EKI TECHNICAL PRESENTATION #45

COSUMNES SUBBASIN GSP IMPLEMENTATION

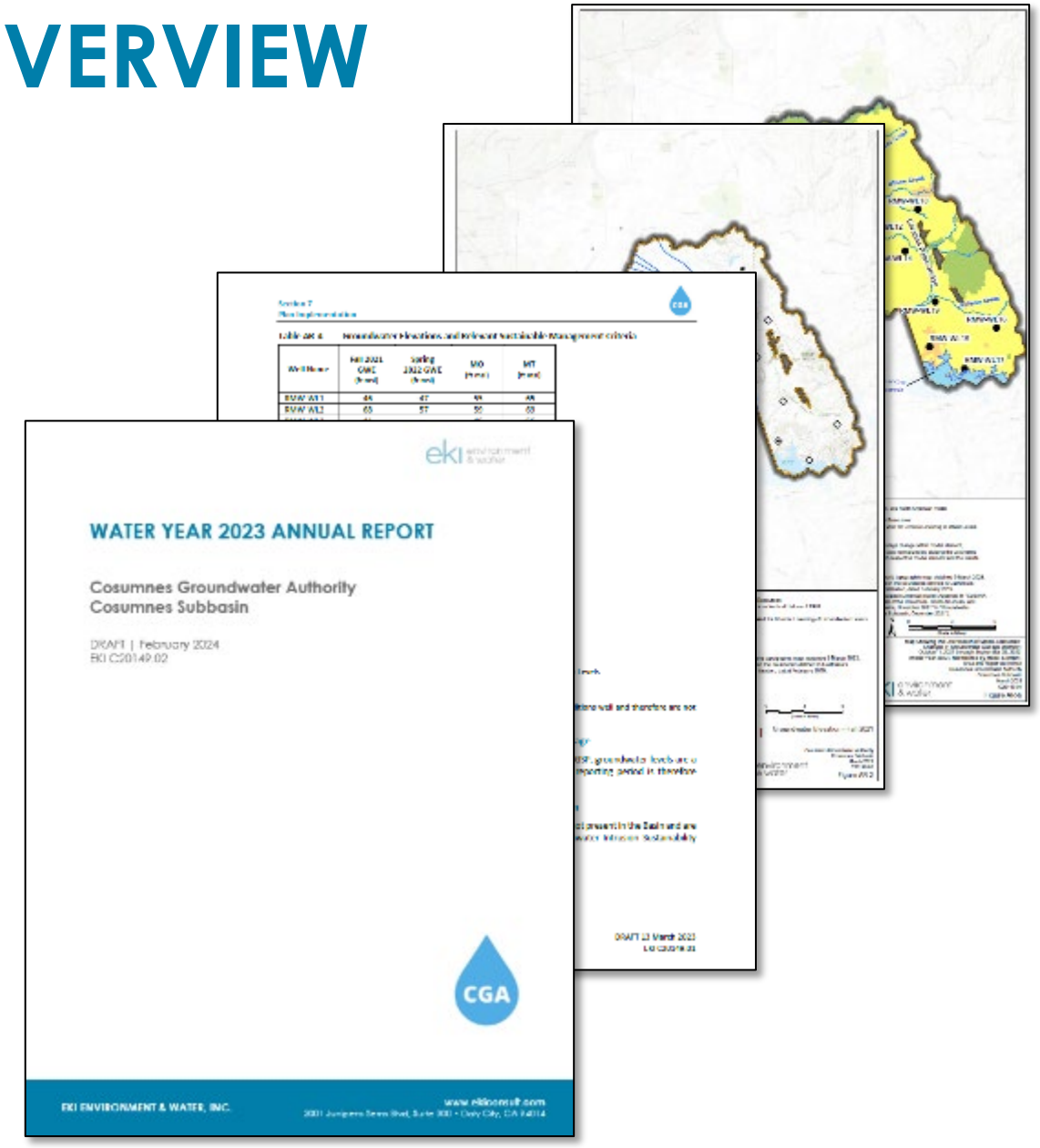
5 MARCH 2025

COSUMNES GROUNDWATER AUTHORITY BOARD OF DIRECTORS MEETING

eki environment & water

WY 2024 ANNUAL REPORT OVERVIEW

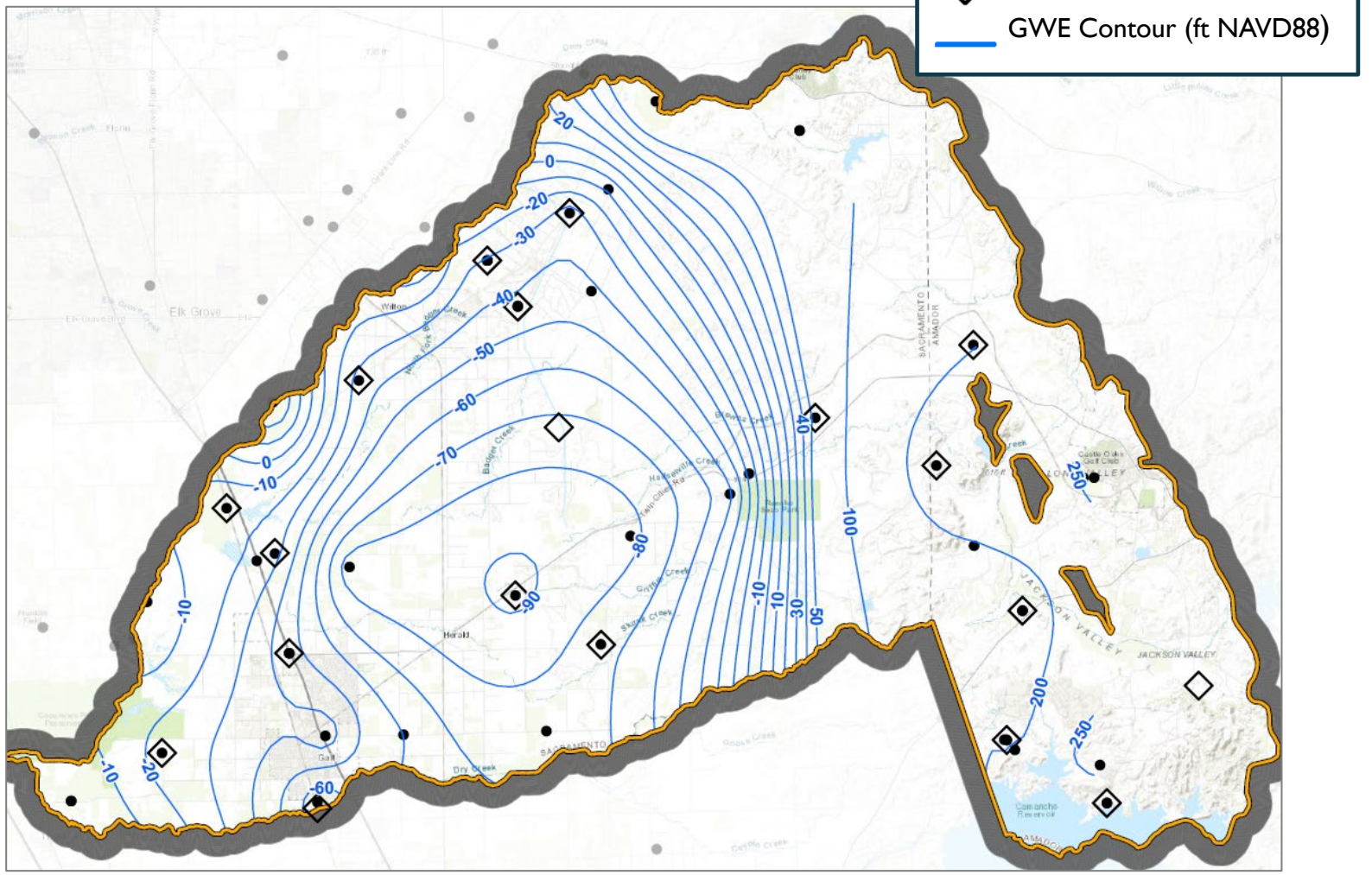
- Focus is Water Year 2024 (1 October 2023 through 30 September 2024).
- **Key Take-Aways:**
  - No Undesirable Results.
  - ~1,400 AF estimated **decrease** in groundwater pumping compared to WY 2023.
  - ~13,500 AF estimated **increase** in groundwater storage compared to WY 2023.



