

KERN COUNTY SUBBASIN

KCS

2025
WATER YEAR REPORT



KernGSP.com



comments@kerngsp.com

Acronyms

➔ SGMA

Sustainable Groundwater
Management Act

➔ GSA

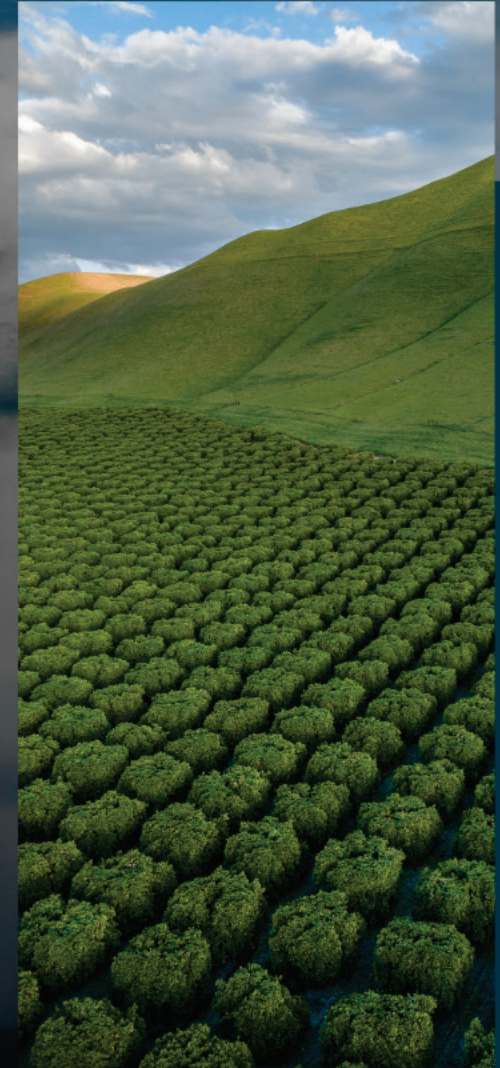
Groundwater Sustainability
Agency

➔ GSP

Groundwater Sustainability
Plan

➔ DWR

California Department of
Water Resources



AGENDA

1. Introductions

2. Background

3. Status in SGMA Process

4. What is an Annual Report?

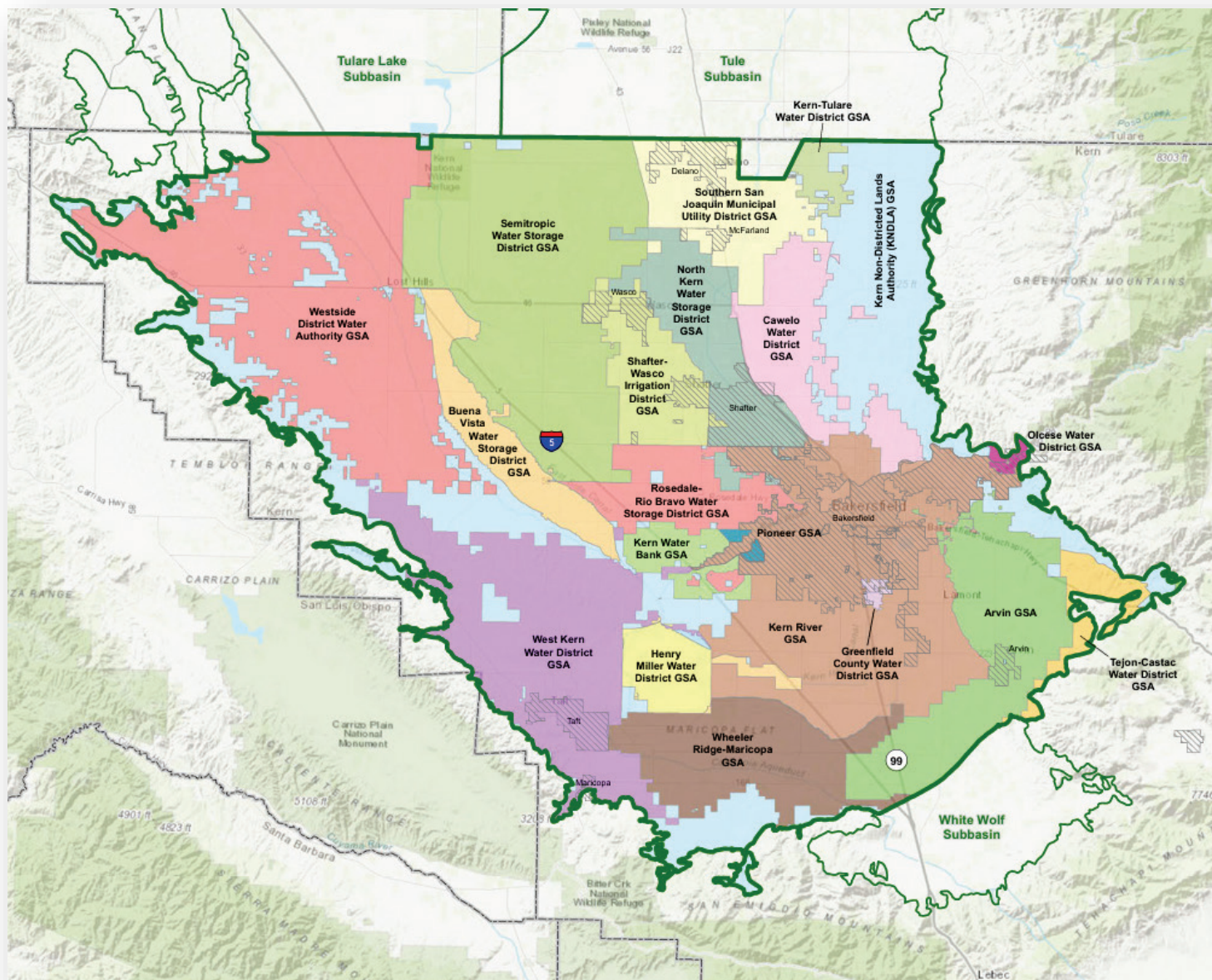
5. Annual Report Update

6. Q&A



Kern Subbasin is Unique

- The largest Subbasin in the state
- Hydrogeologically complex
- Covers 34% of Kern County
- Over 35 water agencies represented
- 20 GSAs working together for a shared groundwater sustainability goal
- Multiple imported surface water sources



A GSA is responsible in its area to ensure long-term groundwater sustainability including:

- Monitoring conditions
- Balancing groundwater supply and demand
- Implementing projects and management actions
- Increasing recharge and regulating pumping (if needed)
- Developing and carrying out a GSP.

KernGSP.com/find-my-GSA/



The 20 GSAs collaborated on adopting a unified 2025 Amended GSP to protect all beneficial users, uses, and property interests in the Kern Subbasin

KernGSP.com/GSP-documents/



2020

**First GSP
Submitted**

2022

- **Incomplete
Determination**
- **Second GSP
Submitted**

2023

- **Inadequacy
Determination**
- **Enter State
Intervention**

2024

**Third GSP
Submitted**

2025

- **Continuance Issued at
Probationary Hearing**
- **Fourth GSP Submitted**
- **Exit State Intervention
Following 2nd Hearing**

2026

**Implementation
of Fourth GSP**

Notable Changes in the 2025 Amended GSP

1. New groundwater quality provisions
2. Updated Well Mitigation Plan
3. Expanded protections for drinking water wells
4. Clarified pathway to studying cause of land subsidence on western portion of the Subbasin



What is a SGMA Annual Report?

Annual reporting under SGMA tracks groundwater conditions and management progress each water year.

Prepared by	Submitted to	Reporting Period
GSAs together as a Subbasin	DWR	Preceding Water Year <i>October 1 – September 30</i>

Why it matters:

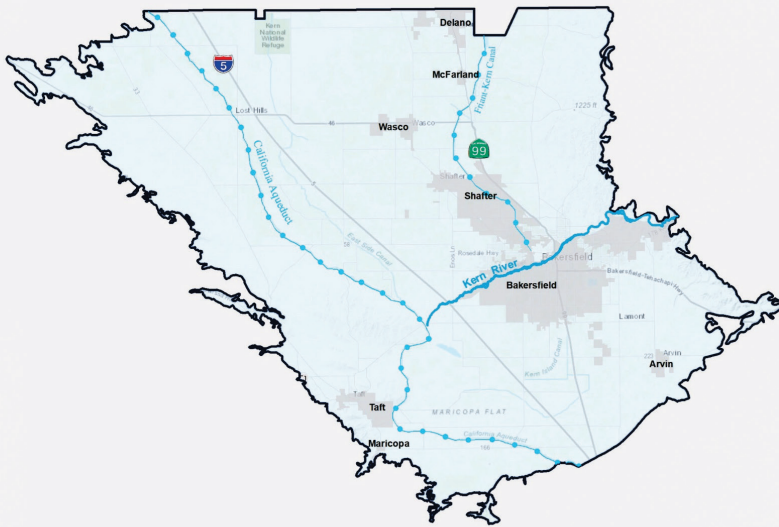
- Provides transparency and accountability
- Tracks basin conditions over time
- Helps evaluate whether management actions are effective
- Supports adaptive management and informed decision-making
- Documents the GSAs' progress towards implementing the GSP

