

# Spanish Language Interpretation In Person

## Interpretación en español en persona

Por favor levante la mano si necesita auriculares o si tiene problemas técnicos.

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Please raise your hand for a headset or if you have technical difficulties



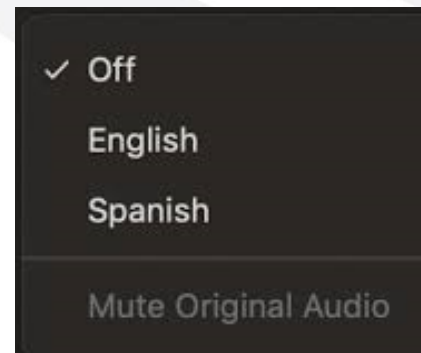
## Opción de Interpretación en Zoom

Seleccione el icono de interpretación desde los controles de la pantalla

- Haga clic en “Interpretation” en el menú
- Seleccione español (*Spanish*)
- Seleccione la opción para poner el audio original en silencio (*Mute Original Audio*)

Si necesita ayuda técnica, envíe un mensaje electrónico a

**Board.Clerk@waterboards.ca.gov**



## Language Interpretation through Zoom

Click the Interpretation icon in your meeting controls

- Navigate to Language Channels
- Select Spanish OR English
- Mute Original Audio

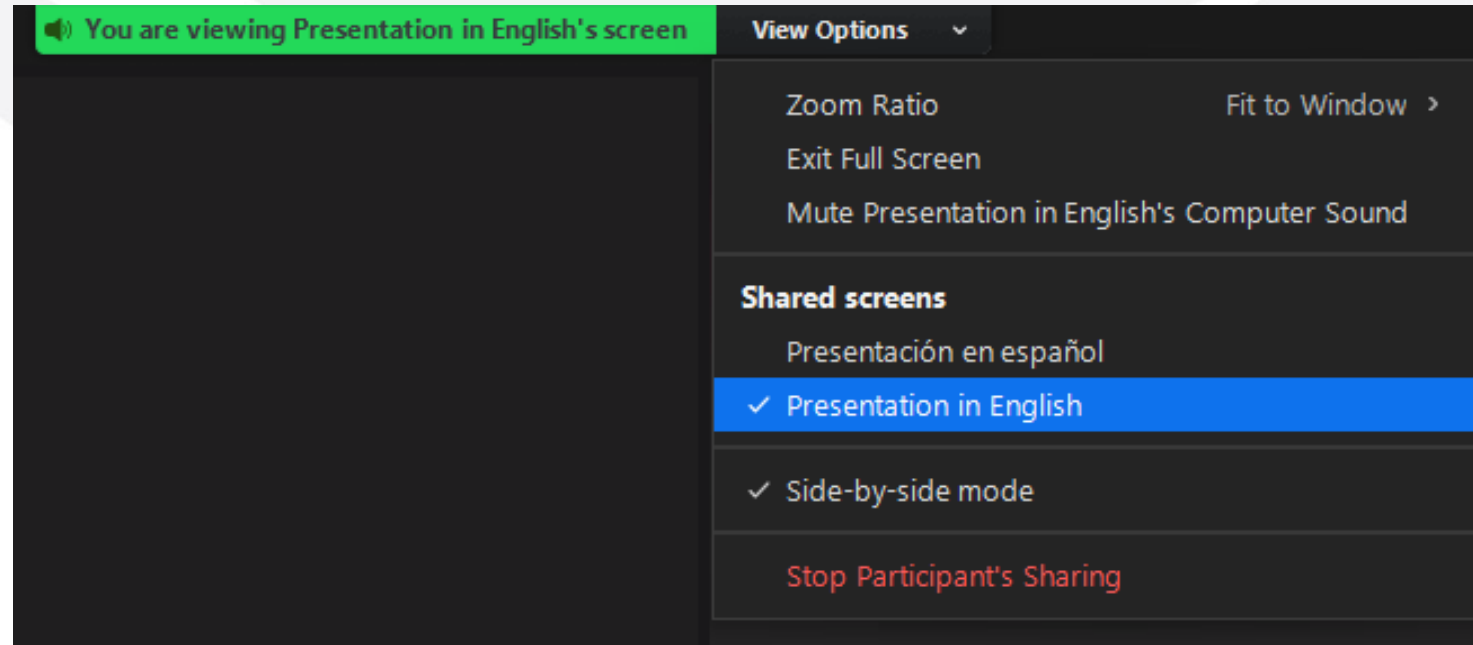
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Haga clic en “View Options” en la parte superior de su pantalla y seleccione “Presentación en español” O “Presentation in English”

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## View Options on Zoom

Click on View Options at the top of your screen and select "Presentación en español" or "Presentation in English."

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# Tulare Lake Probationary Hearing

Public Hearing for Proposed  
Designation of Tulare Lake Subbasin  
as a Probationary Basin

April 16, 2024



Office of Sustainable Groundwater Management



# Hearing Agenda

- 1. Comments from elected officials and California Native American Tribes**
- 2. State Water Board staff presentation**
- 3. Tulare Lake GSAs panel**
- 4. Other panels**
- 5. Public comments**
- 6. Board consideration and potential vote on resolution**

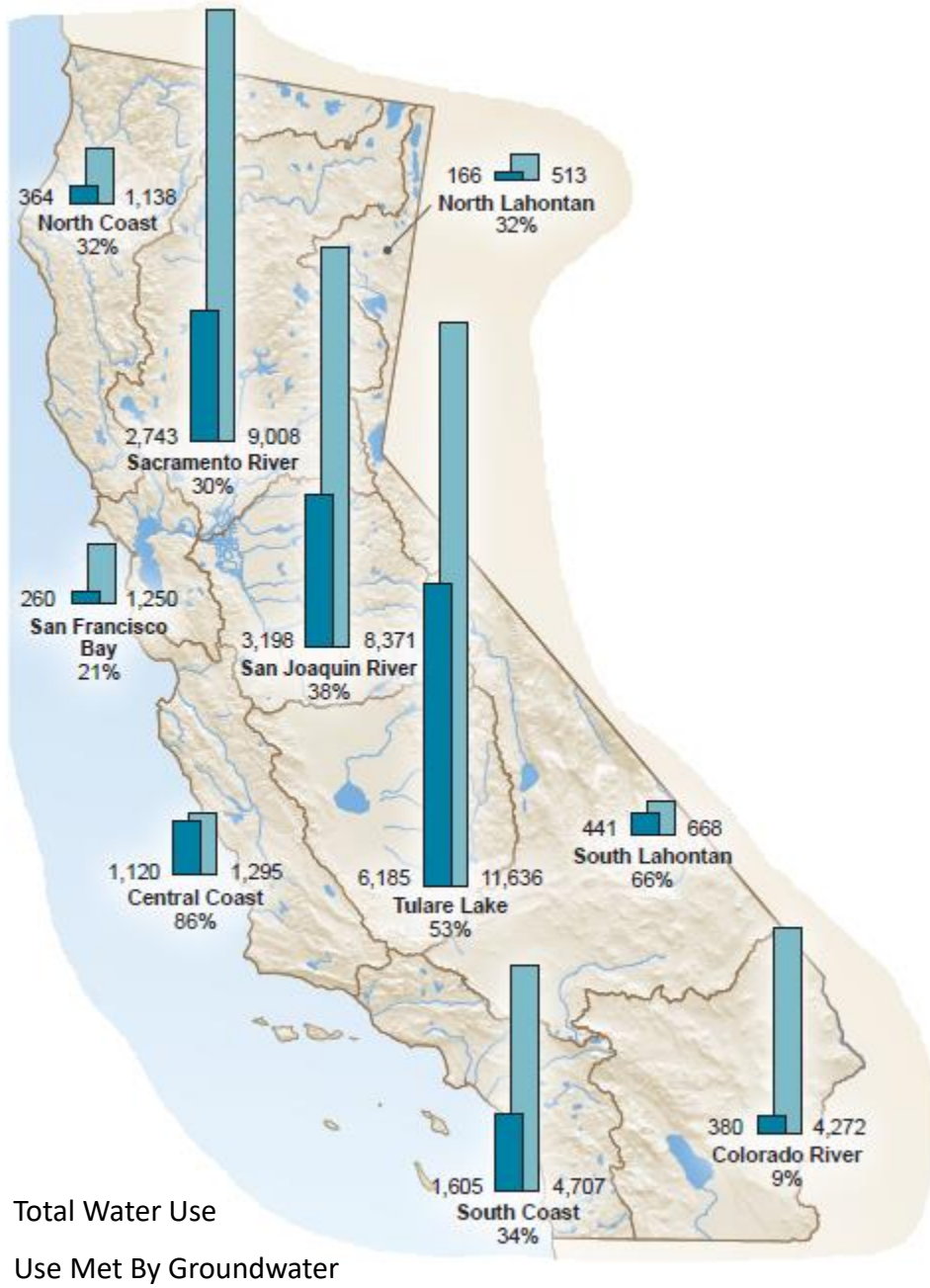
The background of the slide is a photograph of a river. In the foreground, there is a large concrete dam with water cascading over it, creating white foam. The river continues into the distance, bordered by a dirt path and some trees. The overall scene is natural and somewhat overcast.

