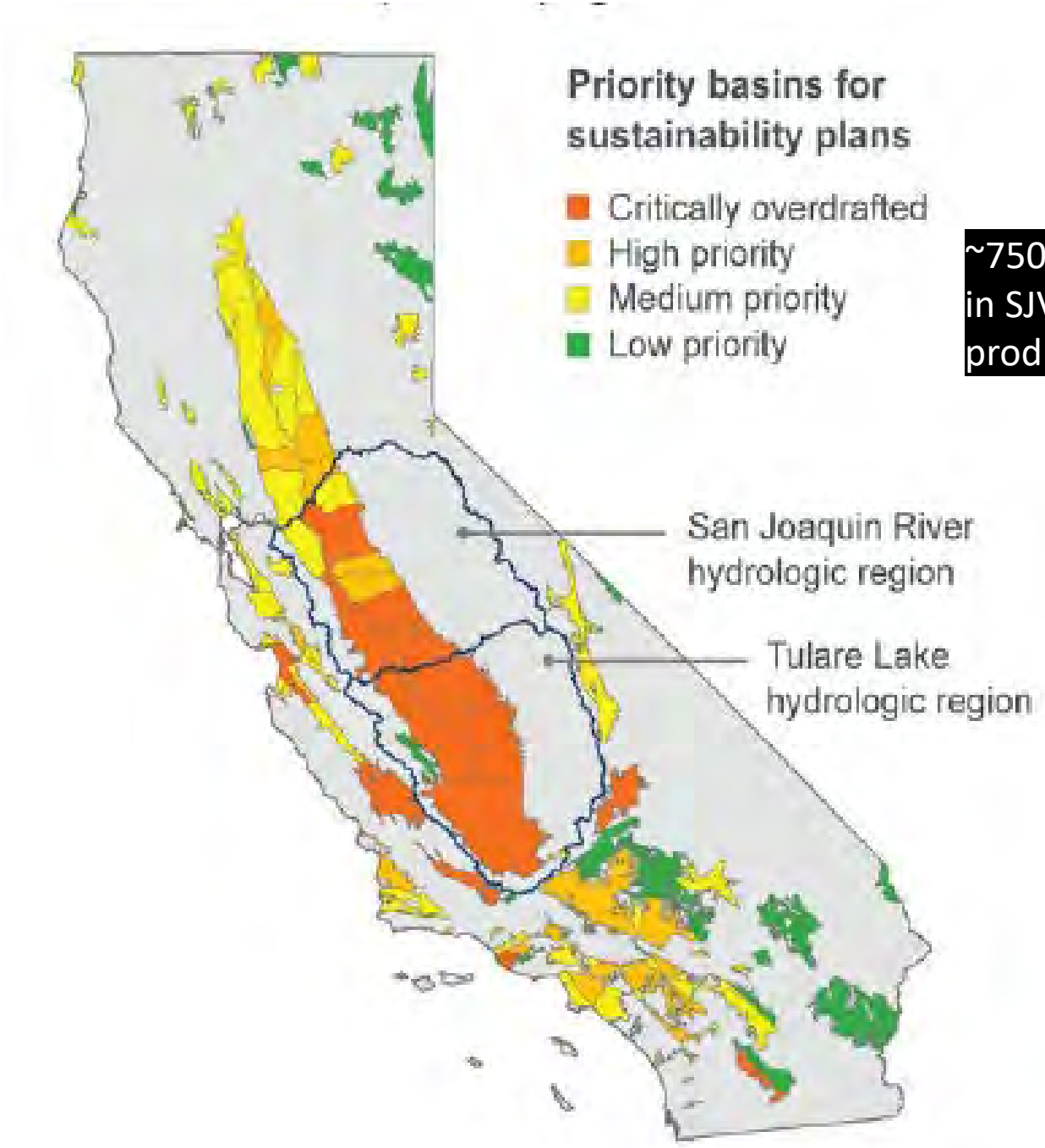
- Permanent feature (15 years) – land taken out of production

On farm recharge

- Management practice in tandem with agriculture

# Groundwater pumping is depleting reserves in the Central Valley






~750K – 1M Acres in SJV will come out of production

# Successful on farm recharge requires good preparations

# Management and Documentation of recharge events

On farm Recharge requires preparation and on-site management during the recharge event


# Recording water applied during on farm recharge event: important to register achivements!

More on farm recharge success: **The new CA gold** (Surface Water for replenishment of aquifers)

# Successful on farm recharge

# Challenges encountered to achieve on farm recharge : Soil erosion due to large volume of water on sandy soil

Challenges encountered to recharge: Need greater grower participation to help mitigate flooding rivers and replenish overdrafted ground water aquifers

Mokelumne River. Winter 2022-23

Growers just outside the Irrigation District who do not have water rights but have access to water bypass or I.D’s water canal ( winter 2022-23)

# Fields being uprooted for future new plantings: Recharge opportunity when plants are pulled

# Fallow field on farm recharge

Fallow field previously planted to walnut conducting on farm recharge before replanting nut orchard. Meanwhile, planted Barley crop for the interim time to produce revenue.