GROUNDWATER ELEVATION – FALL 2023

Contours of equal groundwater elevations based on measured water levels in 47 wells within the Basin and additional wells outside the Basin for control.

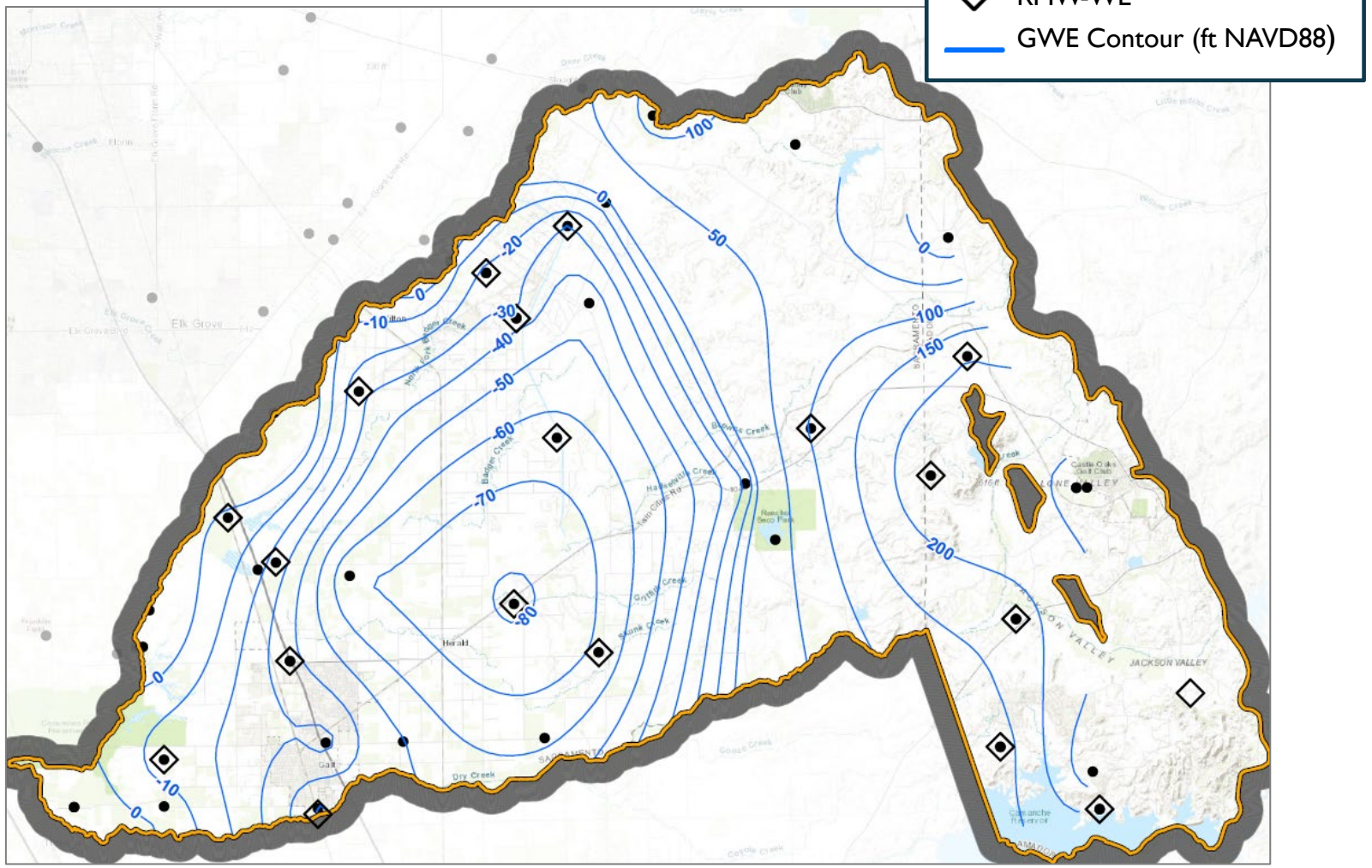
- In the Foothills, groundwater flow is to the west toward the Plain.
- In the Plain, groundwater flow is towards the groundwater low ("cone of depression").
- On average, WY 2023 and WY 2024 Fall groundwater elevations were about the same (<1 ft decrease in WY 2024 relative to WY 2023).