# Staff Presentation

- 1. State Water Board SGMA Intervention Basics**
- 2. Tulare Lake Basin Background**
- 3. SGMA Process in Tulare Lake Subbasin**
- 4. Sustainability Plan Deficiencies and Likelihood of Future Impacts to Beneficial Uses**
- 5. Current Status of Tulare Lake Subbasin**
- 6. Staff Recommendations to the Board**
  - Designate the Basin as Probationary Without Exemptions**
  - Requirements for Groundwater Extractors**
  - Probation Next Steps**
  - Board Considerations for Lifting Probation**

A scenic landscape featuring a body of water, reeds, and a sunset sky with clouds. The sun is low on the horizon, casting a warm glow over the scene. The water is calm, reflecting the sky and the surrounding vegetation. In the foreground, there are tall reeds and grasses. In the background, there are mountains and a city skyline.

# State Water Board SGMA Intervention Basics



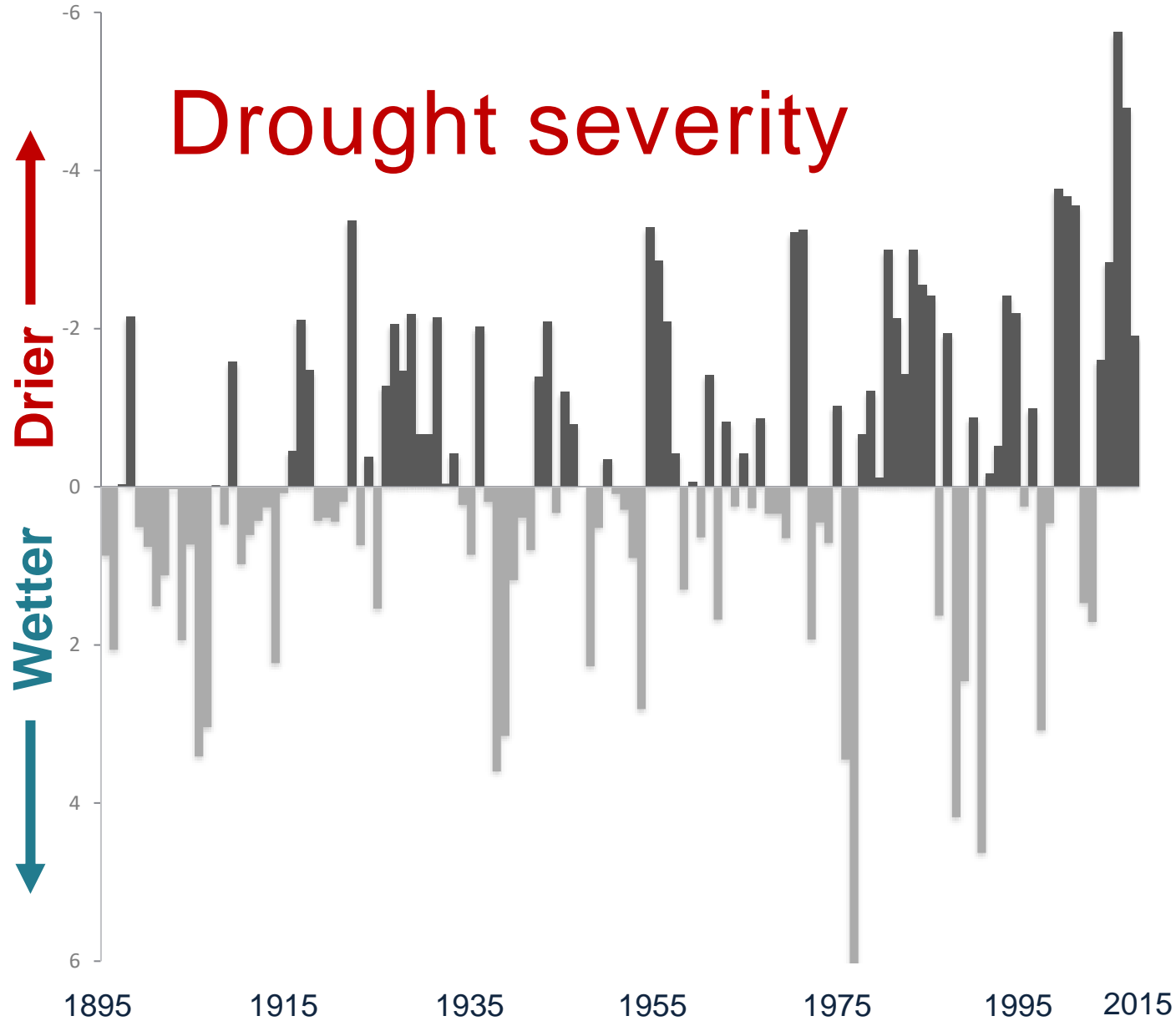
# 80%

of Californians rely on  
**GROUNDWATER**  
 for part of their water supply

■ Total Water Use  
■ Use Met By Groundwater

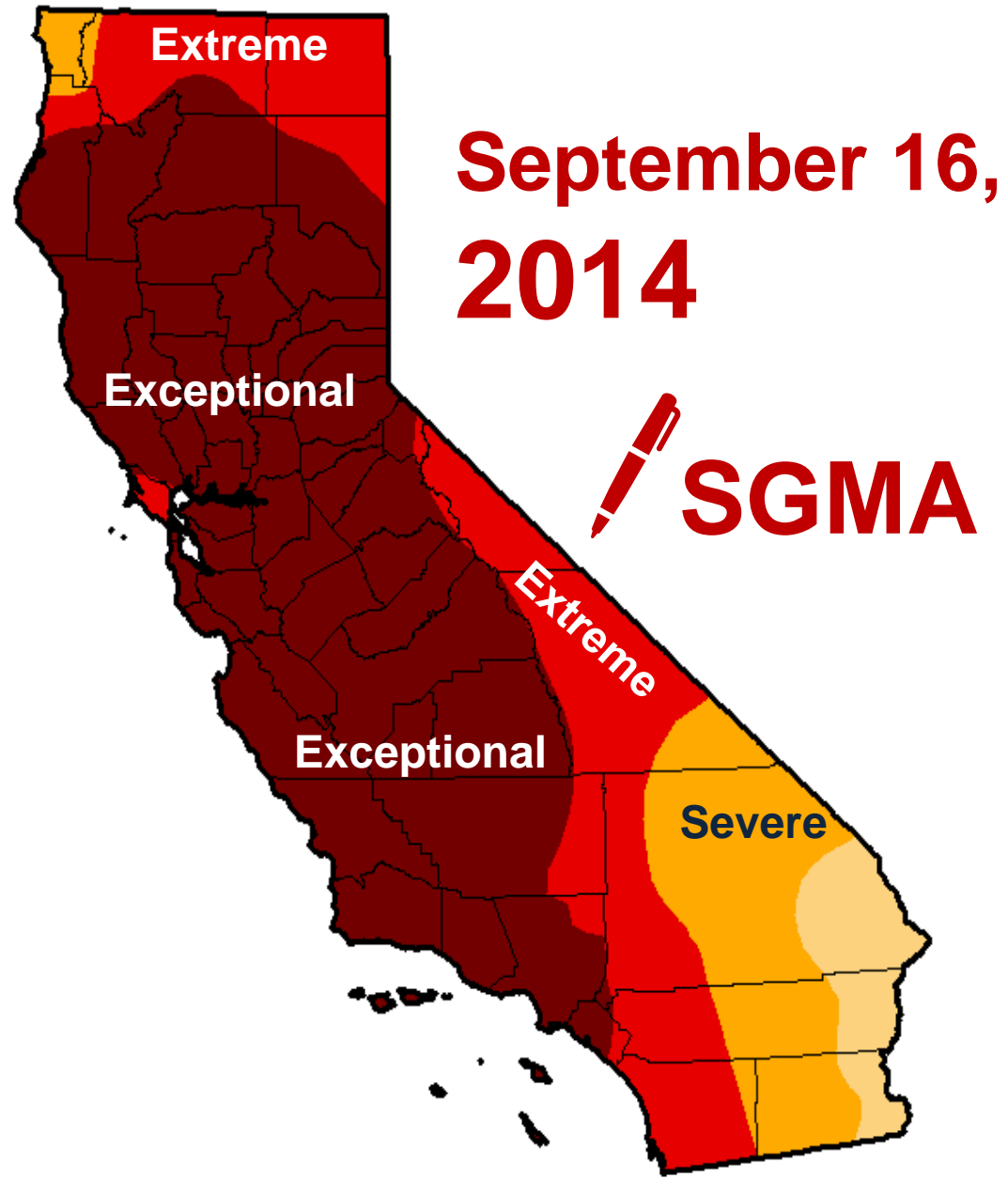
Source: California Water Plan Update 2013