Find the Annual Report at
KernGSP.com/GSP-documents/



Kern County Subbasin
Groundwater Sustainability Agencies

Seventh Annual Report



Water Year 2025



Annual Report Contents

1. Water Year 2025 Water Use by Service Sector

- Groundwater Use
- Surface Water Used and Available for Use
- Total water Use

2. Groundwater Levels

- Hydrographs
- Contour maps

3. Change in groundwater in storage

- Annual and Cumulative

4. Monitoring results compared to sustainable management criteria

- Groundwater levels and storage
- Subsidence
- Groundwater Quality

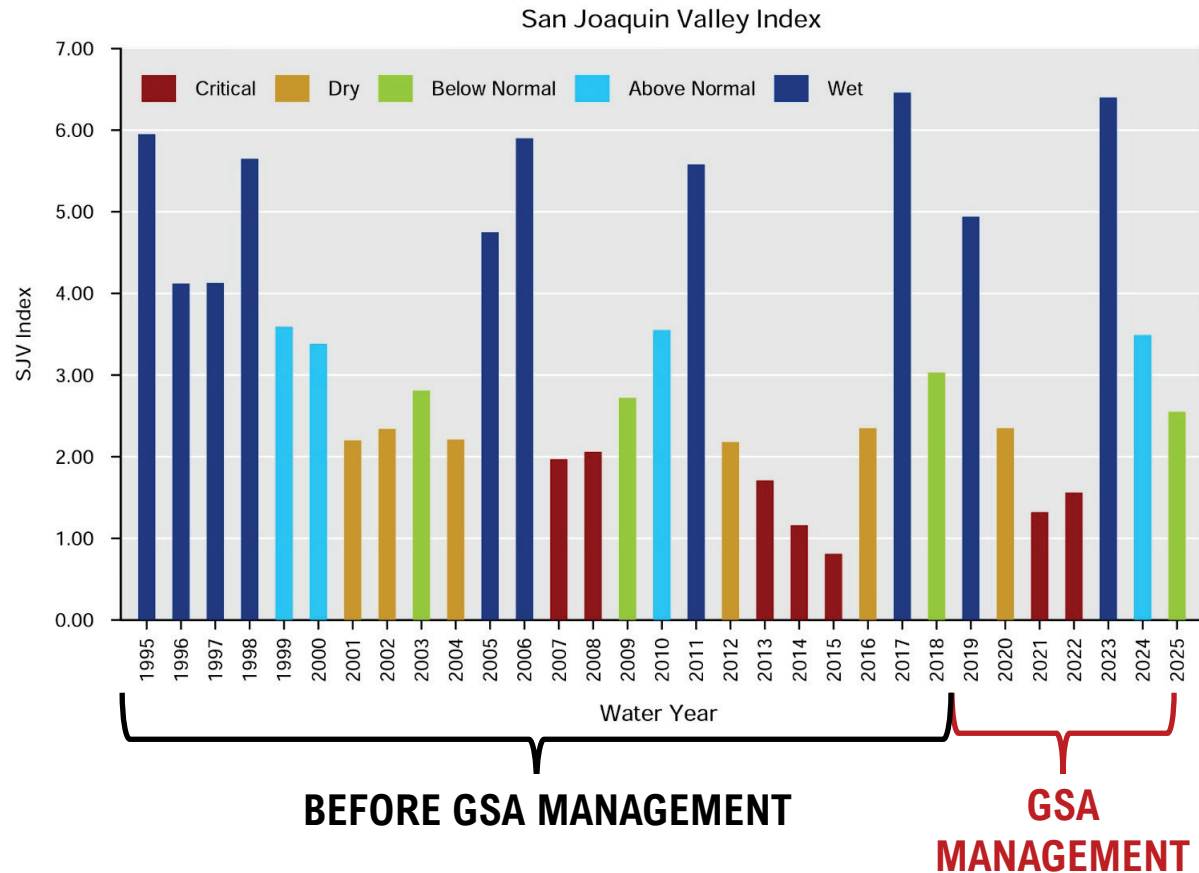
5. Implementation progress reports from each GSA



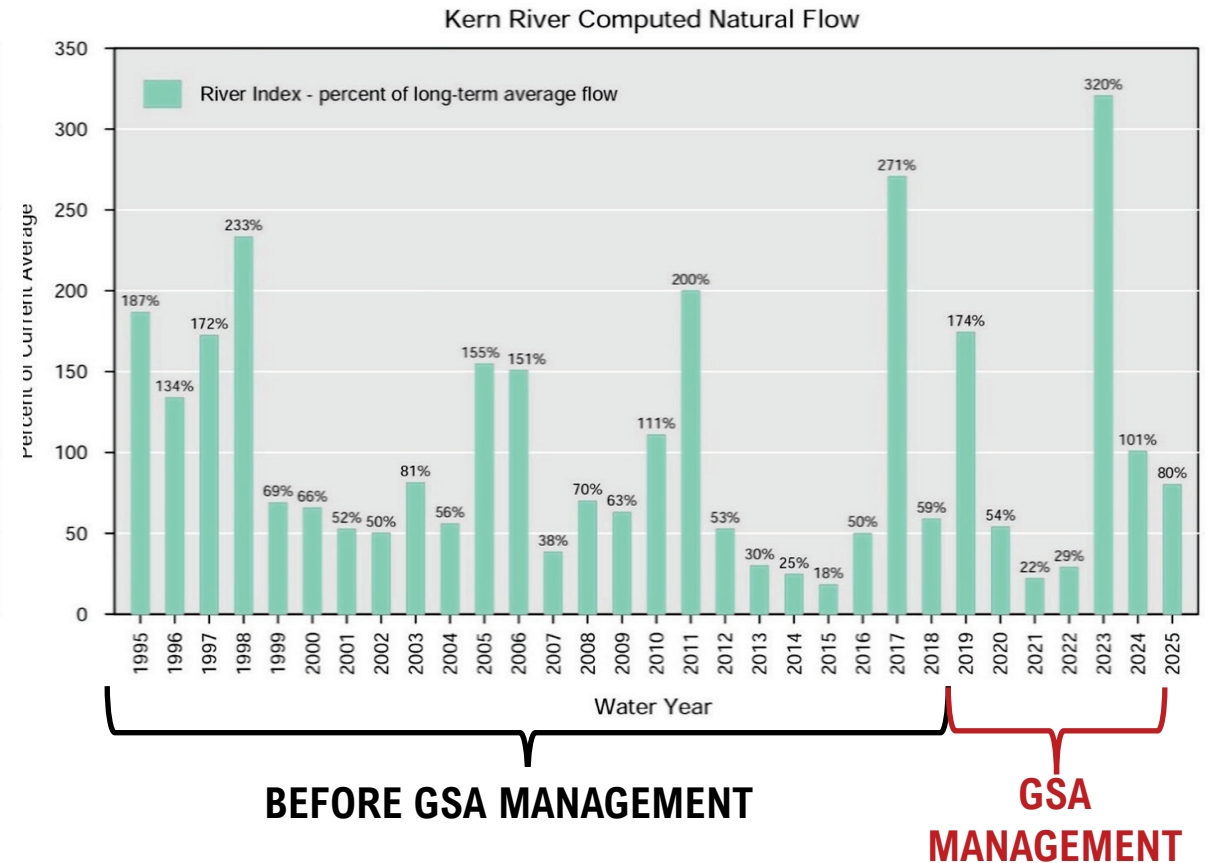
Water Use by Service Sector

Hydrologic indexes identify water year 2025 as **BELOW NORMAL**

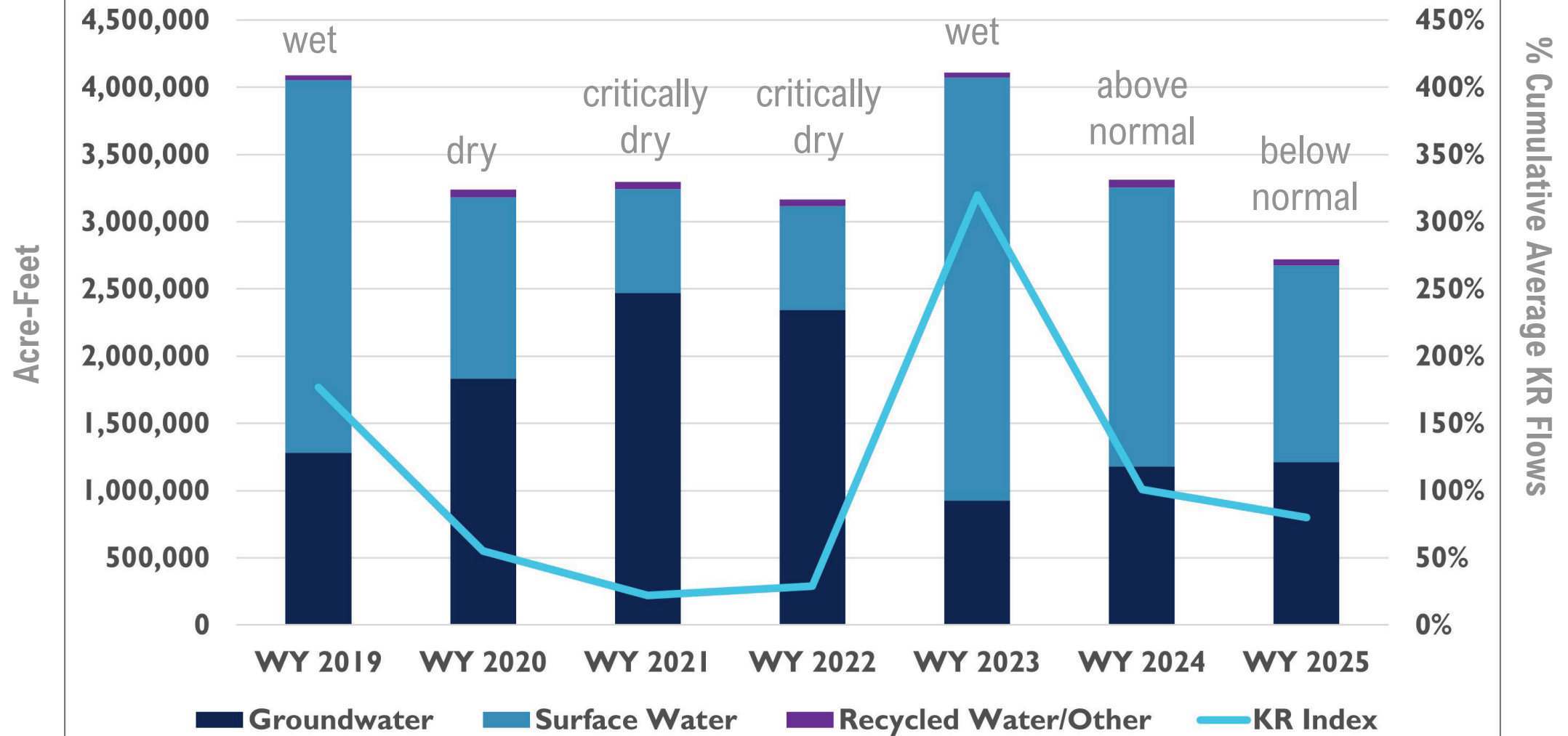
San Joaquin Valley Index Below Normal



Kern River flow was 80% of long-term average



Total Water Use WY 2019 – WY 2025



WY: Water Year

KR: Kern River

Surface Water Supplies

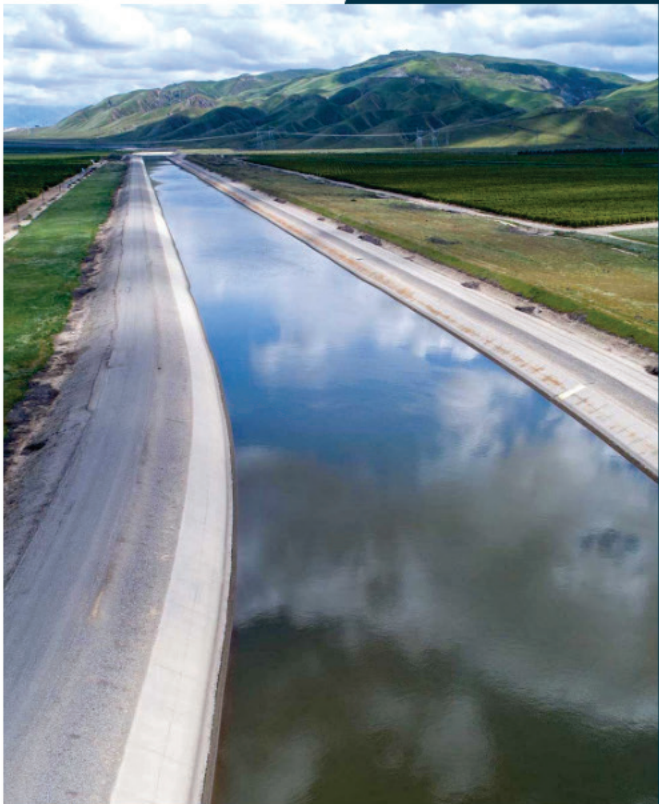


1,506,919 Acre-Feet (ac-ft) Total Water Year Surface Water Supplies

955,864 ac-ft – Imported Supplies (63%)