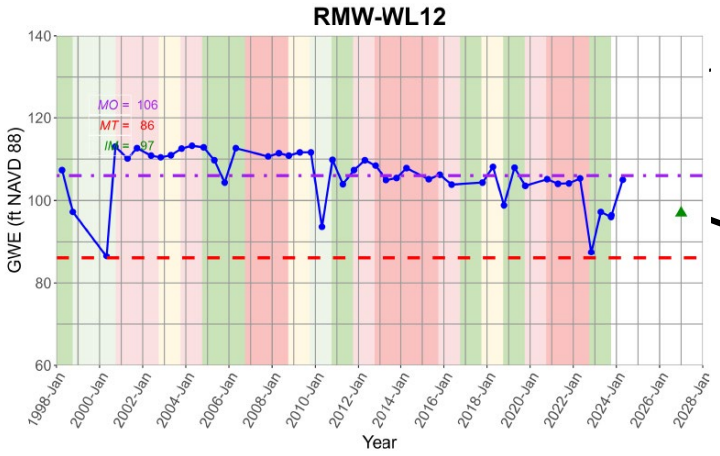
GROUNDWATER ELEVATION – SPRING 2024

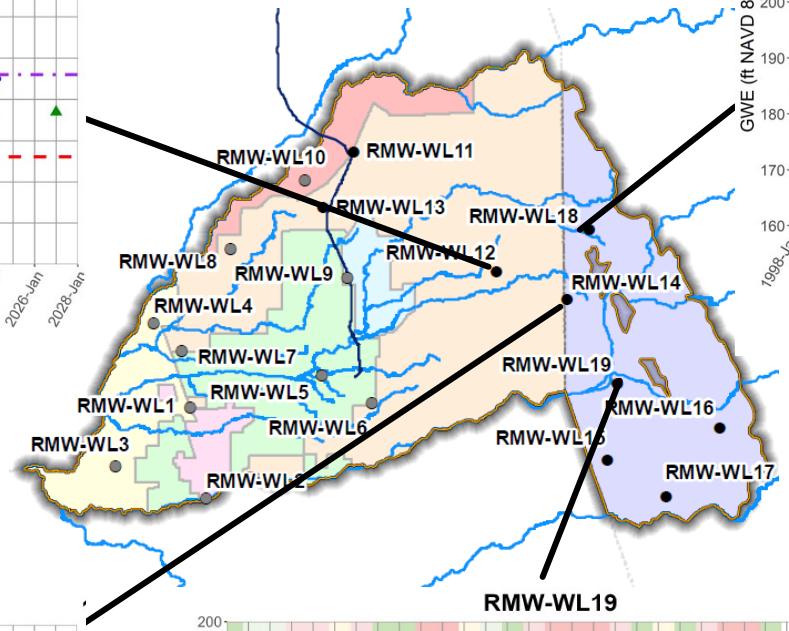
Contours of equal groundwater elevations based on measured water levels in 45 wells within the Basin and additional wells outside the Basin for control.

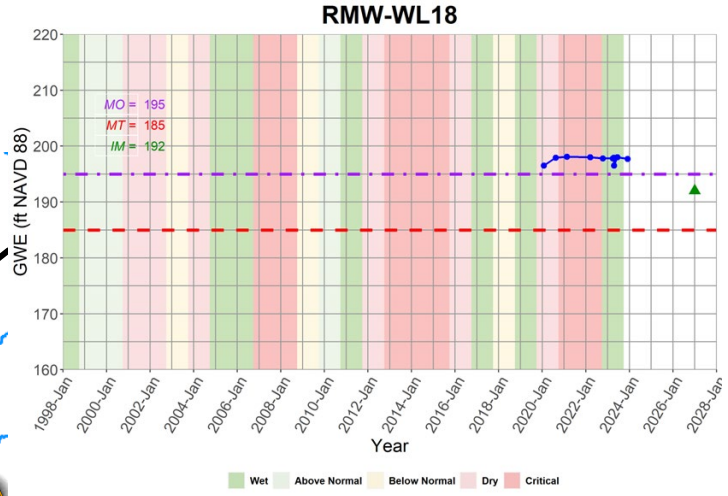
- In the Foothills, groundwater flow is to the west toward the Plain.
- In the Plain, groundwater flow is towards the groundwater low ("cone of depression").
- On average, Spring groundwater elevations increased 5 ft relative to Fall.