Source: PDSI from NOAA

Source: NOAA

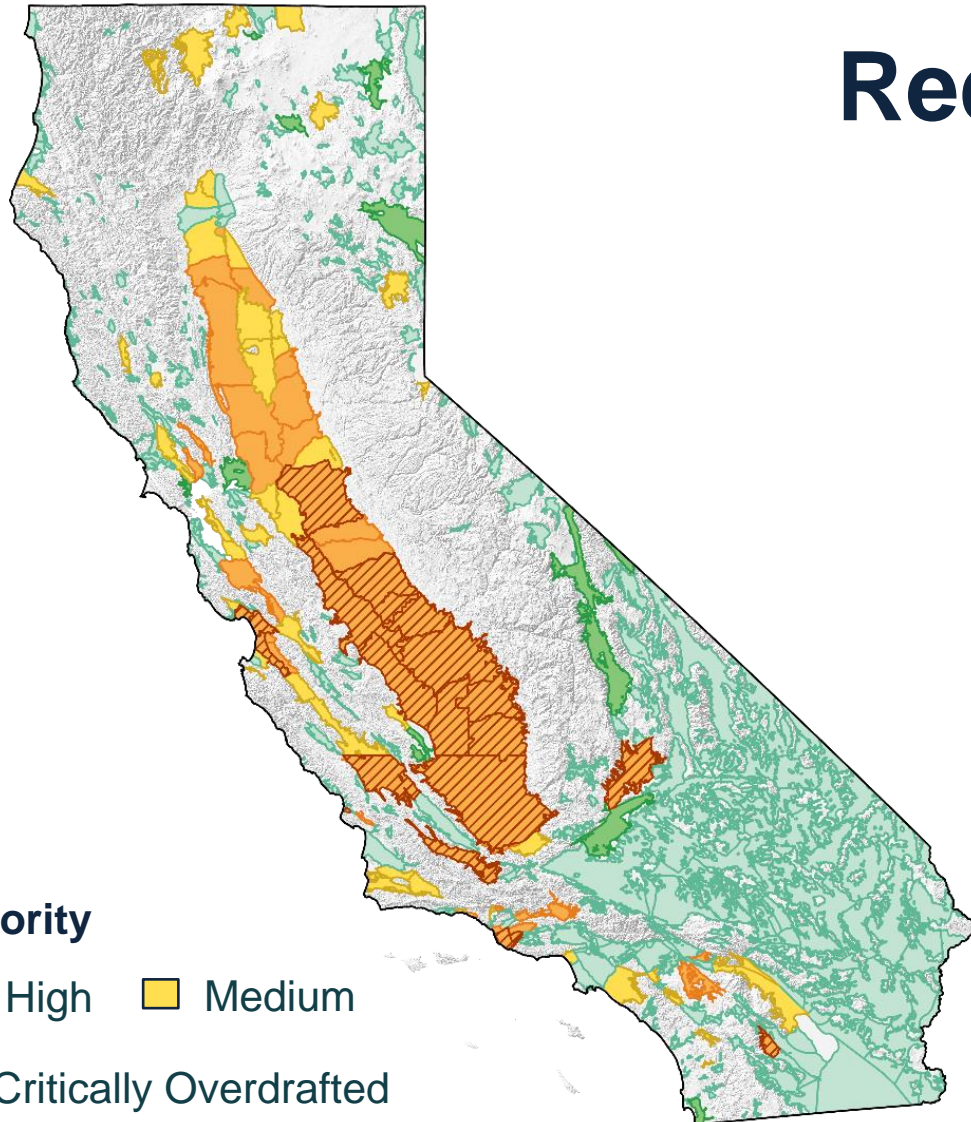


Source: California Drought Monitor

# Sustainable Groundwater Management Act

## Requirements for SGMA basins:

- Groundwater sustainability agencies
- Groundwater sustainability plans
  - Sustainable management criteria
- Annual reports
- Five-year updates to GSPs
- Achieve sustainability goal by 2040/2042



# What is Sustainability under SGMA?

Basin operated within its *sustainable yield* and not experiencing *undesirable results*, which are the significant and unreasonable occurrences of:



Groundwater  
Level Declines



Land  
Subsidence



Seawater  
Intrusion



Degraded  
Quality



Land  
Subsidence

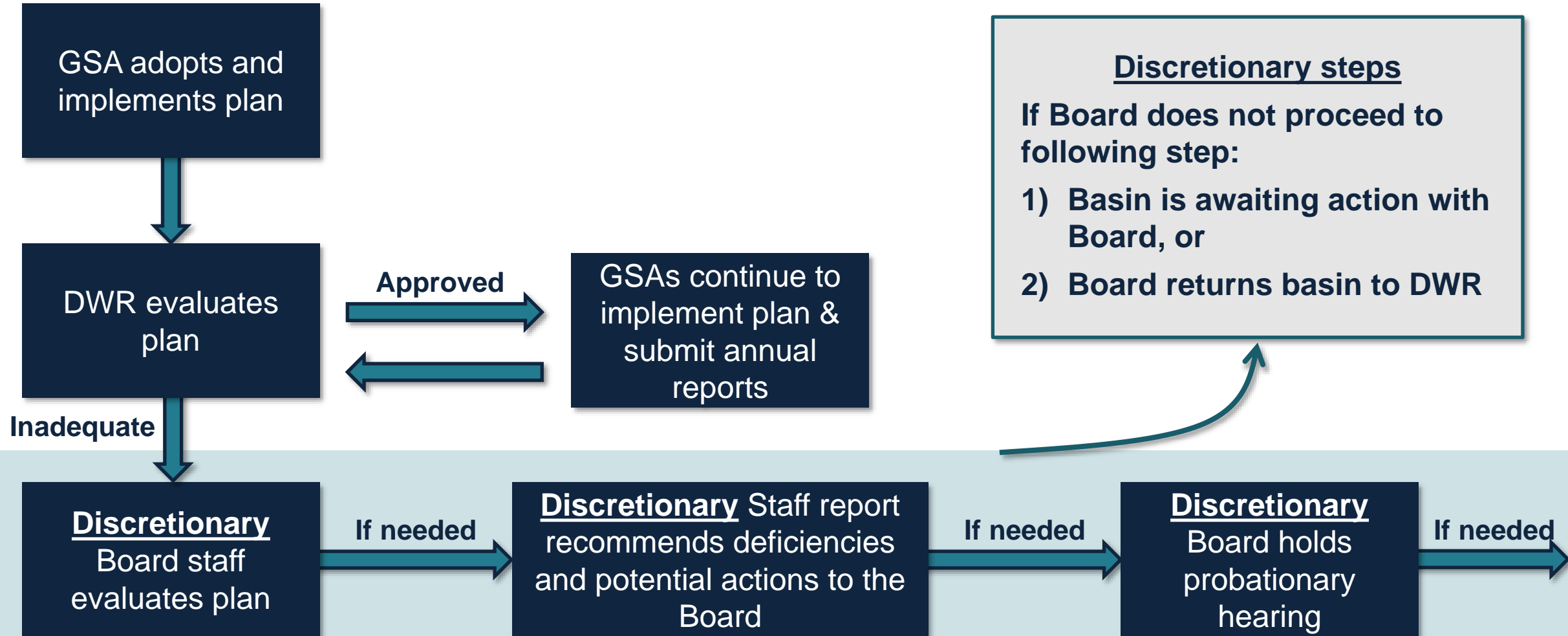


Surface Water  
Depletion

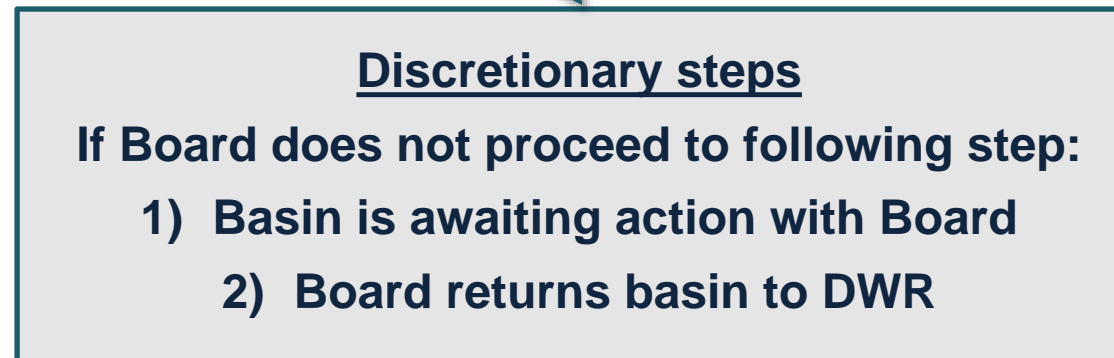
**...caused by groundwater conditions occurring throughout the basin.**

**GSAs aren't required to address undesirable results that occurred prior to 2015**

# GSP Review Process: DWR and State Water Board Roles



# GSP Review Process: DWR and State Water Board Roles



# Probationary Hearing

- **Requires a triggering event (such as an "inadequate plan" finding by DWR)**
- **Discretionary**
- **Public process**
- **Board identifies plan deficiencies & potential actions to fix them**
- **Determination is made via a Resolution**



# Probationary Hearing Resolution

- **Board can choose to**
  - **Adopt a probationary hearing resolution, or**
  - **delay the decision, or**
  - **return the basin back to DWR oversight**
- **Resolution can be amended in the future, e.g., to:**
  - **Make exclusions**
  - **Update requirements**
  - **Modify deficiencies**



# Probation: Key Points

- **Lasts only as long as it takes for GSAs to fix issues**
- **Does not limit GSA authorities**
- **Extractors begin reporting & paying fees**
- **No Board-required pumping limits at this phase**
- **If issues aren't fixed after 1 year, Board can develop and adopt an interim plan**