504,005 ac-ft – Local Surface Water (33%)

47,050 ac-ft – Other Local Sources (3%)



Surface Water Supply Source	Surface Water Supply Volume (ac-ft)
Central Valley Project	271,936
State Water Project	683,928
Colorado River Project	0
Local Supplies	438,144
Local Imported Supplies	65,861
Recycled Water	46,517
Desalination	0
Other Water Source	533
Total Surface Water Supply	1,506,919

Groundwater Supplies



1,214,614 Total Water Year Groundwater Pumping

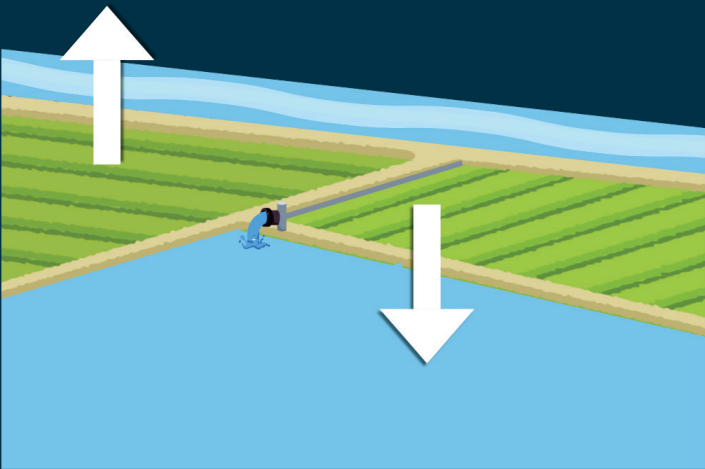
- 160,542 AFY – urban (13%)
- 856,449 – agricultural (70%)
- 45,823 – banking recovery, other (3%)



Water Use Type	Total Groundwater Extractions	Data Source				
		Metered Volume	Electrical Records Volume	Land Use Volume	Groundwater Model Volume	Other Methods Volume
		acre-feet				
Urban	160,542	104,146	0	0	56,396	0
Industrial	5,973	4,109	0	0	1,864	0
Agricultural	856,449	6,056	0	0	850,393	0
Managed Wetlands	0	0	0	0	0	0
Managed Recharge	145,826	145,826	0	0	0	0
Native Vegetation	0	0	0	0	0	0
Other	45,823	6,611	0	0	39,212	0
Total	1,214,613	266,748	0	0	947,865	0

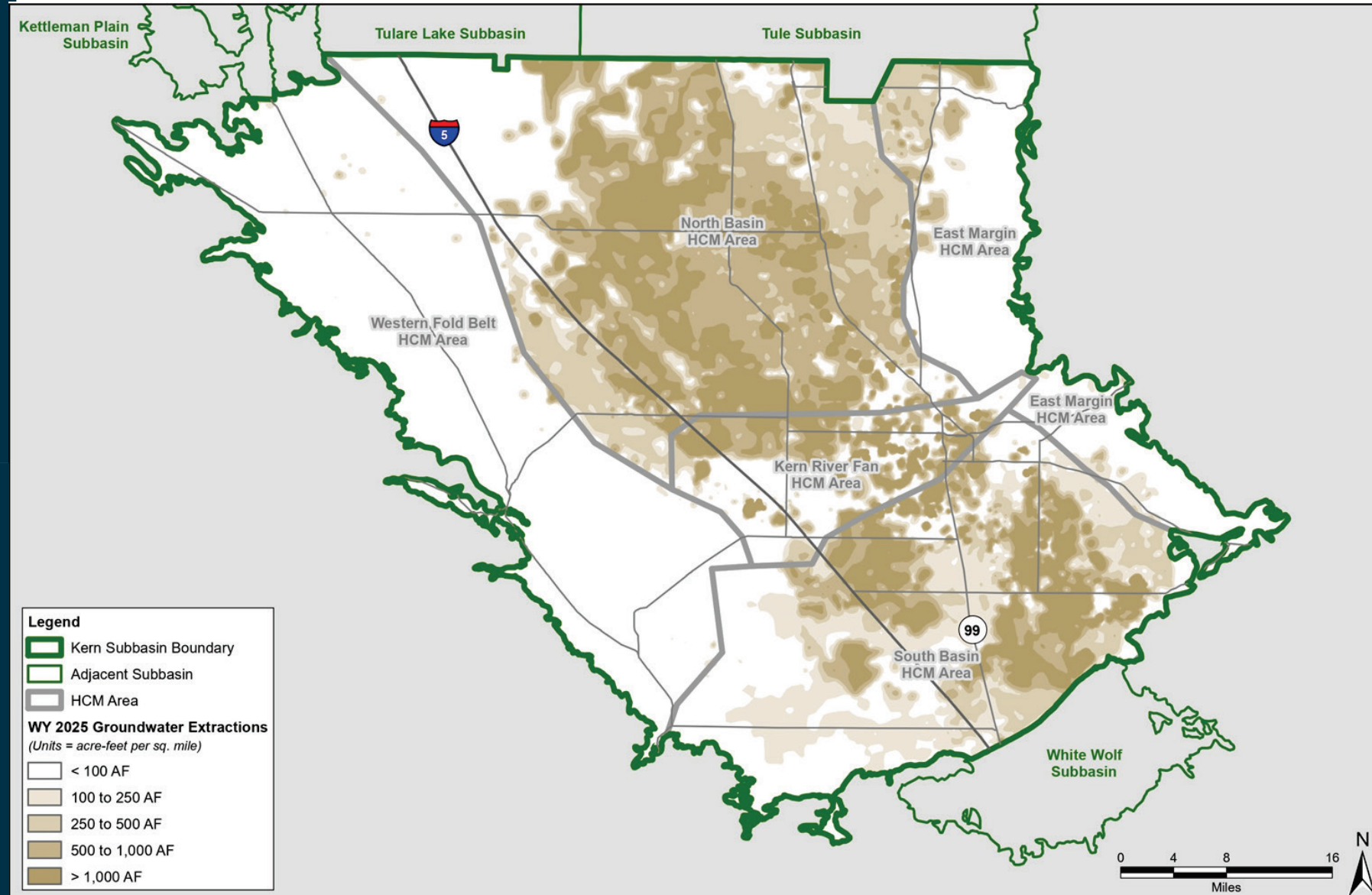
Groundwater banking is the practice of storing excess surface water underground in an aquifer for future use.

That stored water can later be pumped and used during dry years, droughts, or times of high demand.



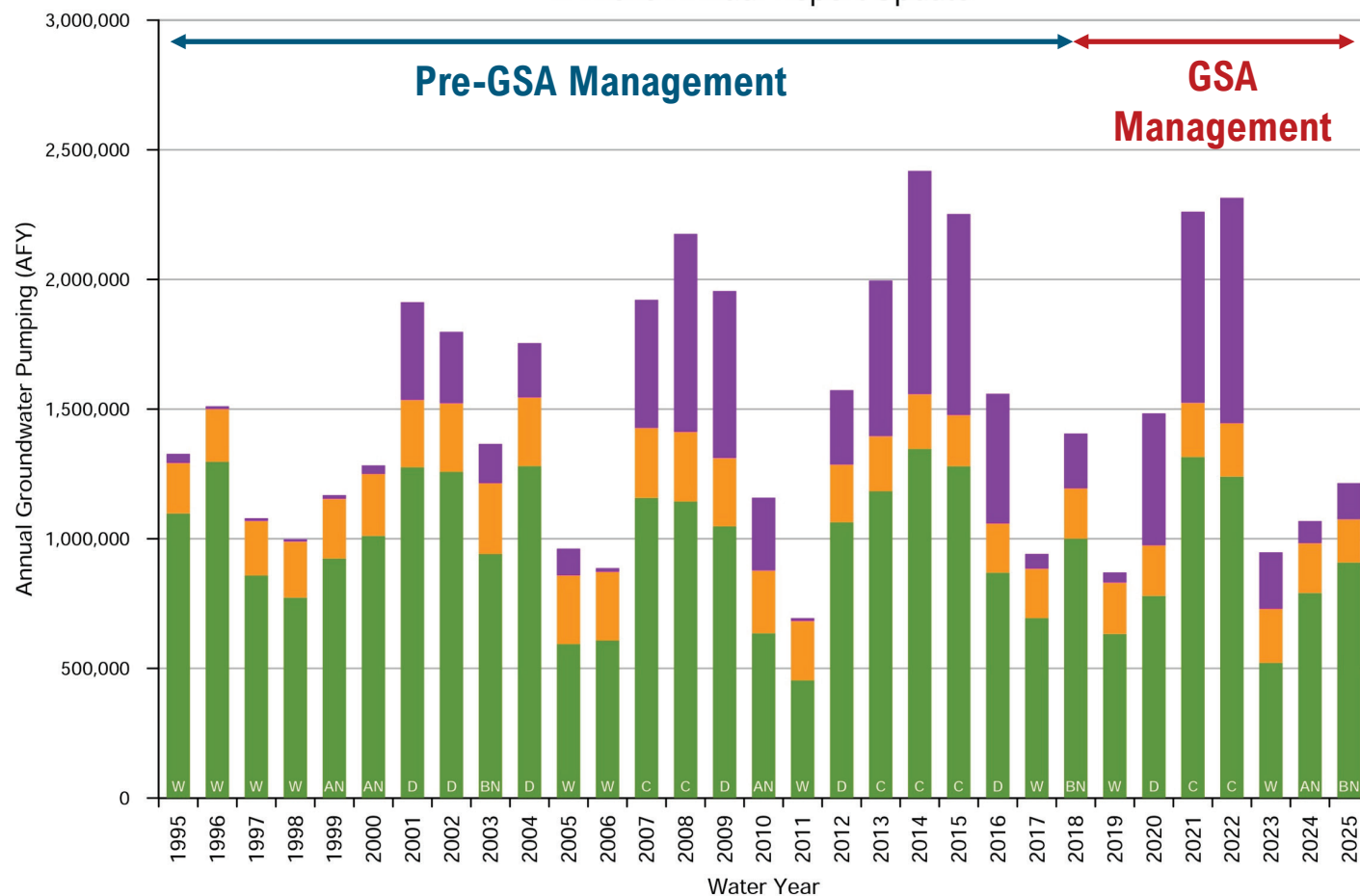
Water Year 2025 Areas of Groundwater Extractions