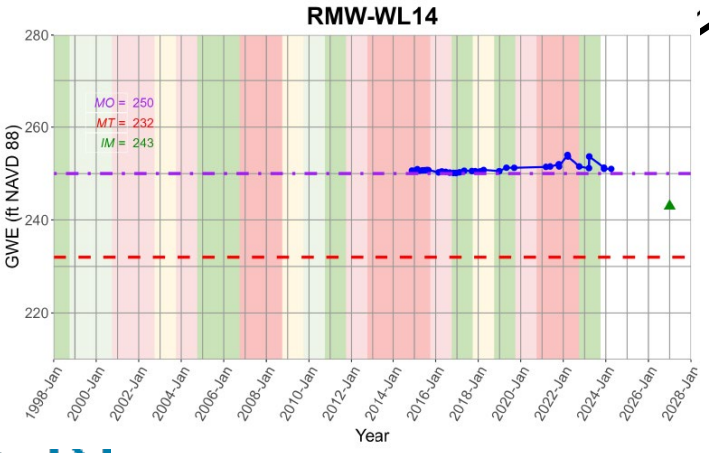


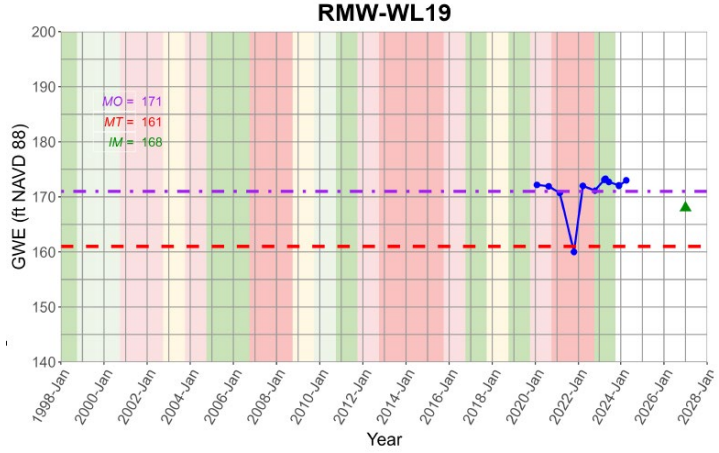
EXAMPLE HYDROGRAPHS - FOOTHILLS











Legend

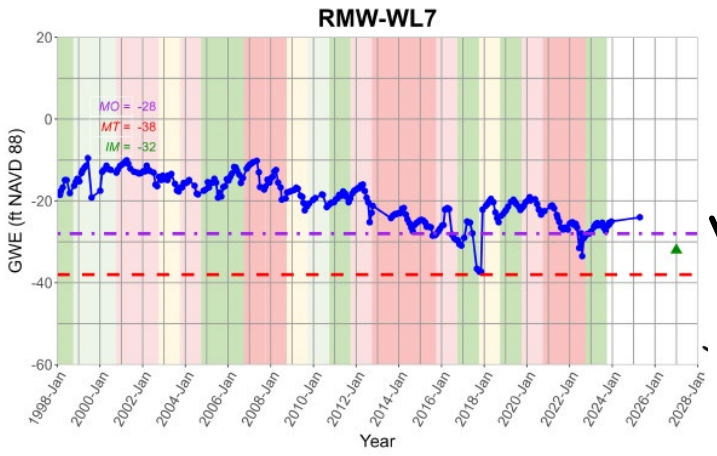
- Groundwater Elevation
- Minimum Threshold
- Measurable Objective
- Interim Milestone