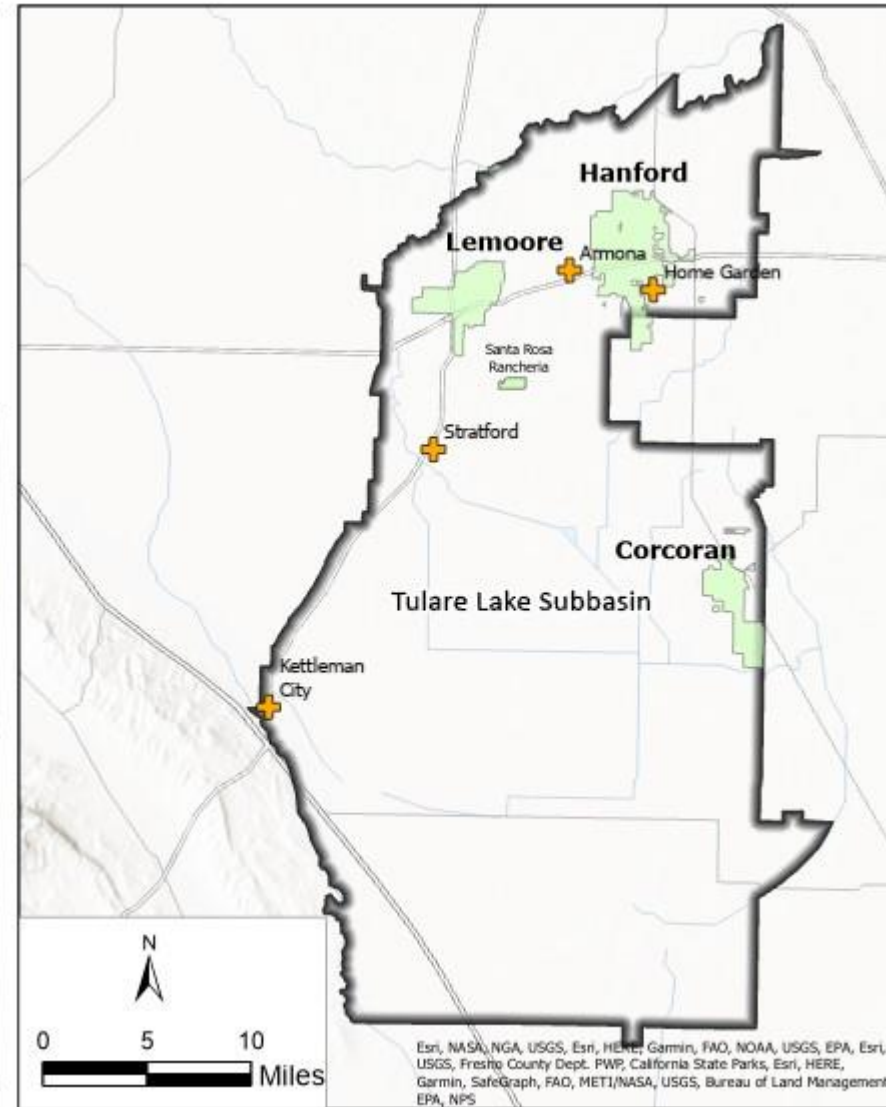




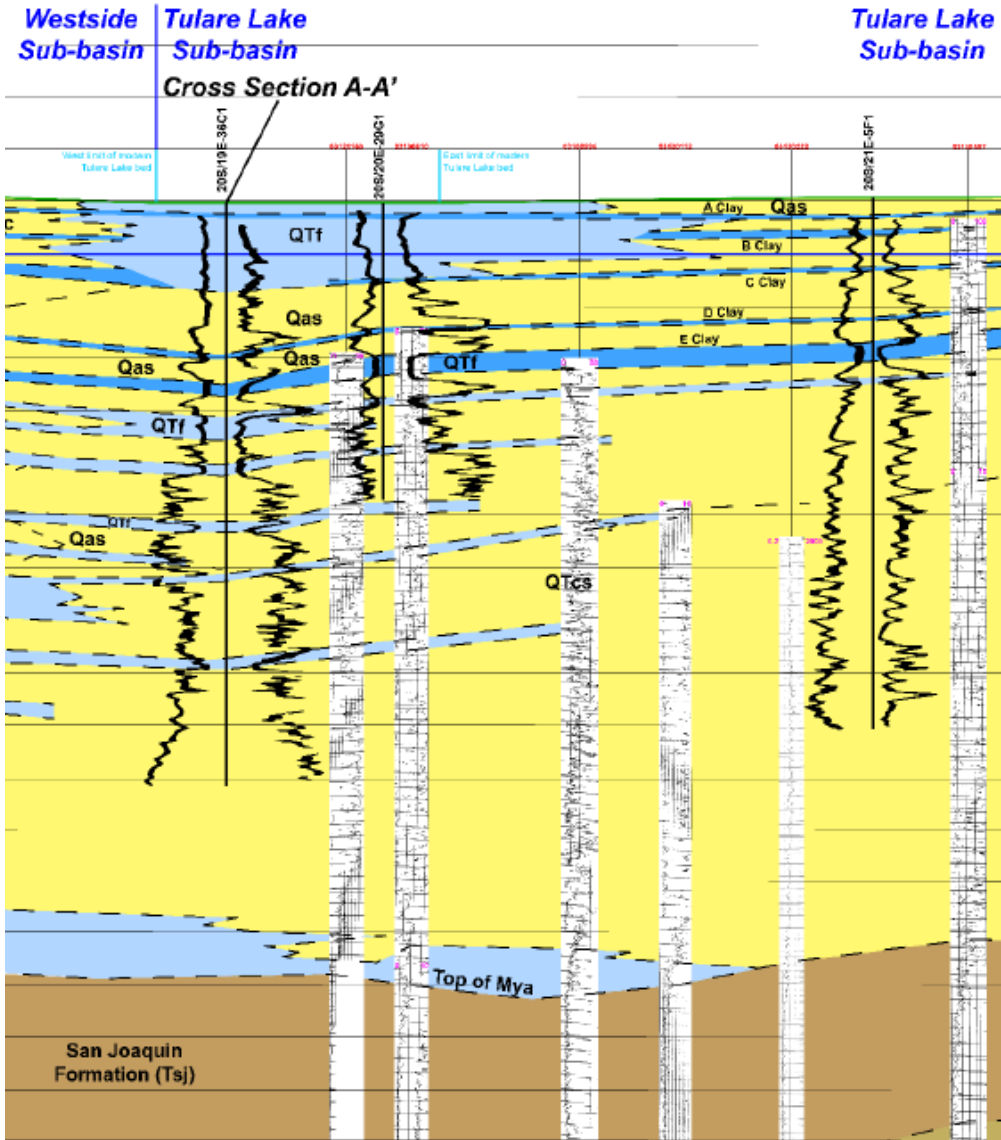
A scenic view of a lake at sunset. The sky is filled with soft, golden clouds, and the sun is low on the horizon, casting a warm glow over the water. In the foreground, tall reeds are visible on the left and right sides. In the center of the lake, a circular structure, possibly a well or a small island, is partially submerged, with water splashing around its base. The overall atmosphere is peaceful and serene.

# Tulare Lake Subbasin Background

# Tulare Lake Subbasin: Physical Setting



# Tulare Lake Subbasin: Hydrogeologic Setting



A clay

E clay

**A zone aquifer –**  
perched above A clay,  
unconfined, limited spatial  
extent

**B zone aquifer –**  
between A clay and Corcoran  
clay, semi-confined to confined

**C zone aquifer –**  
confined, below Corcoran Clay  
(E clay)

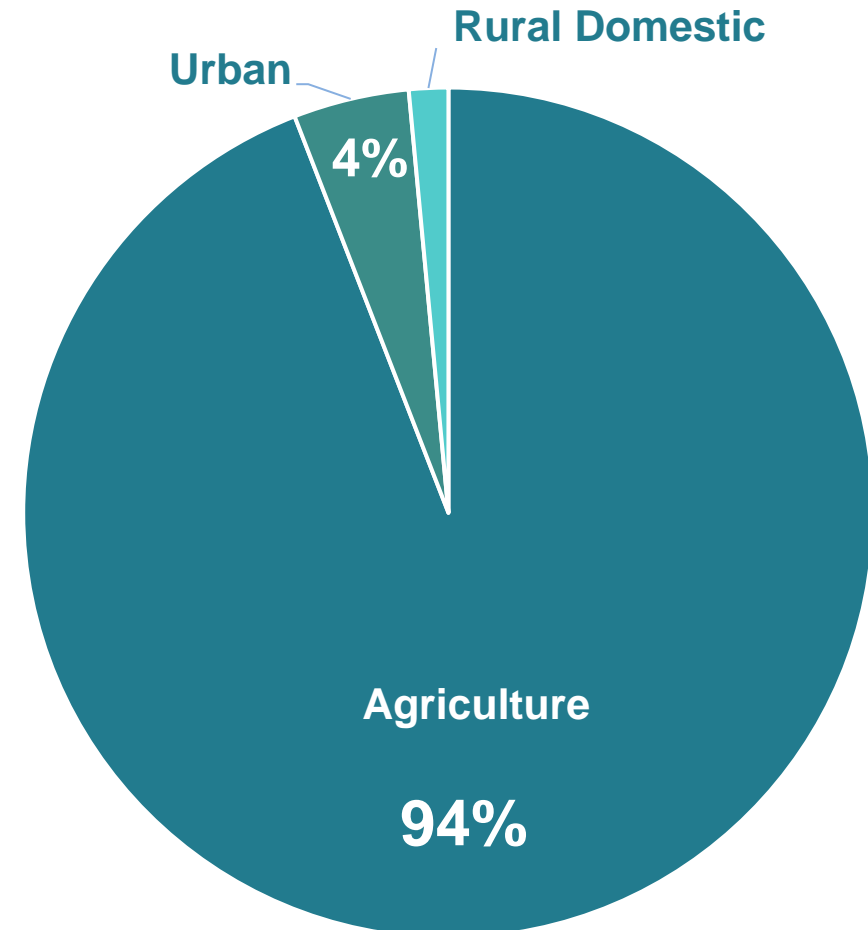
# Tulare Lake Subbasin: Beneficial Uses

## Beneficial Uses of Groundwater

- **Drinking water**
  - **Urban: Corcoran, Lemoore, Hanford**
  - **Rural domestic: around 2,000 domestic wells\***
- **Agriculture**
- **Environmental**
  - **Various potential unquantified uses**