Most pumping occur in agricultural and urban land use



Modeled 2025 Water Year Groundwater Extractions

Kern County Subbasin Groundwater Extractions for WYs 1995-2025
WY2025 Annual Report Update



- Less than average extractions
 - Less than water years 2021-2022, but increasing since *wet* water year 2023
 - Slightly increased recovery from *above normal* water year 2024
 - Increased agricultural pumping over last water year
 - Urban pumping similar to recent water years with conservation
- Agricultural Pumping
- Urban Pumping
- GW Banking, Exchanges, and "Pump-ins"

Water Year 2025 Modeled Total Water Use

Total Water Use: 2,721,532 AF

- Urban: 8%
- Industrial: 0.2%
- Agriculture: 71%
- Managed Recharge: 9%
- Other: 10%

Total Water Use	Total Water Use Volume
Water Use Sector	Acre-ft
Urban	209,253
Industrial	5,973
Agricultural	1,942,876
Managed Wetland	22,153
Managed Recharge	244,174
Native Vegetation	0
Other Water Use Type	297,103
Total Water Use	2,721,532

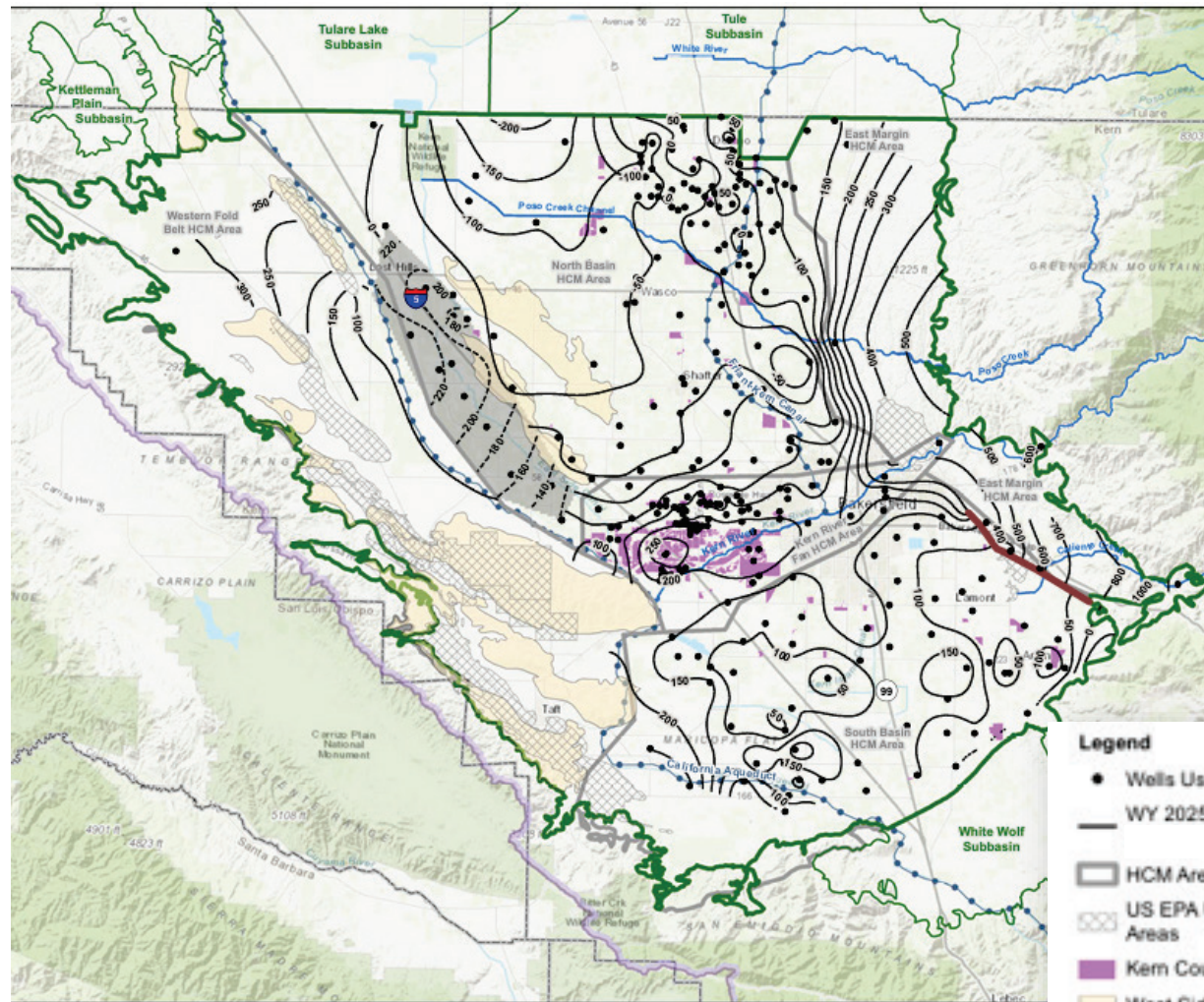
Total Water Supply: 2,721,532 AF

- Groundwater: 45%
- Surface Water (local + imported): 54%
- Recycled/other water: 2%

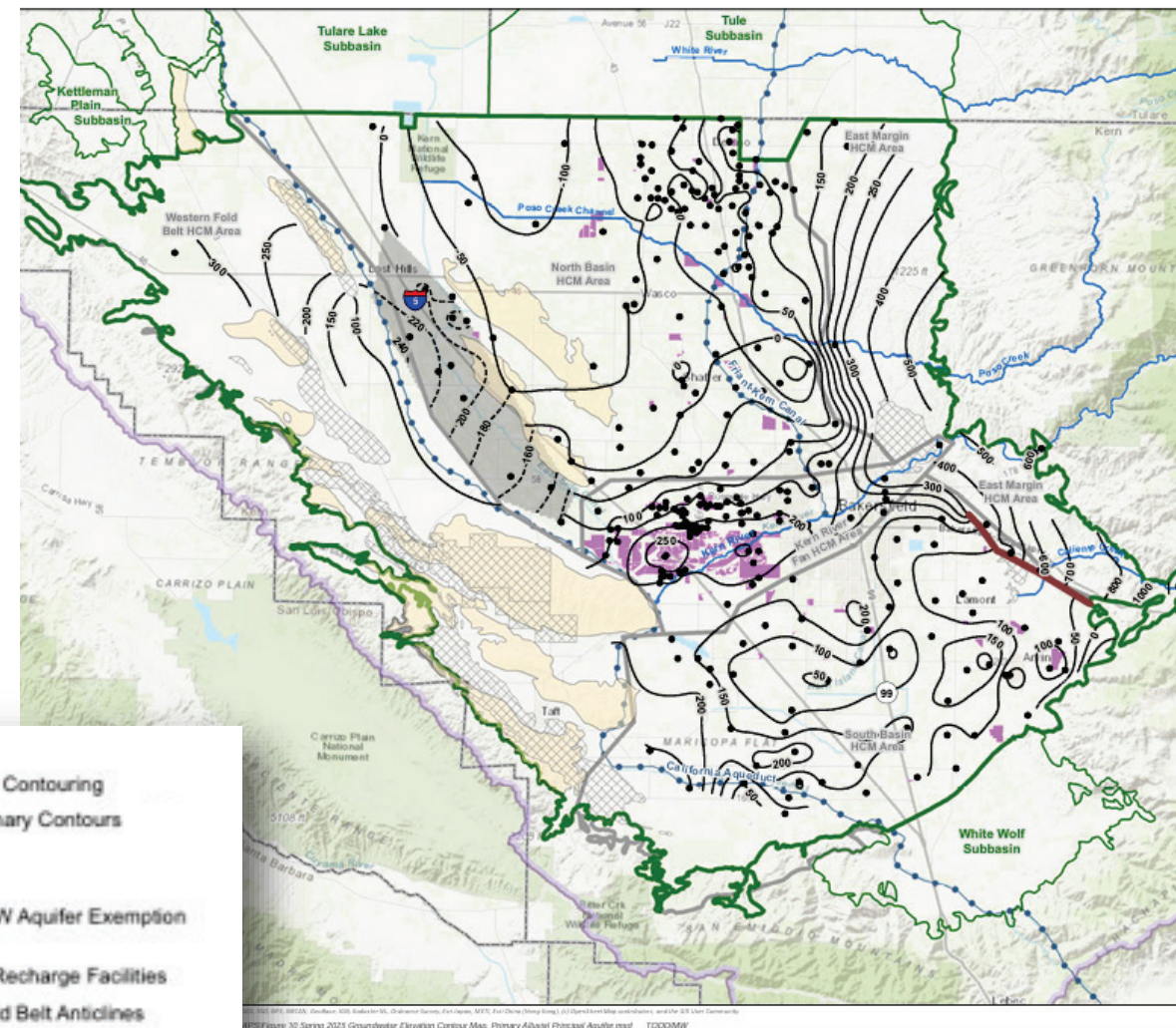
Total Water Supply	Total Water Supply by Volume
Water Source	Acre-ft
Groundwater	1,214,614
Surface Water	1,459,869
Recycled Water	46,517
Reused Water	533
Other Water Source Type	0
Total Water Supply	2,721,532