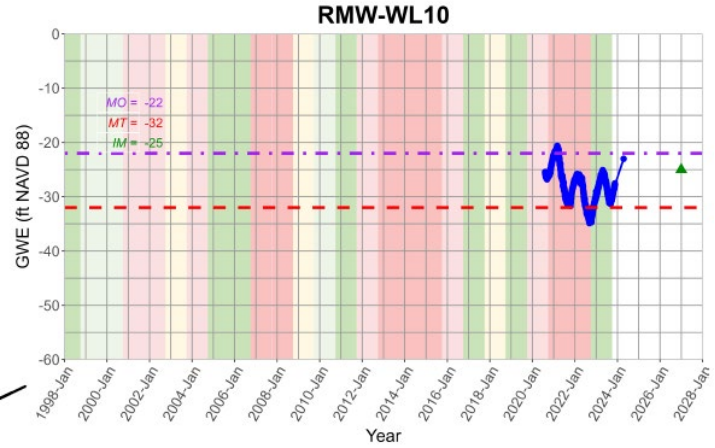
Water Year Type

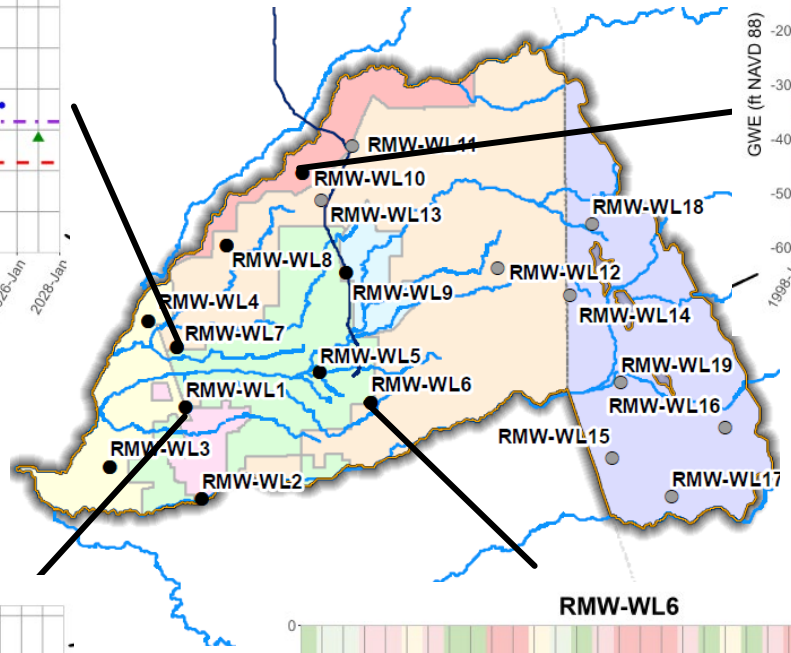
- Wet
- Above Normal
- Below Normal
- Dry
- Critical

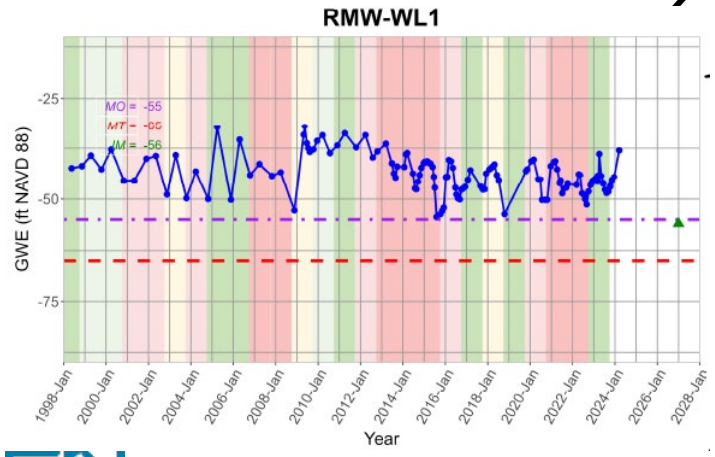
Most Foothills wells have groundwater levels above or near the Measurable Objective (MO).

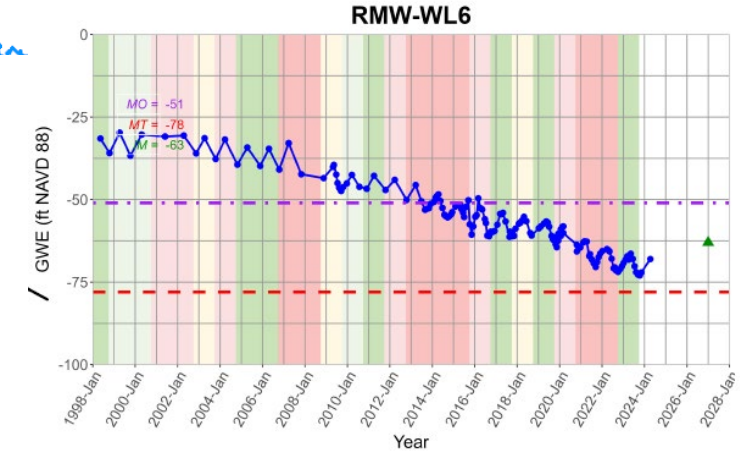
EXAMPLE HYDROGRAPHS – BASIN PLAIN

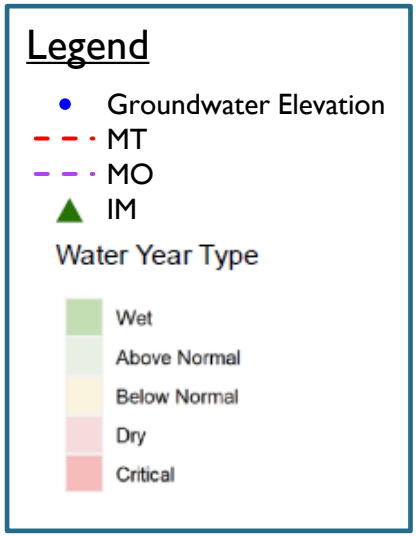












- Most of the western wells have groundwater levels above or near the MO.
- The wells located near the center of the cone of depression have declining groundwater levels below MOs and approaching MTs.