# Flooded Barley field

- Surface flood waters receded in Young recently planted Barley Field

Postponement of field operations like pruning and dormant sprays to conduct on farm recharge when water is available

## PROTECTING GROUNDWATER QUALITY WHILE PRACTICING RECHARGE

(ENGLISH)

(SPANISH)

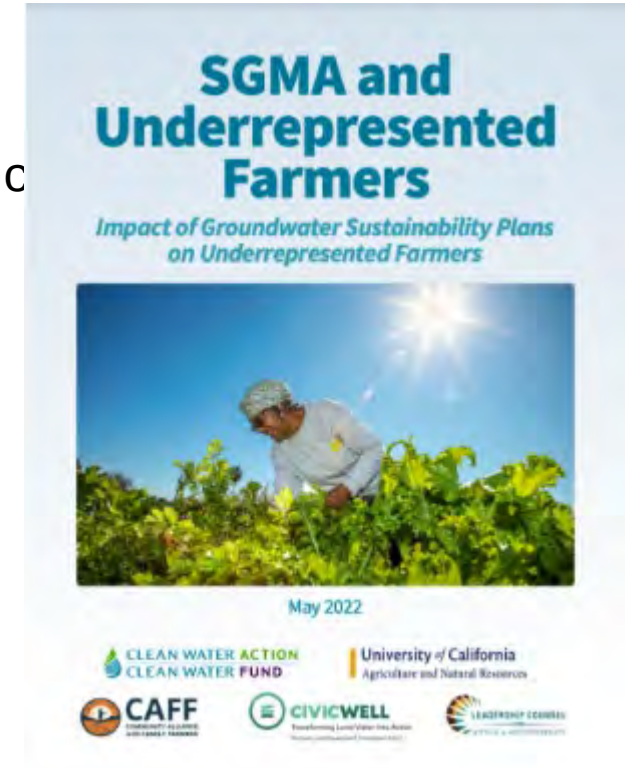
## ON-FARM RECHARGE METHODS MANUAL

# Tools to build a sustainable future for now
*and for our next generations*

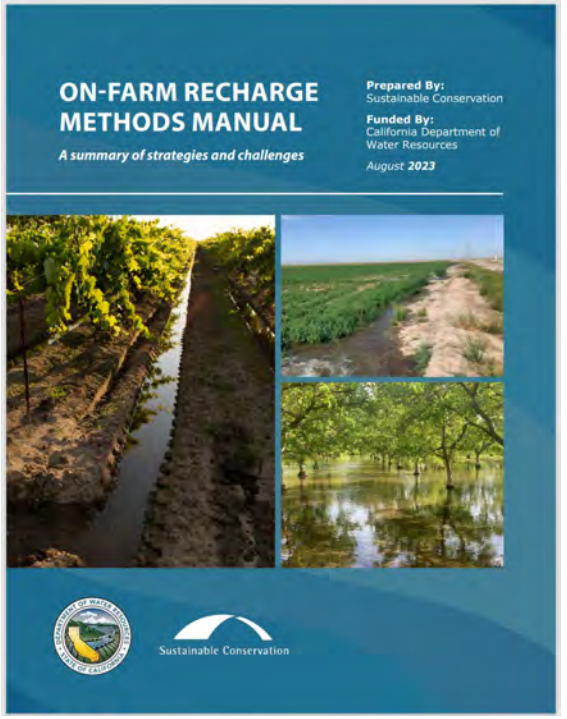
SGM TECHNICAL ASSISTANCE PROGRAM FOR TRIBES, UNDERREPRESENTED COMMUNITIES, AND SMALL FARMERS

www.water.ca.gov/urctaprog

- Conservation
- Water Use Efficiency
- Direct and In-Lieu Rec
- Projects
- Management Actions
- Partnerships
- Resources




https://caff.org/sgmaunderrepresentedfarmers/




https://suscon.org/wp-content/uploads/2023/08/Recharge-Methods-Manual_Case-Studies_2023.pdf

**“To evaluate the status of the groundwater resources of Stanislaus County in order to identify and develop programs and practices that ensure a reliable and sustainable groundwater supply for the benefit of its citizens, present and future, and to make recommendations to the County Board of Supervisors to adopt public policy that empowers such identified actions.”**

# Stanislaus County Water Advisory Committee (WAC)

cmckinnon@envres.org

https://www.stancounty.com/er/groundwater/

# Questions and Answers

## Contact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**Anona Dutton: adutton@ekiconsult.com**

**Leslie Dumas: ldumas@woodardcurran.com**

**Rogell Rogers: rrogers@suscon.org**

**Link to Online Survey:**

https://forms.office.com/g/BTvv2BnL1u?origin=lprLink

Non-District Workshop