Groundwater Levels



Fall 2024
Seasonal Low

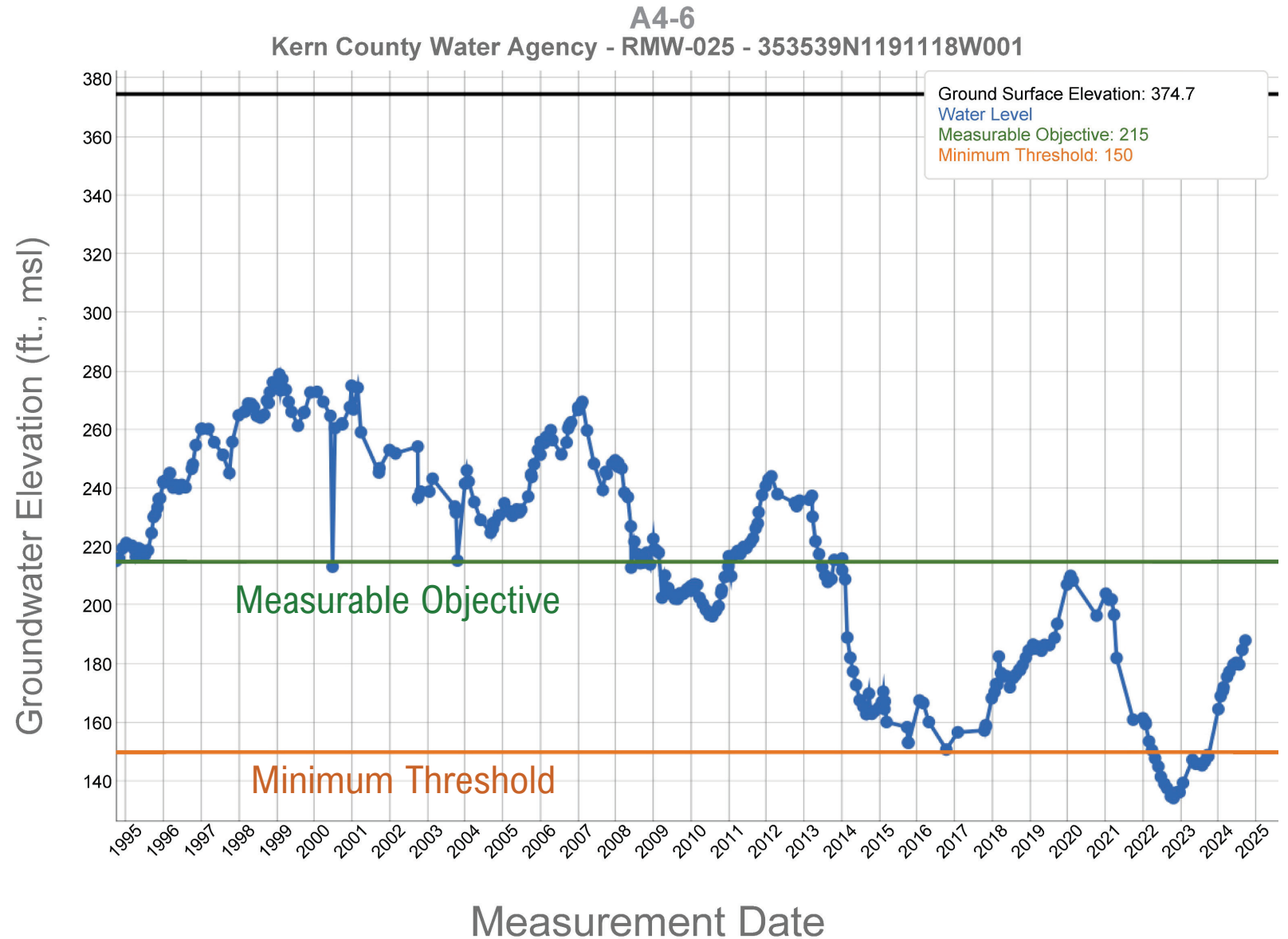


Spring 2025
Seasonal High

Groundwater Elevation Hydrographs included in Appendix A

*Hydrographs for 187
representative monitoring
site (RMS) wells*

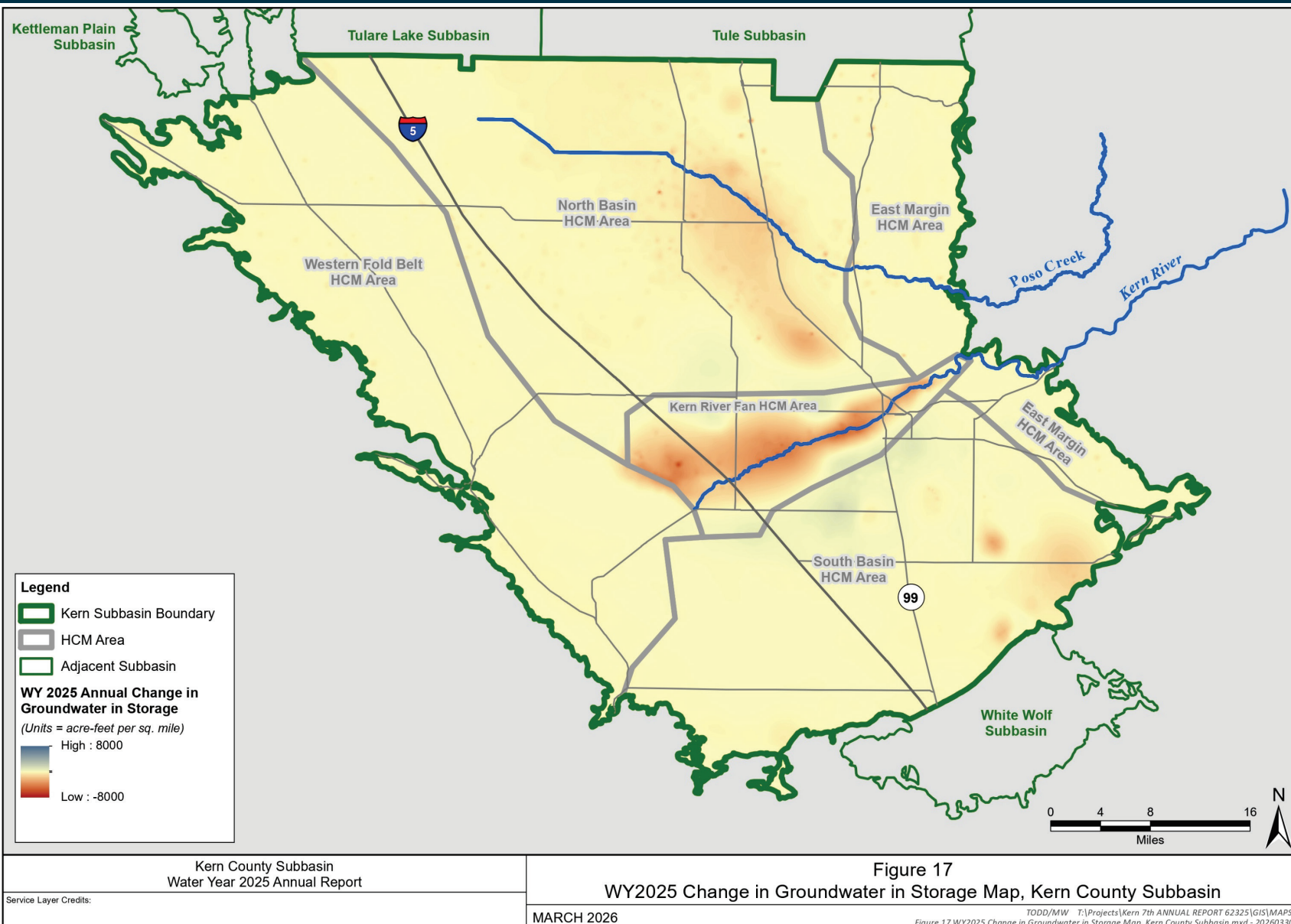
Example:





Change in Groundwater Storage

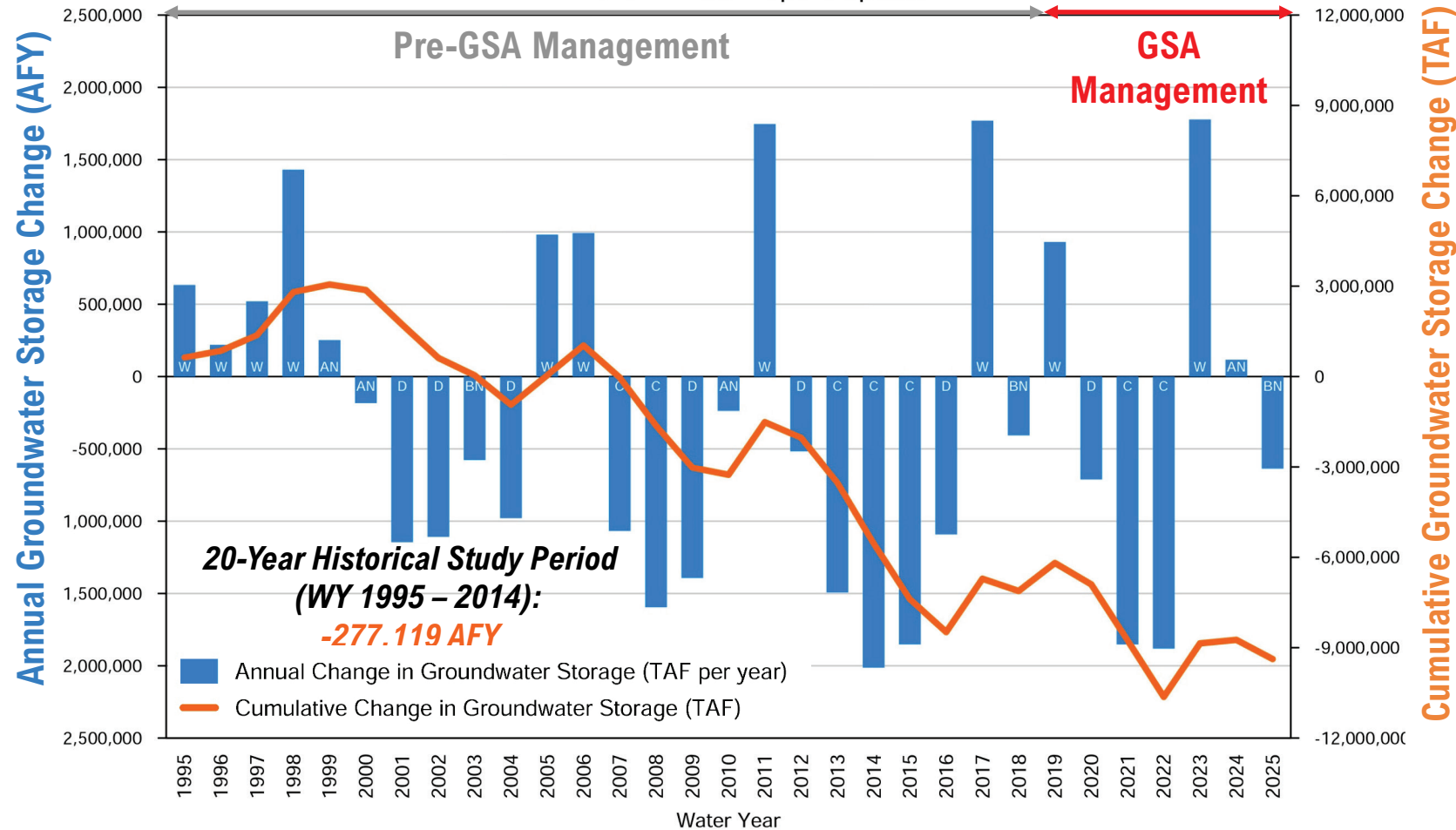
Water Year 2025 Annual Change in Groundwater Storage