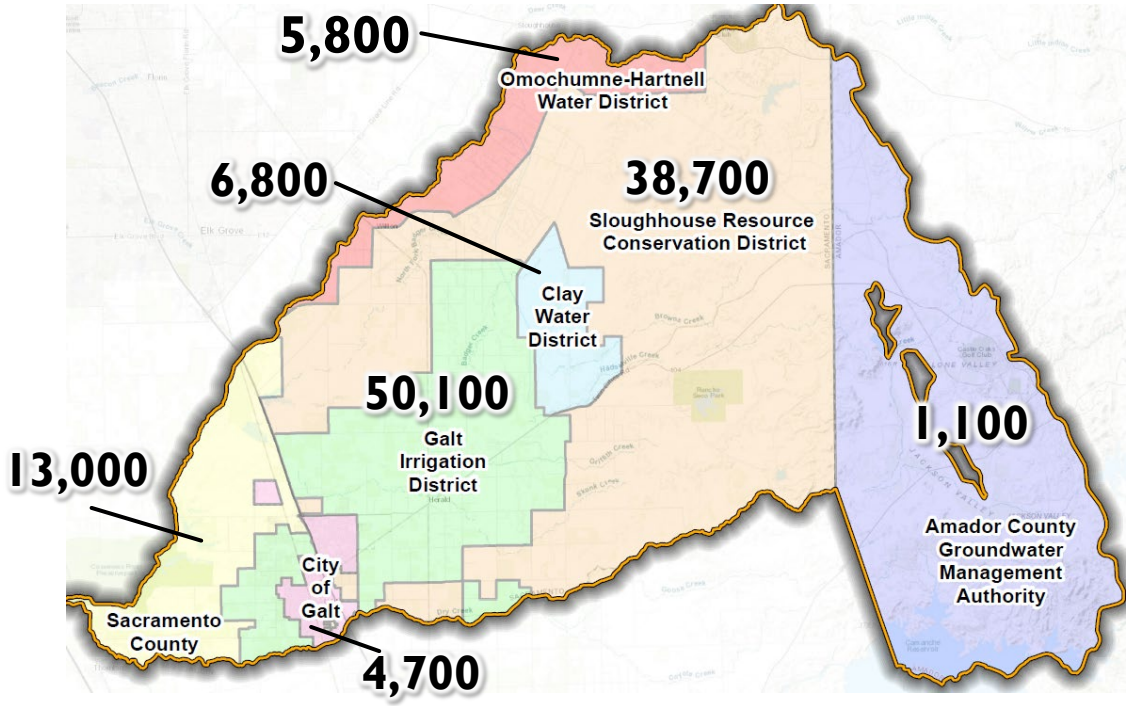
GROUNDWATER PUMPING BY SECTOR AND GSA

- 120,200 AF estimated total pumping
  - 87% for Agricultural Sector (includes Ag-Res).
  - 9% for Industrial Sector (aquaculture).
  - 4% for Urban Sector (municipal and public water systems).
- Total pumping decreased by 1,400 AF between WY 2023 and WY 2024.

Table AR-1. Summary of Groundwater Extraction Data by Sector (AF)

Water Year	Agricultural	Industrial	Urban	Total
2021	134,100	11,000	5,200	**150,300**
2022	124,800	11,000	4,700	**140,500**
2023	105,900	11,000	4,700	**121,600**
2024	104,400	11,000	4,800	**120,200**

From Figure AR-5. General Locations and Volumes of Annual Extractions (AF)



WY 2024 WATER USE BY SUPPLY SOURCE

Total use was 142,700 AF

- Total WY 2024 use decreased 1,300 AF relative to WY 2023.
- Groundwater was the primary water source
  - 84% groundwater extractions.
  - 15% surface water (imported and diversions).
  - <1% from recycled water.

Table AR-3. Total Water Use by Source Type (AF)

Water Year	Groundwater	Surface Water	Recycled Water	Total
2021	150,300	15,300	1,300	**166,900**
2022	140,500	19,600	1,200	**161,300**
2023	121,600	21,300	1,100	**144,000**
2024	120,200	21,100	1,400	**142,700**

Figure AR-8. Total Water Use by Source Over Time (AF)

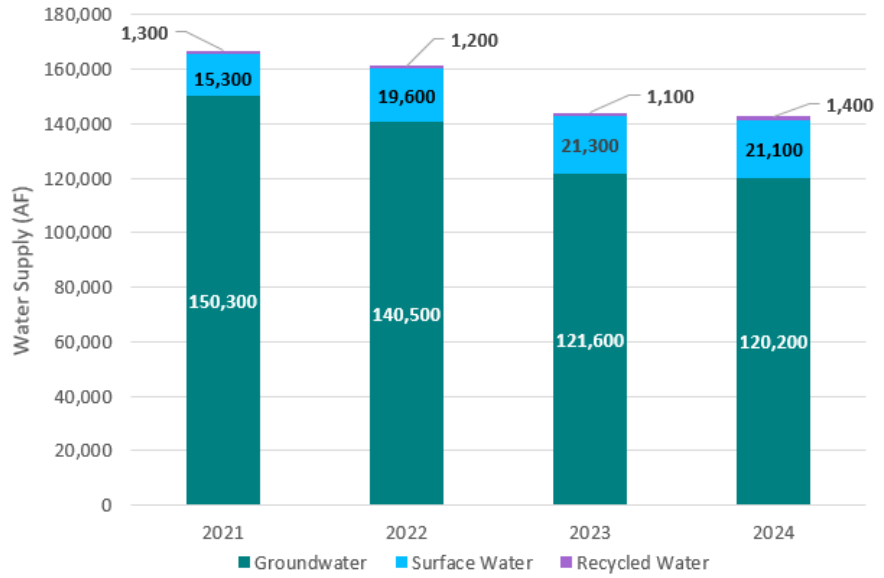
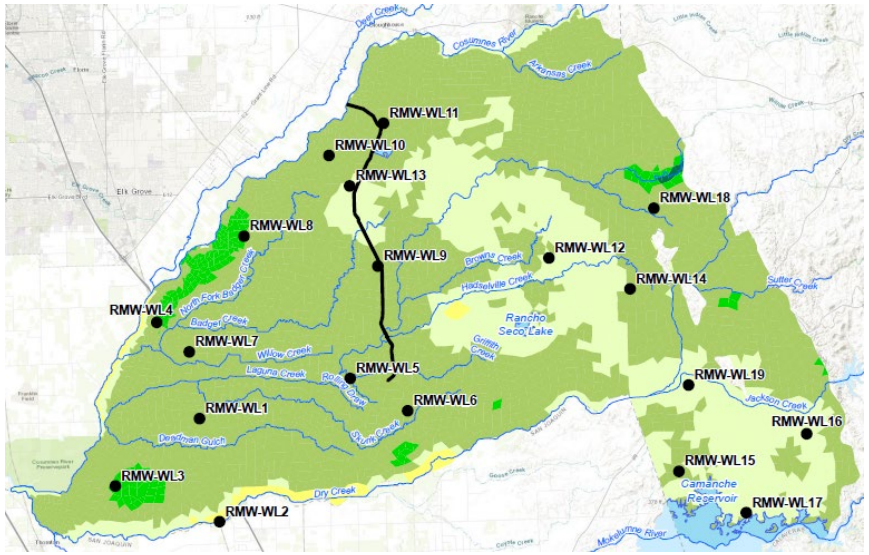