\*Data source: Estimated by GSAs from records from the U.S. Geologic Survey and Kings County

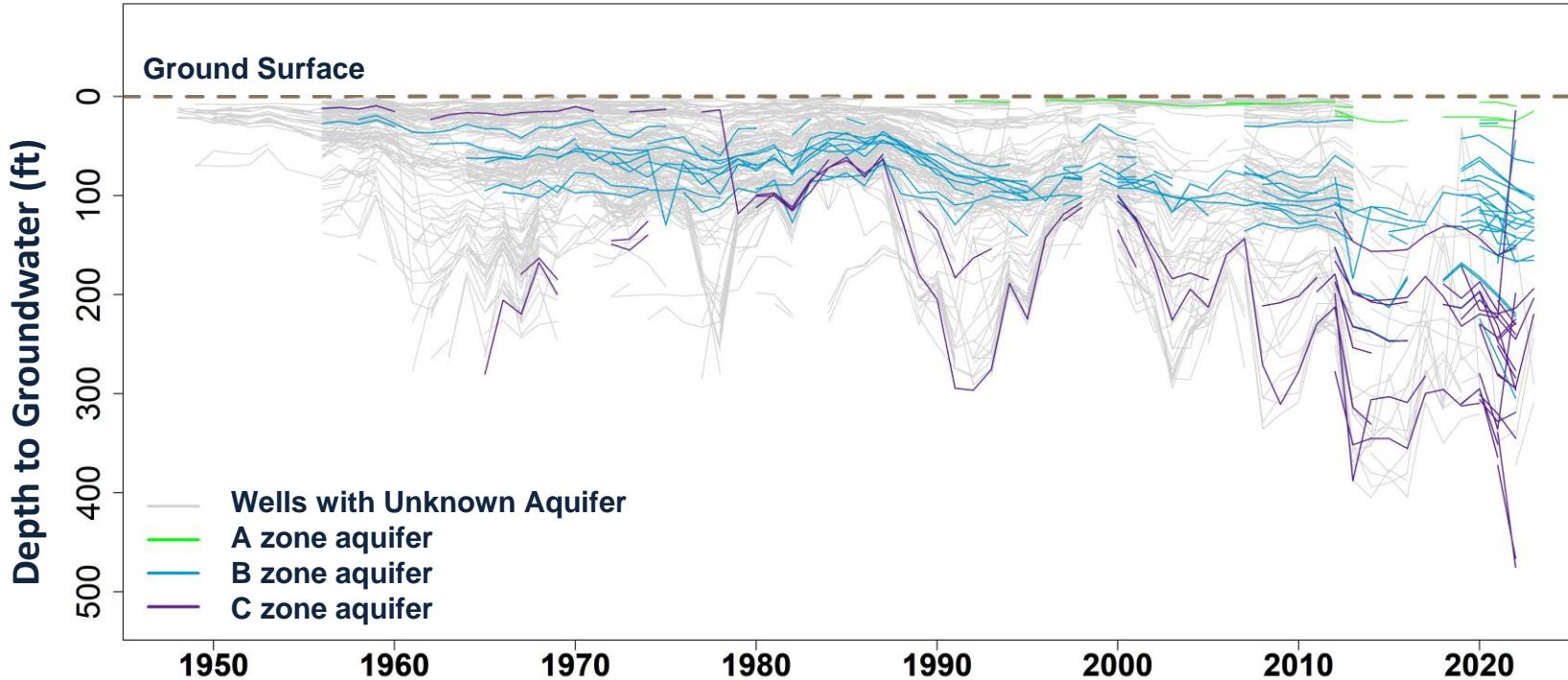
## Groundwater Extractions October 2021 - September 2022



Data source: WY 2022 Tulare Lake Subbasin Annual Report

# Tulare Lake Subbasin: Groundwater Overdraft

Tulare Lake Subbasin – Depth to Groundwater (Spring 1948 – Spring 2023)



**Longterm subbasin  
sustainable yield:  
299,220 acre-feet per year\***

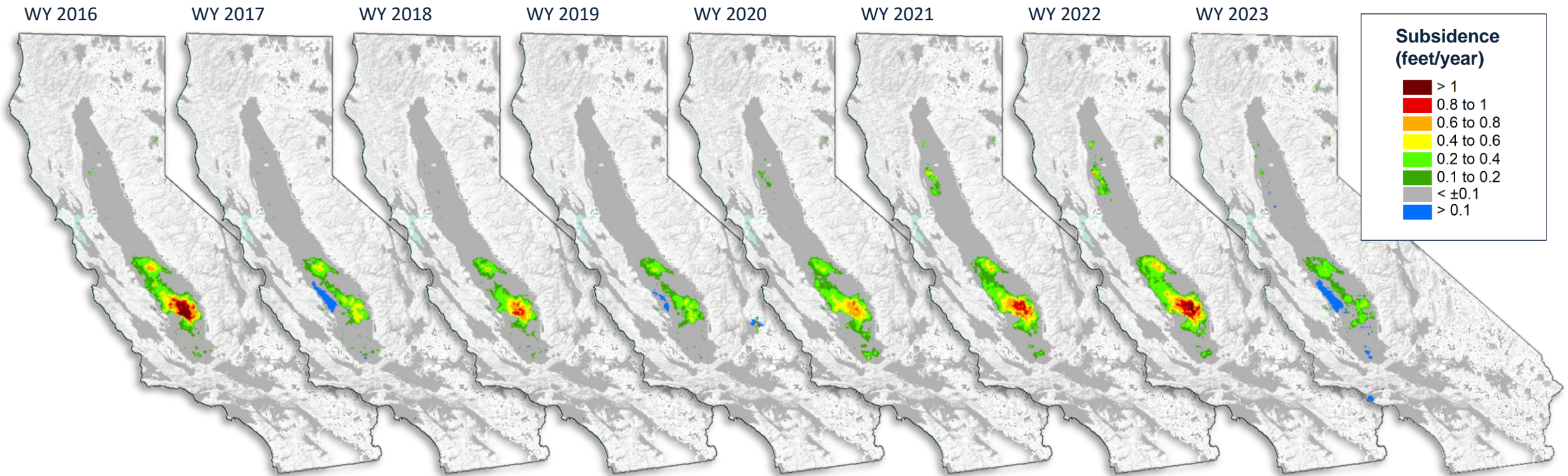
**Total average annual  
groundwater extraction,  
2019 - 2022:  
514,309 acre-feet per year\*\***