- WY 2025 Storage Change: -636,929 AFY
- Decrease in storage, from above normal to below normal water years
- Slight increases away from banking operations as mounds continue spread out
- Subbasin storage is influenced by groundwater banking and recharge

Annual and Cumulative Change in Storage

Kern County Subbasin Change in GW Storage for WYs 1995-2025
WY2025 Annual Report Update



Water Year 2025 Storage Change

- -636,929 acre-feet/year

Water Budget Storage Change

- Average from 2015 to 2025 Water Years
 - -349,133 acre-feet/year
- Average from 2019 to 2025 Water Years
 - -322,648 acre-feet/year



Monitoring Results Compared to Sustainable Management Criteria



Operational Flexibility

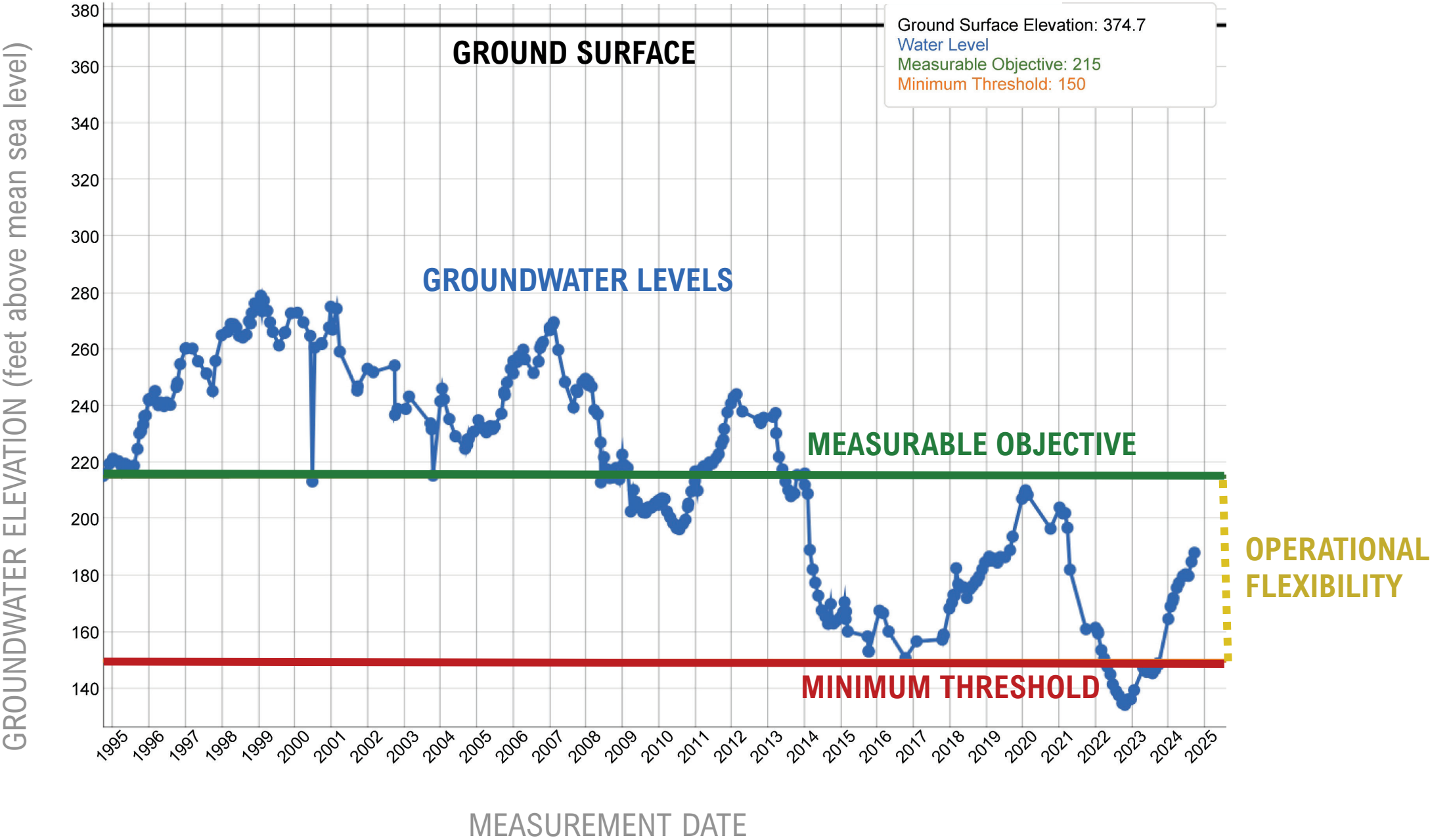
Minimum Threshold: The point at which conditions become unacceptable and could lead to an undesirable result.

Interim Milestone: Incremental targets set every five years to track progress toward sustainability by 2040.

Measurable Objective: Desired operating conditions the Subbasin aims to achieve and maintain.

*An **Undesirable Result** occurs when groundwater conditions cause significant and unreasonable impacts related to one or more of SGMA's sustainability indicators (groundwater levels, quality, and subsidence).*

EXAMPLE HYDROGRAPH



Groundwater Levels

- 3 minimum threshold exceedances of the 186 representative monitoring wells in Water Year 2025
 - 2% of network wells
 - Exceedances located in three different GSAs
- 1 dry well reported, mitigation granted
- Does not trigger an 'Undesirable Result' in the Subbasin
- Most wells show increasing trends over past 1-2 years