Figure AR-8. Total Water Use by Source Over Time

ESTIMATED GROUNDWATER STORAGE CHANGE

- Groundwater storage increased across most of the Basin.
- Storage decreases are estimated in the transitional area between the Plain and Foothill subareas, a stretch adjacent to the Cosumnes River, and most of the stretch adjacent to Dry Creek.
- The calculated net change in storage across the entire Basin during WY 2024 was an increase of **13,500 AF**.
- The net change in Basin storage during the period WY 2015 through WY 2023 is a decrease totaling -40,900 AF (-4,500 AFY).

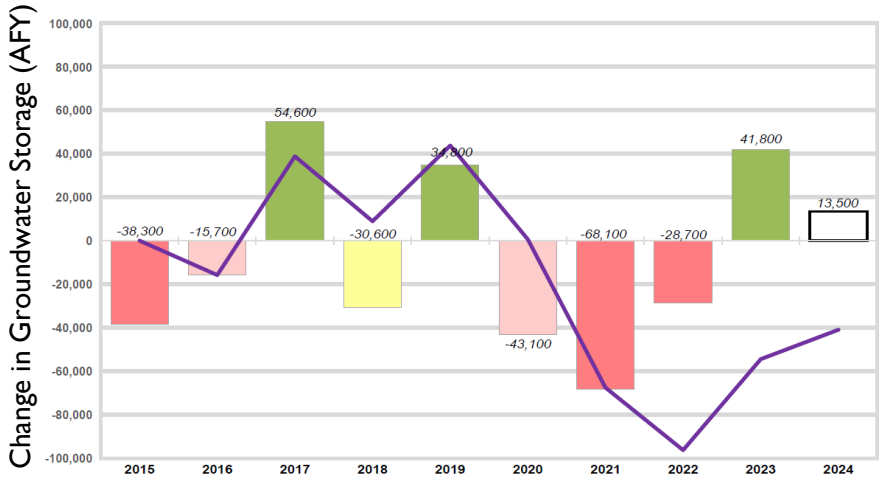
Storage Change for WY 2023



Legend

Storage Change (ft/yr)

- ≤ -0.25
- -0.25 to 0
- 0 to 0.25
- 0.25 to 0.5
- 0.5 to 0.75
- > 0.75



Legend

DWR Water Year Type and Annual Groundwater Storage Change (AFY)

- Wet
- Above Normal
- Below Normal
- Dry
- Critical
- Unclassified
- Cumulative Storage Change Since 2015 (AFY)

WY 2024 PLAN IMPLEMENTATION (1 OF 6)

Semi-Annual Monitoring

- Monitoring incomplete:
  - Fall 2023: water levels were not measured in six (6) monitoring wells.
  - Spring 2024: water levels were not measured in four (4) monitoring wells.
  - Water quality analytes (Arsenic, Nitrate as N and TDS) were incomplete for the samples from three (3) representative water quality wells.
- Most water level data gaps have been resolved in WY 2025.
- CGA needs to ensure all constituents are analyzed in water quality samples collected in WY 2025.

WY 2024 PLAN IMPLEMENTATION (2 OF 6)

Current Conditions – Sustainability Indicators

- Chronic Lowering of Groundwater Levels

  "Undesirable Results occur when MTs are exceeded in 25% or more of the RMW-WLs (5 out of 19) for 2 consecutive years."

  - Water levels in one (1) well was below the Minimum Threshold (MT) in the Fall but was above the MT in the Spring.
  - Water levels in eleven (11) wells were greater than or equal to their Measurable Objectives (MO).
  - **No Undesirable Results in WY 2024.**

- Groundwater Storage

  "Undesirable Results occur when MTs are exceeded in 25% or more of the RMW-WLs (5 out of 19) for 2 consecutive years."

  - Groundwater levels used as a proxy for groundwater storage.
  - **No Undesirable Results in WY 2024.**

- Seawater Intrusion

  - Not applicable to the Basin.

WY 2024 PLAN IMPLEMENTATION (3 OF 6)

Current Conditions – Sustainability Indicators

- Degraded Water Quality

  "Undesirable Results occur when MTs for a constituent of concern are exceeded in 25% or more of the RMW-WQ (4 of 14) for 2 consecutive years."

  – Two (2) wells exceeded the MT for Arsenic (RMW-WQ2 & RMW-WQ14).

    RMW-WQ2: Arsenic concentrations have been variable and have intermittently exceeded the MT since monitoring began in 2020.