**Average subbasin  
overdraft, 2019 - 2022:  
215,089 acre-feet per year**

\*Data source: 2022 Amended GSP and Addendum

\*\*Data source: basin annual reports

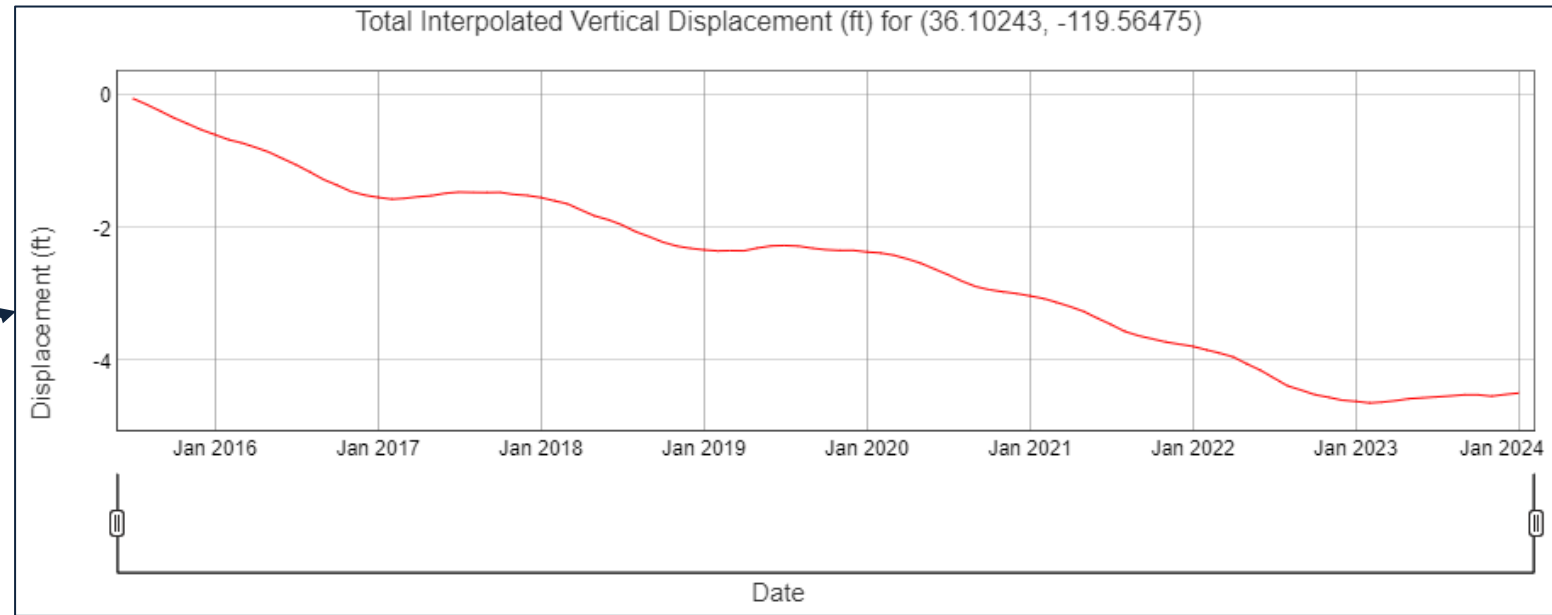
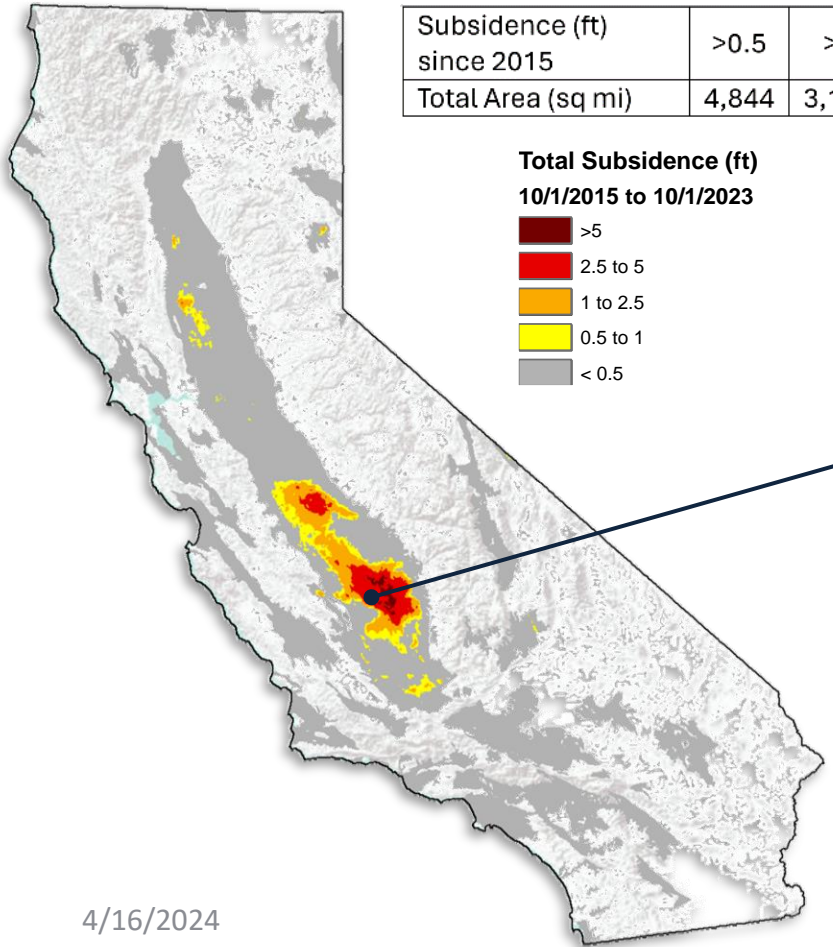
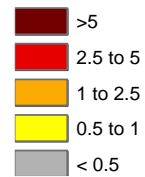
# Recent Subsidence Data



# Recent Subsidence Data

Subsidence (ft) since 2015	>0.5	>1	>2.5	>5
Total Area (sq mi)	4,844	3,123	1,293	159

**Total Subsidence (ft)**  
10/1/2015 to 10/1/2023



# SGMA Process in Tulare Lake Subbasin





# Tulare Lake Subbasin: GSAs and GSP

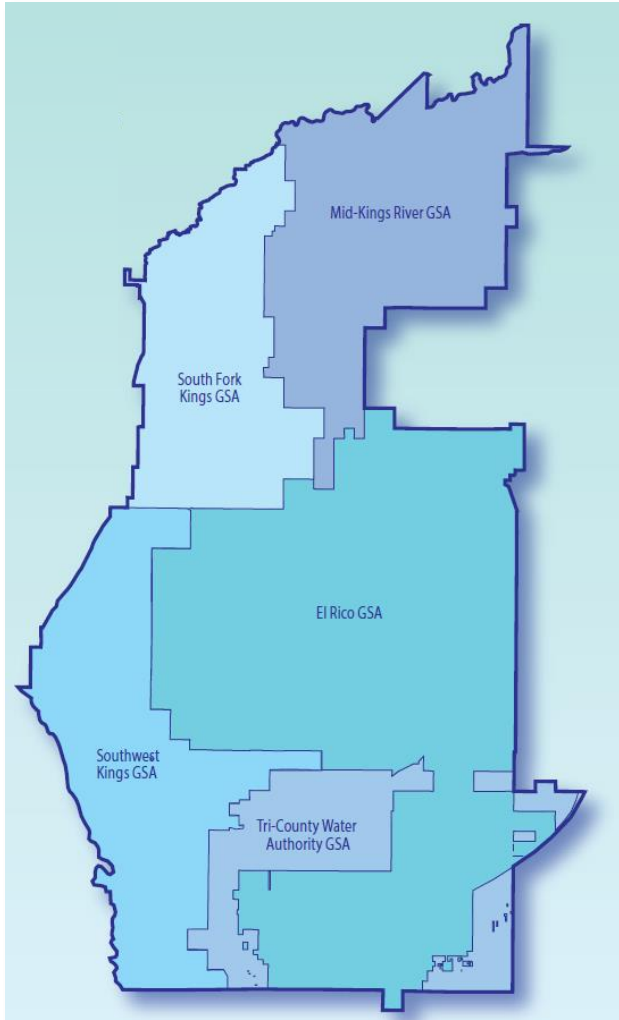


Image source: 2022 Tulare Lake Subbasin Amended GSP

## Five Groundwater Sustainability Agencies (GSAs):

- Mid-Kings River GSA
- South Fork Kings GSA
- Southwest Kings GSA
- El Rico GSA
- Tri-County Water Authority GSA

## One Groundwater Sustainability Plan (GSP):

- Tulare Lake Subbasin Amended Groundwater Sustainability Plan (2022)

# Tulare Lake Subbasin: SGMA History

**January  
2020**

**Original GSP  
submitted**

**January  
2022**

**DWR  
evaluation of  
original GSP:  
**Incomplete****

**July  
2022**

**Revised GSP  
submitted**

**March  
2023**

**DWR  
evaluation of  
revised GSP:  
**Inadequate****

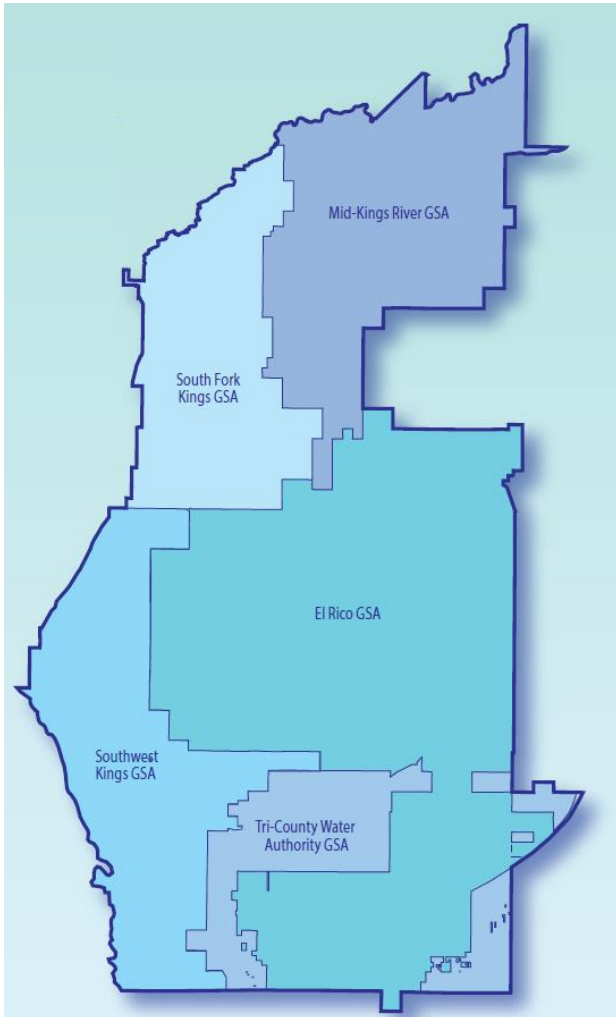
**October  
2023**

**Draft staff  
report and  
beginning of  
public  
comment**

**November  
2023**

**Public Board  
virtual and in-  
person  
workshops**

# State Water Board Staff Report



**Tulare Lake staff report evaluates the July 2022 GSP:**

- **State Water Board and DWR deficiencies:**



**Groundwater levels**



**Subsidence**



**Groundwater quality**

- **Potential actions to correct deficiencies**

- **Responses to public comments on draft staff report (Appendix C)**

# Engagement and Public Input

## Since October 2023



- **Staff workshops – virtual and in-person with Spanish interpretation**
- **Public comment period – comments addressed in final staff report**
- **Offered consultations to California Native American Tribes**
- **Discussions, by request**