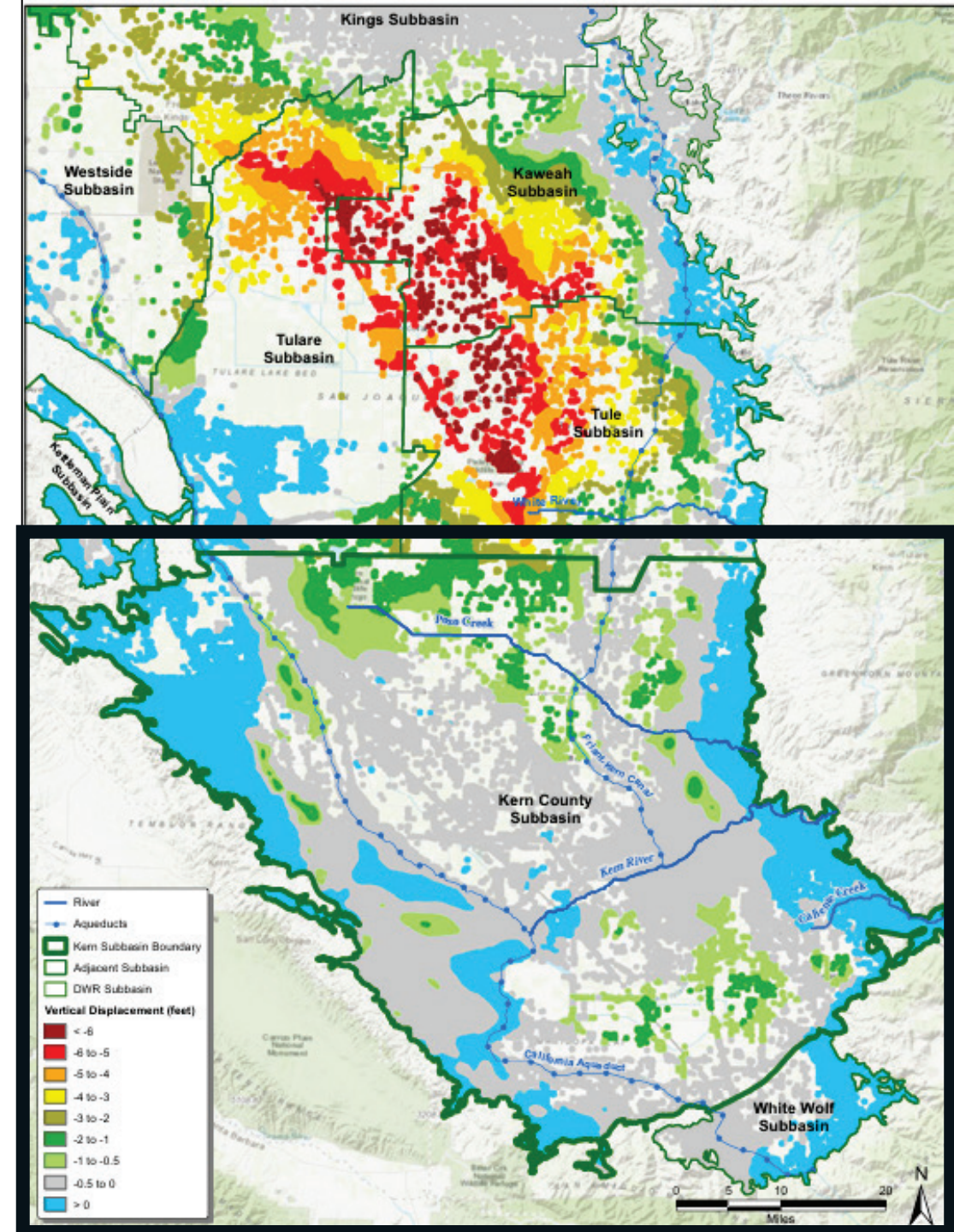


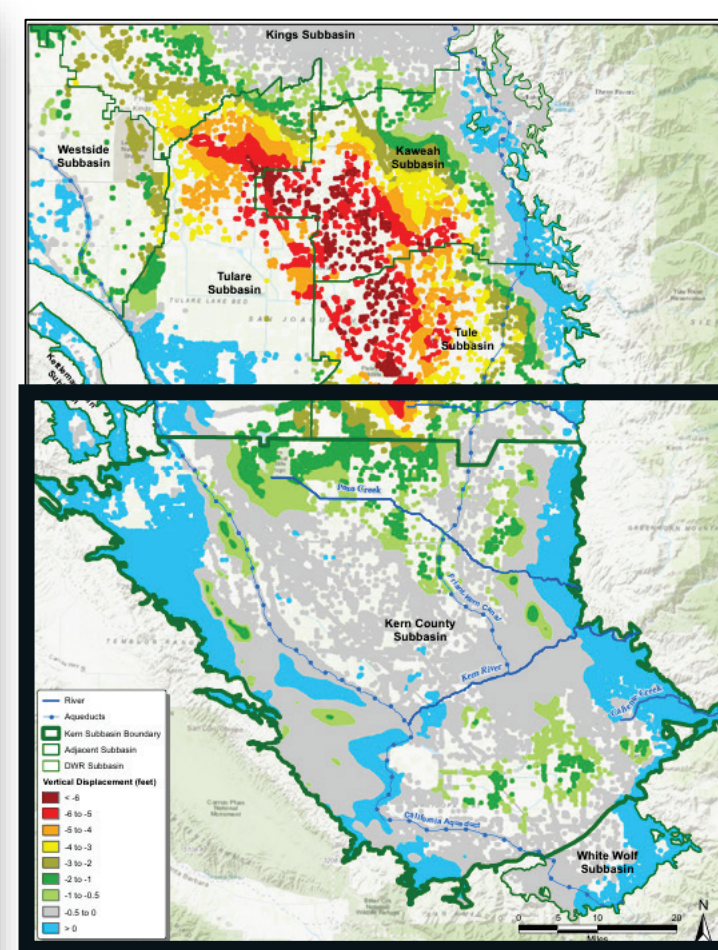
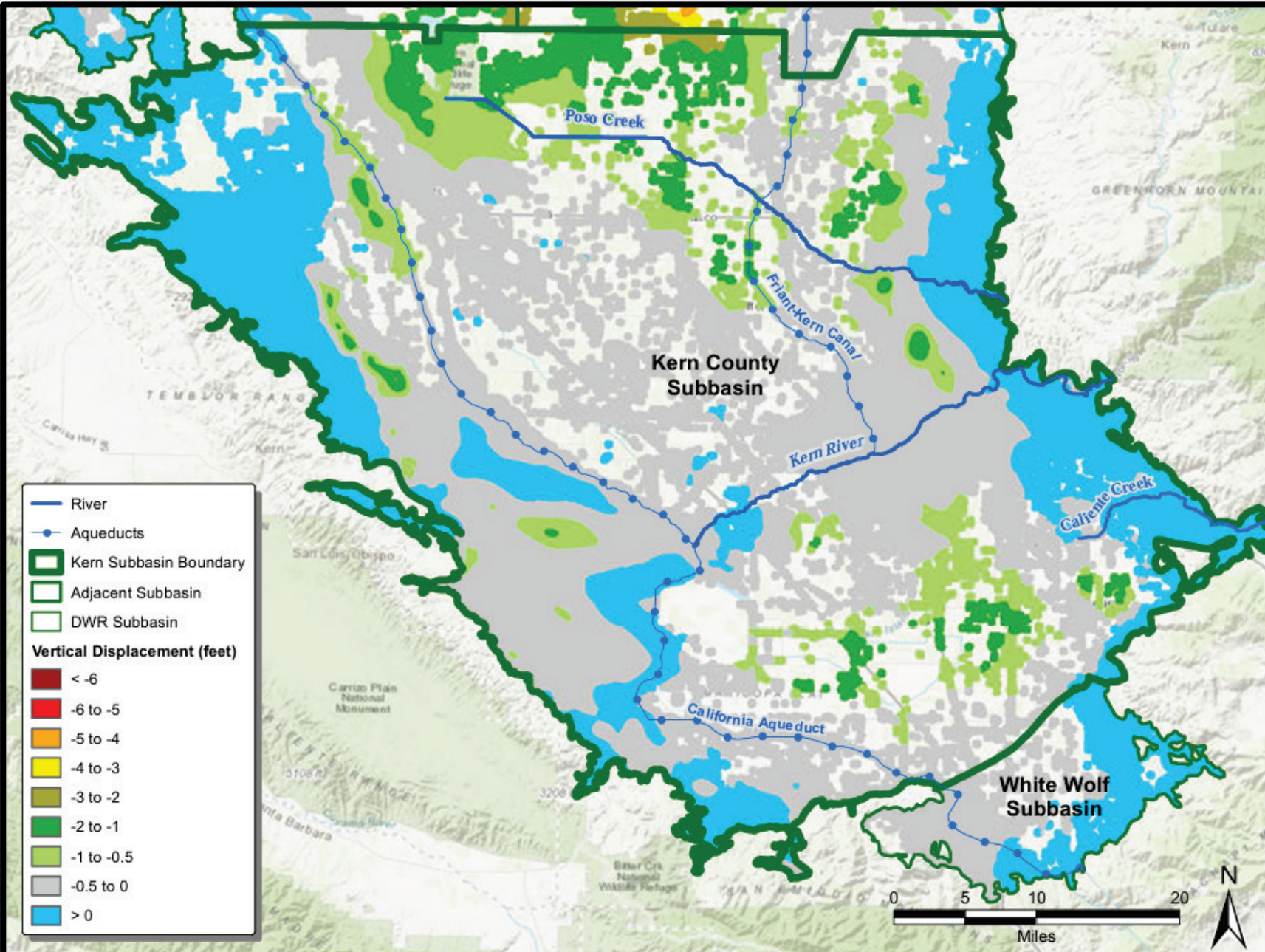
Land Subsidence

Undesirable Result Definition:

The point at which the amount of subsidence, if caused by GSA-related groundwater extractions in the Subbasin, creates a significant and unreasonable impact on surface land uses or critical infrastructure. Loss in functionality that could be mitigated by the GSAs would not be considered an undesirable result.

No 'Undesirable Result' for land subsidence experienced in 2025 Water Year





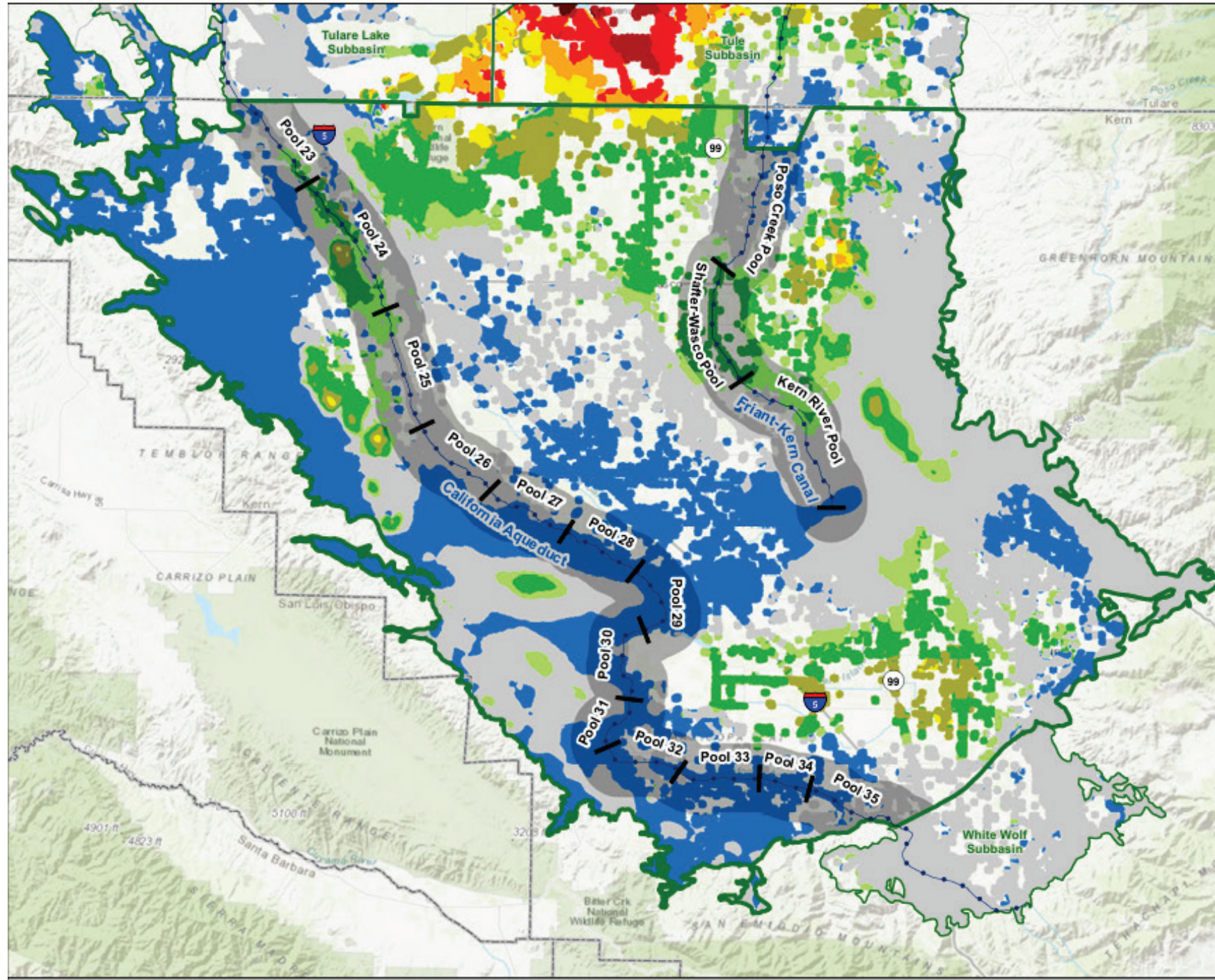
Kern County Subbasin
Water Year 2025 Annual Report

Sources:
https://gis.water.ca.gov/arcgisimg/rest/services/SAR/Kern_Vertical_Displacement_TRE_ALTAMIRA_Total_Since_20150813_20251001/

Figure 24
2015-2025 Total Vertical Displacement based on InSAR Data

MARCH 2026

TODD/MW T:\Projects\Kern 7th ANNUAL REPORT 62325\GIS\MAPS\Figure 24 2015-2025 Total Vertical Displacement based on InSAR Data.mxd - 20260324



Legend

- Regional Critical Infrastructure
 - Regional Critical Infrastructure Pool Delineator
 - Regional Critical Infrastructure Pool Buffer
 - Kern Subbasin Boundary
 - Adjacent Subbasin
- Vertical Displacement (feet)**
(Jan. 1 2024 to Oct. 1 2025)
- < -1
 - 1 to -0.75
 - 0.75 to -0.5
 - 0.5 to -0.4
 - 0.4 to -0.3
 - 0.3 to -0.2
 - 0.2 to -0.1
 - 0.1 to -0.0656
 - 0.0656 to 0
 - > 0