    RMW-WQ14: this was the first MT exceedance since monitoring began in 2020.

  – One (1) well exceeded the MT for TDS (RMW-WQ9), however concentrations have historically been elevated in this well.

  – **No Undesirable Results in WY 2024**.

- Land Subsidence

  "Undesirable Results occur when MTs are exceeded in 25% or more of the RMW-WLs (5 out of 19) for 2 consecutive years."

  – Groundwater levels used as a proxy for land subsidence potential.

  – Estimated subsidence was between -0.1 ft and 0.1 ft based on DWR provided INSAR data.

  – **No Undesirable Results in WY 2024**.

WY 2024 PLAN IMPLEMENTATION (4 OF 6)

Current Conditions – Sustainability Indicators

- Depletions of Interconnected Surface Water

  "Undesirable Results occur when water levels fall below the MTs for one (1) or more of the RMW-ISWs for 2 consecutive years."

  - Water level in one (1) well declined below the MT in the Fall; data was not available for the Spring.
  - **No Undesirable Results in WY 2024.**

WY 2024 PLAN IMPLEMENTATION (5 OF 6)

Projects and Management Actions

- PMA #1: OHWD GSA Agricultural Flood Managed Aquifer Recharge (Flood-MAR)
  - Secured a 5-year temporary water right allowing up to 2,444 AF diversion until 2027.
  - 347 AF of Cosumnes River water was diverted for recharge in WY 2024.
- PMA #4: City of Galt Recycled Water Project

  Executed a funding agreement with the SWRCB Clean Water Revolving Fund for a Water Recycling Facilities Planning Grant program to assess plans for expanding recycled water use.
- PMA #5: Voluntary Land Repurposing

  The SRCD GSA secured two grants from the California Department of Food and Agriculture to support:
  - 13 on-farm conservation plans to enhance water use efficiency, soil health, and carbon farming.
  - Water Efficiency Technician to assist farmers implement water-saving practices (expect at least 80 efficiency tests will be conducted over two-year period).

WY 2024 PLAN IMPLEMENTATION (6 OF 6)

Other Information

- Stakeholder outreach included:
  - Monthly public CGA and GSA Board of Directors Meetings.
  - Public Workshops.
  - Farmers Appreciation BBQ.
  - Outreach and Engagement Committee meetings.
  - Fall and Spring CGA Newsletters.
- Additional Information or Accomplishments included:
  - CGA is working on long-term funding strategies to support GSP implementation.
  - Two supplemental wells were added in the cone of depression area.
  - GID GSA applied for USBR temporary water supply contract.
  - Sacramento County initiated Cosumnes River Pilot Study effort north of the Basin (reduces flood risk, increases groundwater recharge, and provides floodplain restoration).

WY 2024 PROGRESS ADDRESSING RCAs (1 OF 2)

RCA	Approach	WY 2024 Progress	Planned Completion
1. Assess potential impact of the established SMCs of the RMW-WLs on domestic wells.	Conduct well census, reconnaissance, and inventory projects to locate wells and verify use, status, and construction. Update and document domestic well impact analysis after well census is completed.	None.	January 2027 Plan Evaluation
2. Revise UR definition for chronic lowering of groundwater and update SMCs.	Revise definition of significant and unreasonable with justification for selected values. GSAs develop program to inspect problem wells, validate impacts, and mitigate as appropriate.	None.	Future Plan Amendment
3. Conduct investigations to better understand the relationship between groundwater levels and water quality.	Update analysis using new data from the Monitoring Program and other sources.	None.	January 2027 Plan Evaluation
4. Establish SMCs for land subsidence.	Define SMCs based on direct measurements of land elevation changes and potential impacts to land uses and critical infrastructure.	None.	Future Plan Amendment

WY 2024 PROGRESS ADDRESSING RCAs (2 OF 2)

RCA	Approach	Progress in WY 2024	Planned Completion
5. Implement DWR ISW guidance.	Utilize ISW guidance to establish SMCs, data gap filling, and collaborate with local, state, and federal regulatory agencies (for example, reactivate the Surface Water Advisory Group [SWAG]).	GID GSA received approval for multiple stream gages as a part of CalSIP. SRCD GSA applied to CalSIP to potentially reactivate and maintain 3-4 stream gages in the Cosumnes and South American Subbasins.	Future Plan Amendment
6. Expand the land subsidence monitoring network.	Investigate if other entities periodically monitor land surface elevations, and if needed establish monument survey network and monitoring program.	None.	January 2027 Plan Evaluation

PERIODIC EVALUATION & PLAN AMENDMENT

- Required Periodic Evaluation (PE) due January 2027.
- Response to RCAs will require GSP Amendment (PA) because of required changes to:
  - Definitions of Undesirable Results for Chronic Lowering of Groundwater Levels, Land Subsidence, and Interconnected Surface Water.
  - SMCs for Chronic Lowering of Groundwater Levels, Land Subsidence, and Interconnected Surface Water.
  - Projects and Management Actions.
  - Establish Representative Monitoring Sites for Land Subsidence.
- Every PA must be accompanied with a PE.
- Waiting another 5-years to submit the PA with the next required PE (2032) can be considered incomplete plan implementation and a finding by DWR of an incomplete or inadequate GSP.
- **Proposed schedule for PE's and PA:**

2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
PE		PE & PA					PE		

The 2029 PE should be less effort and lower cost relative to a PE in 2032; the next PE would not be due until 2034.

This proposed timeline needs to be confirmed with DWR as soon as practicable.

QUESTIONS?