# Plan Deficiencies – Groundwater Levels



# Groundwater Levels

Deficiency	Potential Action
<b>1. Inadequate definition of undesirable result.</b>	<b>1. Clearly define the undesirable result, e.g., how low can the groundwater levels decline and how many wells are estimated to be impacted at those groundwater levels.</b>
<b>2. GSAs didn't consider all beneficial uses and users in setting groundwater level sustainability criteria.</b>	<b>2. Set minimum threshold groundwater levels to protect drinking water wells from dewatering.</b>
<b>3. Insufficient monitoring network for groundwater levels.</b>	<b>3. Use a consistent set of monitoring wells from year to year; establish additional monitoring wells in the A zone.</b>

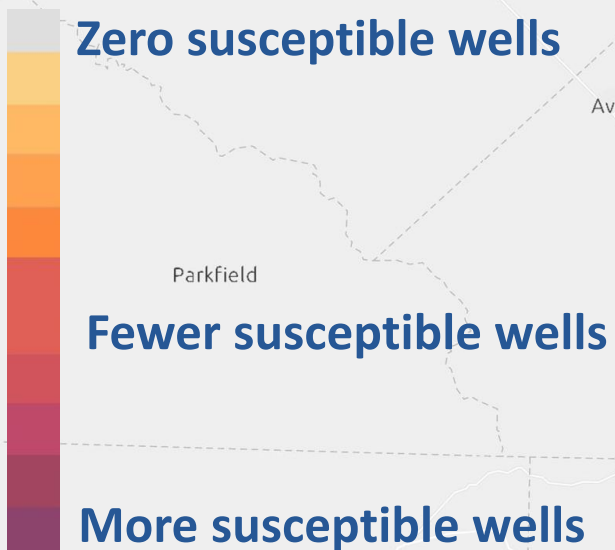
# Groundwater Levels, continued

<b>Deficiency</b>	<b>Potential Action</b>
<b>4. Insufficient description of well impact mitigation.</b>	<b>4. Establish accessible, comprehensive, and appropriately funded well impact mitigation programs.</b>
<b>5. The 2022 GSP does not describe a feasible path for halting chronic lowering of groundwater levels in the subbasin.</b>	<b>5. Plan ahead for drought conditions and commit to managing groundwater demand.</b>
<b>6. The GSAs don't consider the effects of groundwater level sustainability criteria on subsidence or groundwater quality.</b>	<b>6. Revise groundwater level minimum thresholds as necessary to avoid undesirable results for other sustainability indicators.</b>

# Groundwater Levels: Potential impacts to beneficial uses

**Tulare Lake**  
**Susceptible: 737**  
**Reported: 13**

**Density of domestic wells susceptible to going dry**



**Tulare Lake Domestic Wells**

**Dry Well Susceptibility**  
**2023 Reported Dry Wells**



# Plan Deficiencies – Subsidence



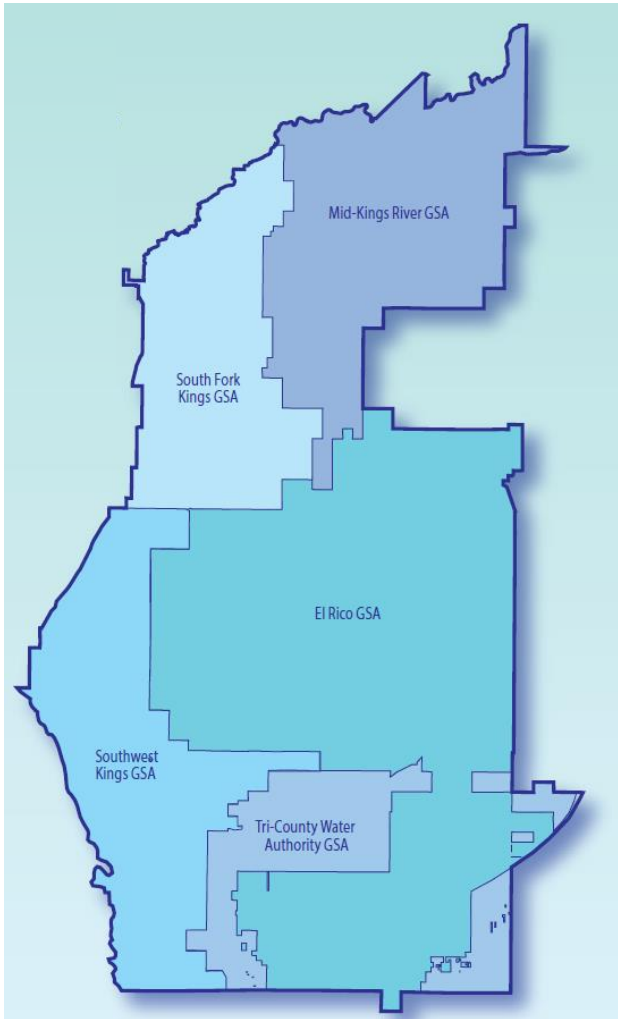
# Plan Deficiencies – Subsidence

Deficiency	Potential Action
<b>1. Inadequate definition of undesirable result.</b>	<b>1. Clearly define the undesirable result, e.g., what amount of damage is allowable to canals, levees or wells.</b>
<b>2. GSAs didn't consider all beneficial uses and users in setting subsidence sustainability criteria. Some minimum thresholds appear to exceed subsidence limits set in other pre-existing agreements.</b>	<b>2. Develop quantitative criteria that would avoid undesirable results and conform with other legal agreements.</b>

# Plan Deficiencies – Subsidence, continued

Deficiency	Potential Action
<p>3. The GSAs did not adequately consider the impacts of subsidence on flood protection infrastructure.</p>	<p>3. When establishing criteria, evaluate the impacts of reduced channel capacity, uncertainty around longitudinal differential subsidence, and increased inundation depths.</p>
<p>4. The GSP does not provide adequate implementation details.</p>	<p>4. Develop a plan to trigger management actions when subsidence exceeds defined thresholds, especially near critical infrastructure/facilities. Update the Well Registration Program to meet subsidence goals. Develop infrastructure mitigation programs with clear triggers, eligibility requirements, metrics, and funding sources.</p>

# Plan Deficiencies – Subsidence



**Current subsidence impact is substantial.**

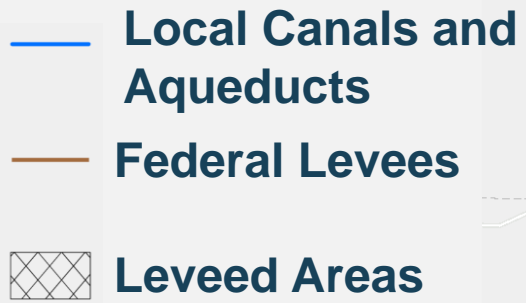
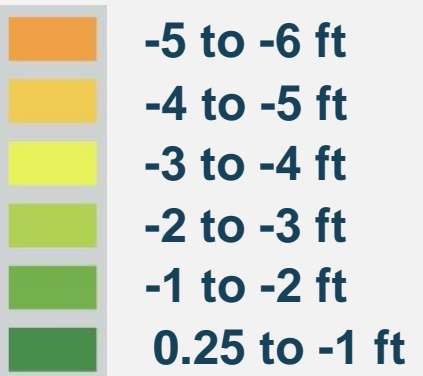
**Since plan was adopted, subsidence has continued.**