Sources:
<https://gis.water.ca.gov/arcgisimg/rest/services/SAR/>

Figure 26
Regional Critical Infrastructure
with 2024-2025 Subsidence

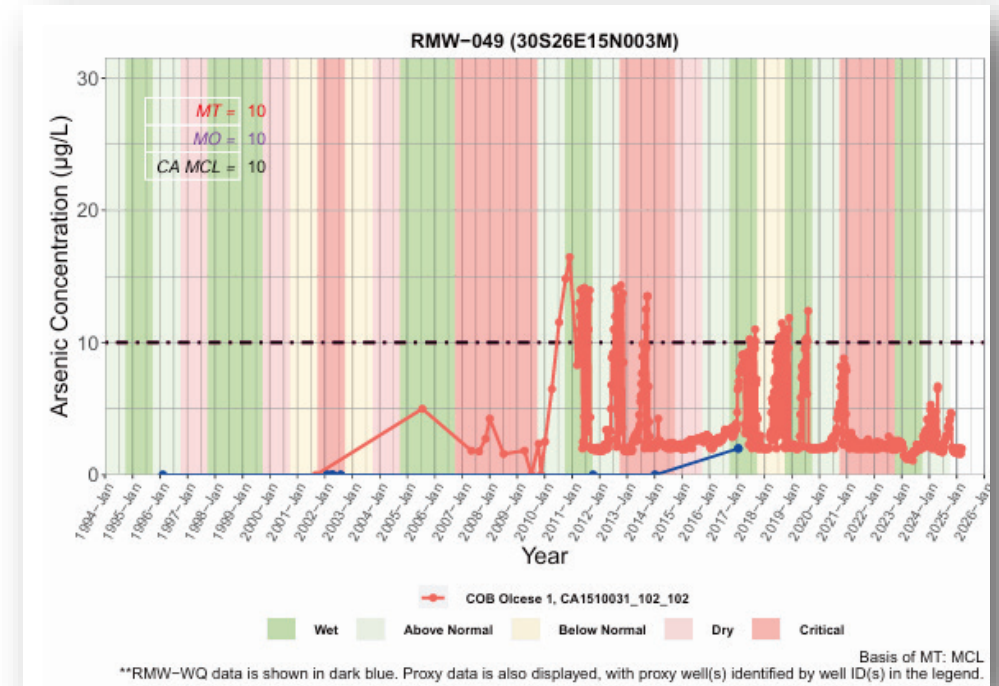
Kern County Subbasin
Water Year 2025 Annual Report



MARCH 2026

Groundwater Quality

- GSAs are responsible for monitoring and avoiding groundwater quality undesirable results due to groundwater management activities
- Constituents of concern: arsenic, nitrate, nitrite, 1,2,3-TCP, uranium, and total dissolved solids
- 55 representative monitoring sites, with additional sites planned to fill data gaps
- Groundwater quality sampling is coordinated with groundwater level measurements to better understand how pumping, recharge, and groundwater conditions may influence constituent concentrations over time.



See Appendix I-4 for groundwater quality representative monitoring wells



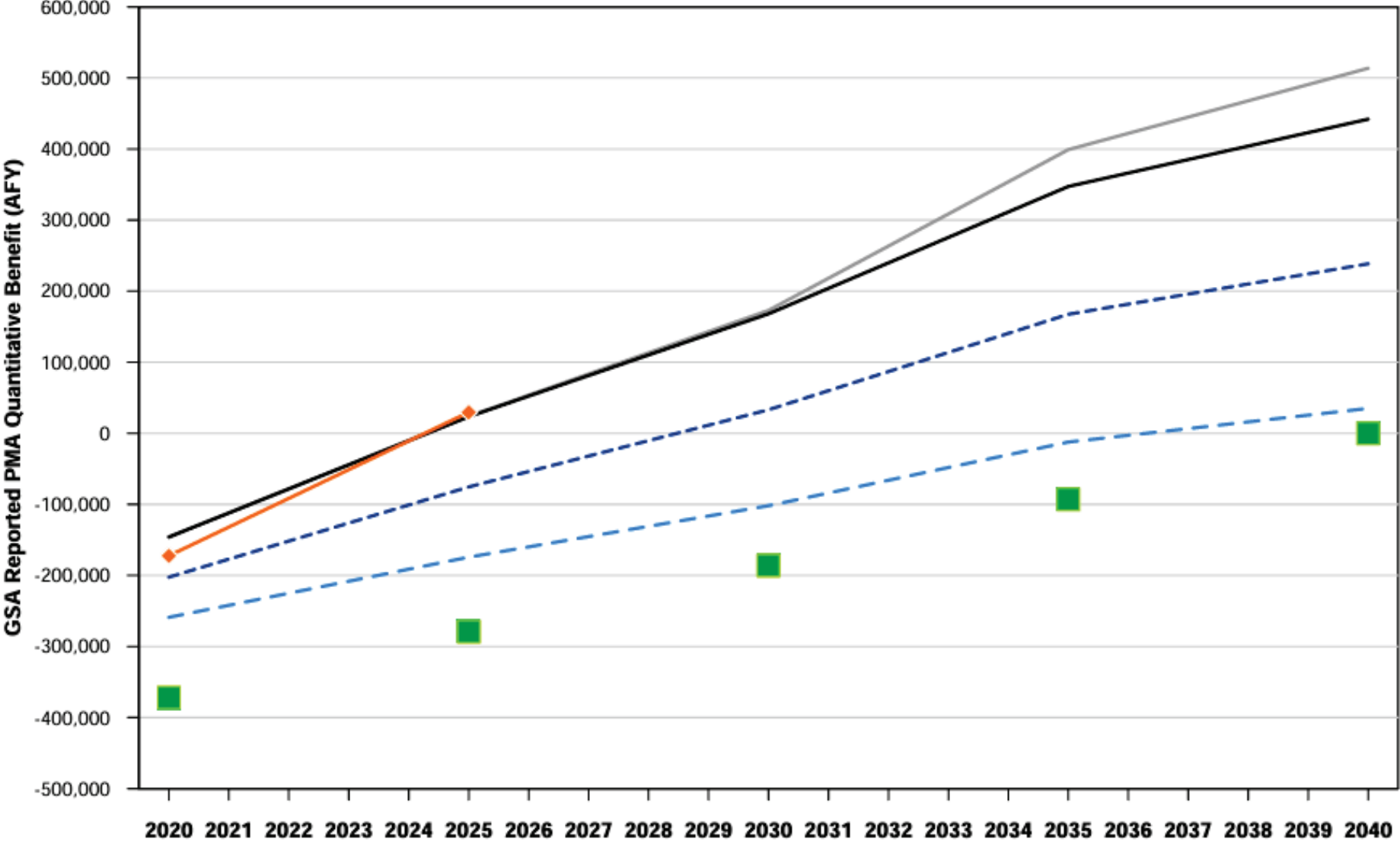
Progress Report

Implementation Progress Reports by GSA

1. Compliance with Sustainable Management Criteria
 - a) GSP Monitoring Activities
 - b) Changes in GSP Monitoring Network
 - c) Progress in Achieving Interim Milestones
 - d) Compliance with Sustainable Management Criteria
2. Implementation of Projects and Management Actions
3. Coordination with Stakeholders
4. Summary of other GSP-related special studies or activities



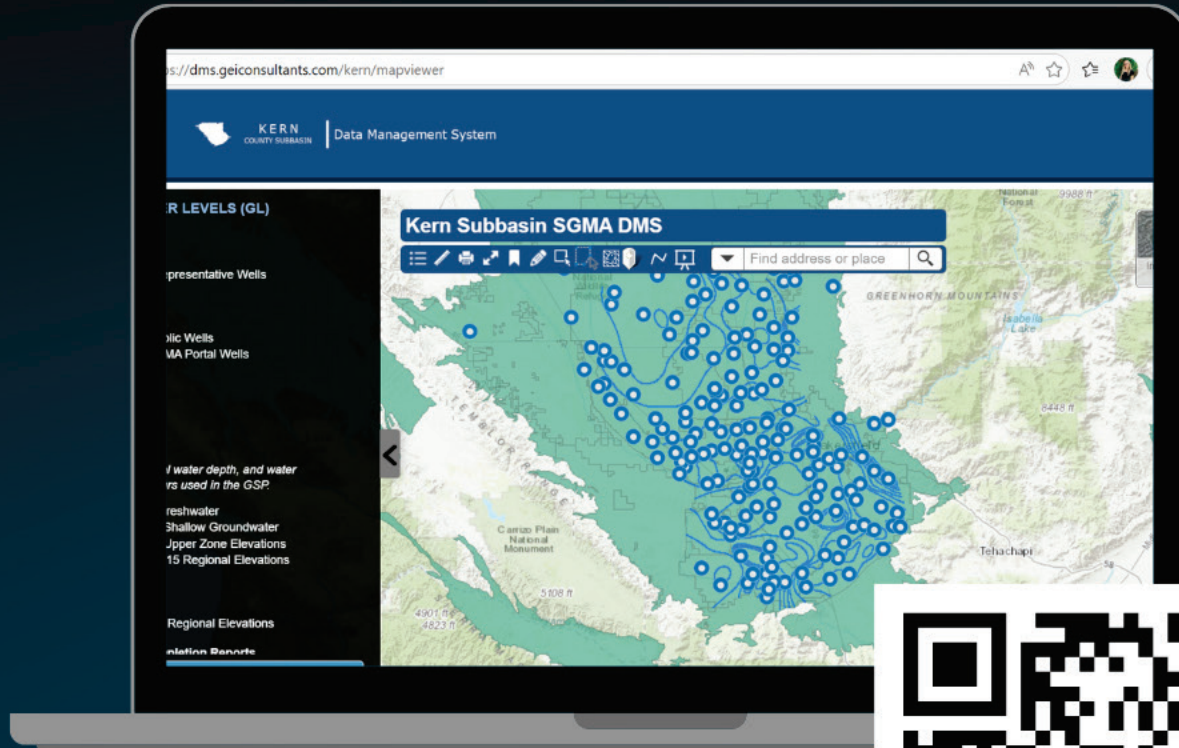
Subbasin Deficit-Reduction "Glide Path" with GSA Reported P/MA Benefits



AFY: Acre-Feet per Year
P/MA: Projects and
Management Actions

— Planned P/MA Deficit Reduction Schedule — With As-Needed P/MAs - - - 50% Implementation
—♦— Reported P/MA Interim Milestones - - - 75% Implementation ■ Deficit Reduction "Glide Path" Milestones

Access the Subbasin's monitoring data and more at the Kern Subbasin DMS



<https://dms.geiconsultants.com/kern/>



DMS: Data Management System

Stay Engaged

➡ Sign Up for Emails

KernGSP.com

➡ Visit Community Resources Hub

<https://kerngsp.com/community-resources/>

➡ Attend Meetings & Events

<https://kerngsp.com/stay-engaged/>
<https://kerngsp.com/events/>

➡ Follow Us on Social Media

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Facebook: Kern County Subbasin



Q&A





THANK YOU