**Based on staff's analysis:**

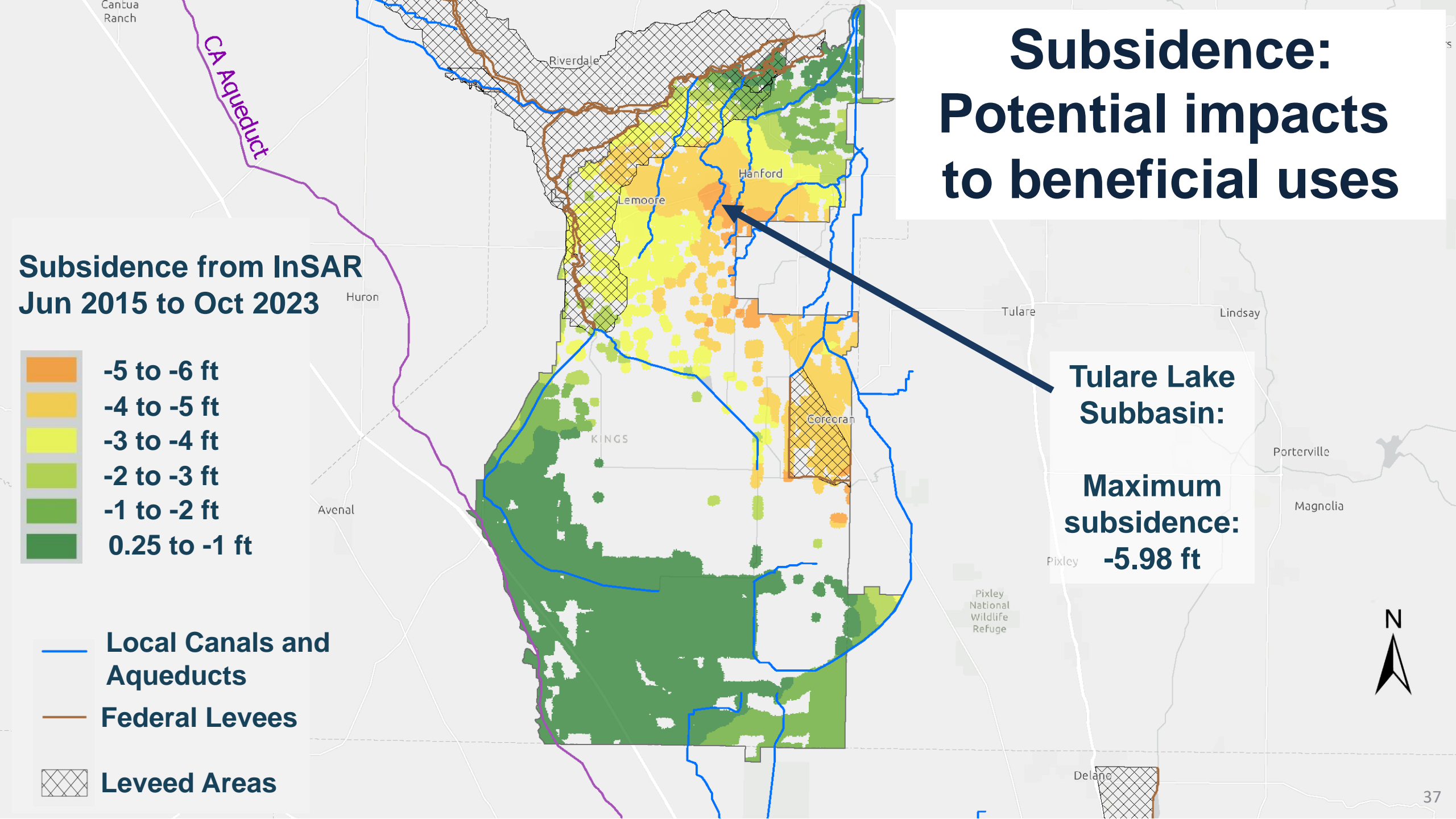
- **Plan will not adequately decrease subsidence**
- **Poses a risk to infrastructure, such as:**
  - **California aqueduct**
  - **Levees**

# Subsidence: Potential impacts to beneficial uses

## Subsidence from InSAR Jun 2015 to Oct 2023

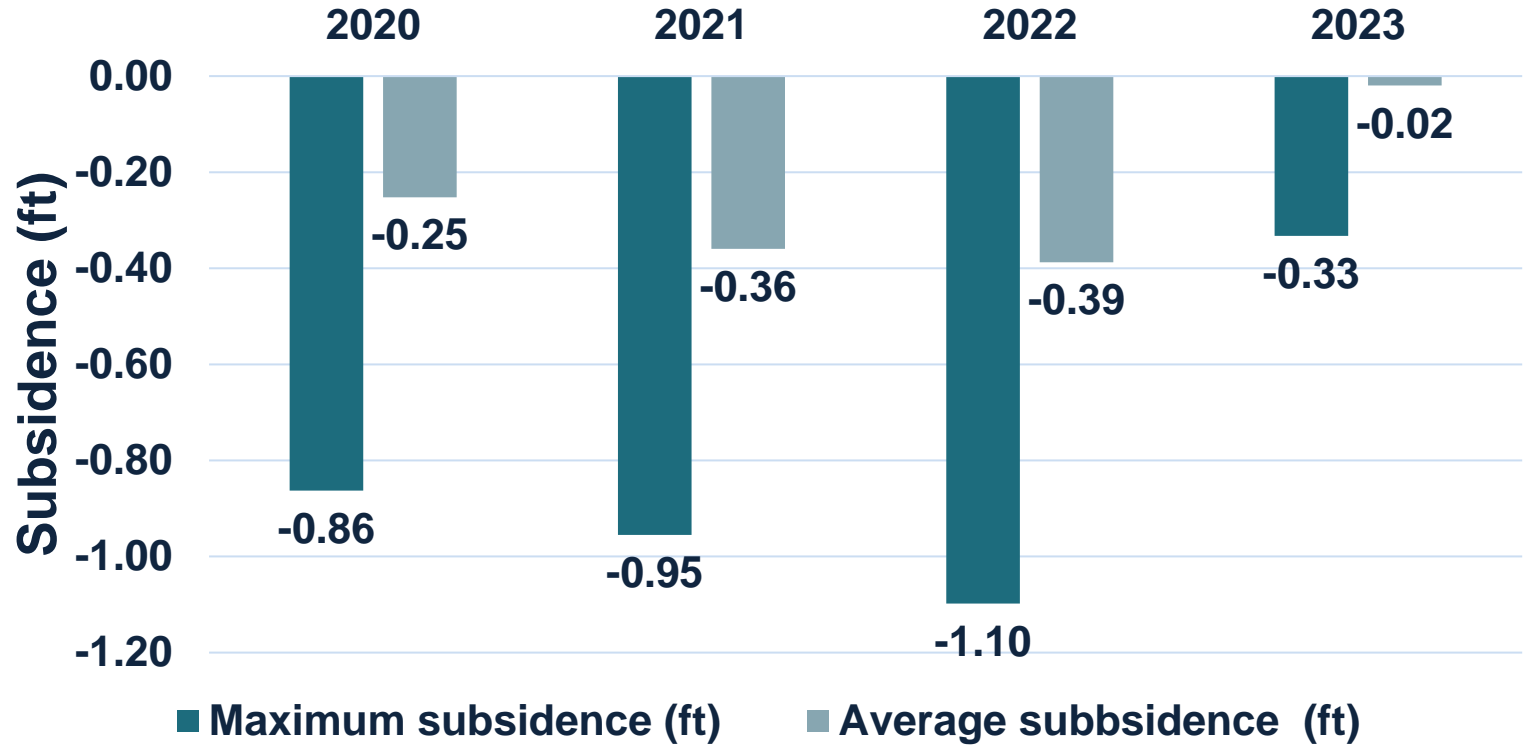
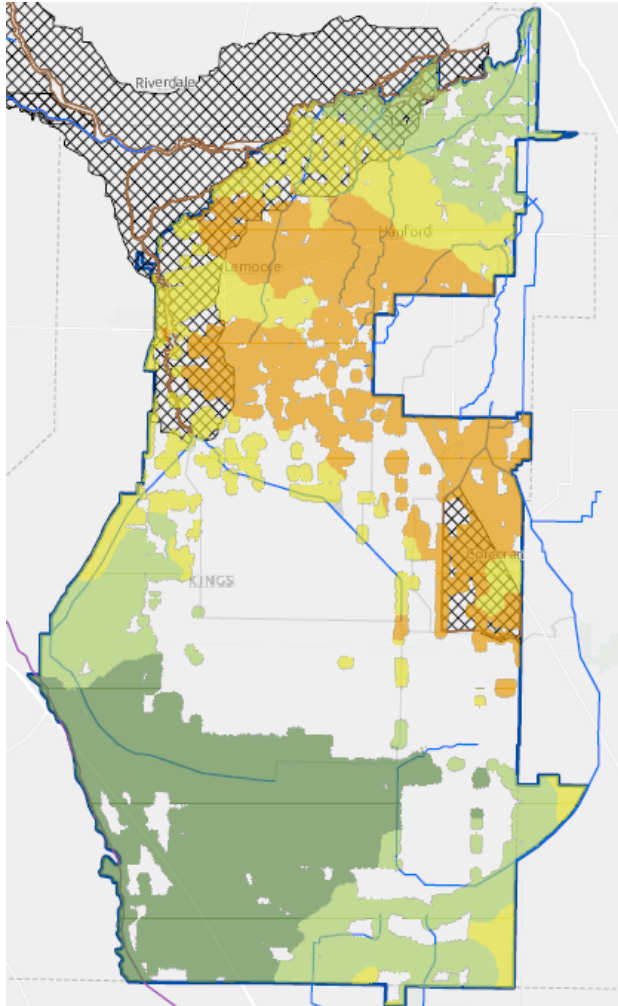


**Tulare Lake Subbasin:**  
**Maximum subsidence: -5.98 ft**



# Subsidence Since 2020

## Subsidence from InSAR Jan 2020 to Jan 2024



**Maximum Subsidence in Tulare Lake Subbasin  
January 2020-2024: -2.91 feet**

# Plan Deficiencies – Groundwater Quality



# Plan Deficiencies – Groundwater Quality

Deficiency	Potential Action
<b>1. Inadequate definition of undesirable result.</b>	<b>1. Clearly define the undesirable result, e.g., how much water quality may worsen near drinking water wells.</b>
<b>2. Minimum thresholds for water quality could allow further groundwater quality degradation.</b>	<b>2. Do not establish water quality criteria that would allow for substantial degradation of groundwater quality.</b>
<b>3. Measurable objectives for water quality could allow further groundwater quality degradation.</b>	<b>3. Do not establish water quality criteria that would allow for substantial degradation of groundwater quality.</b>

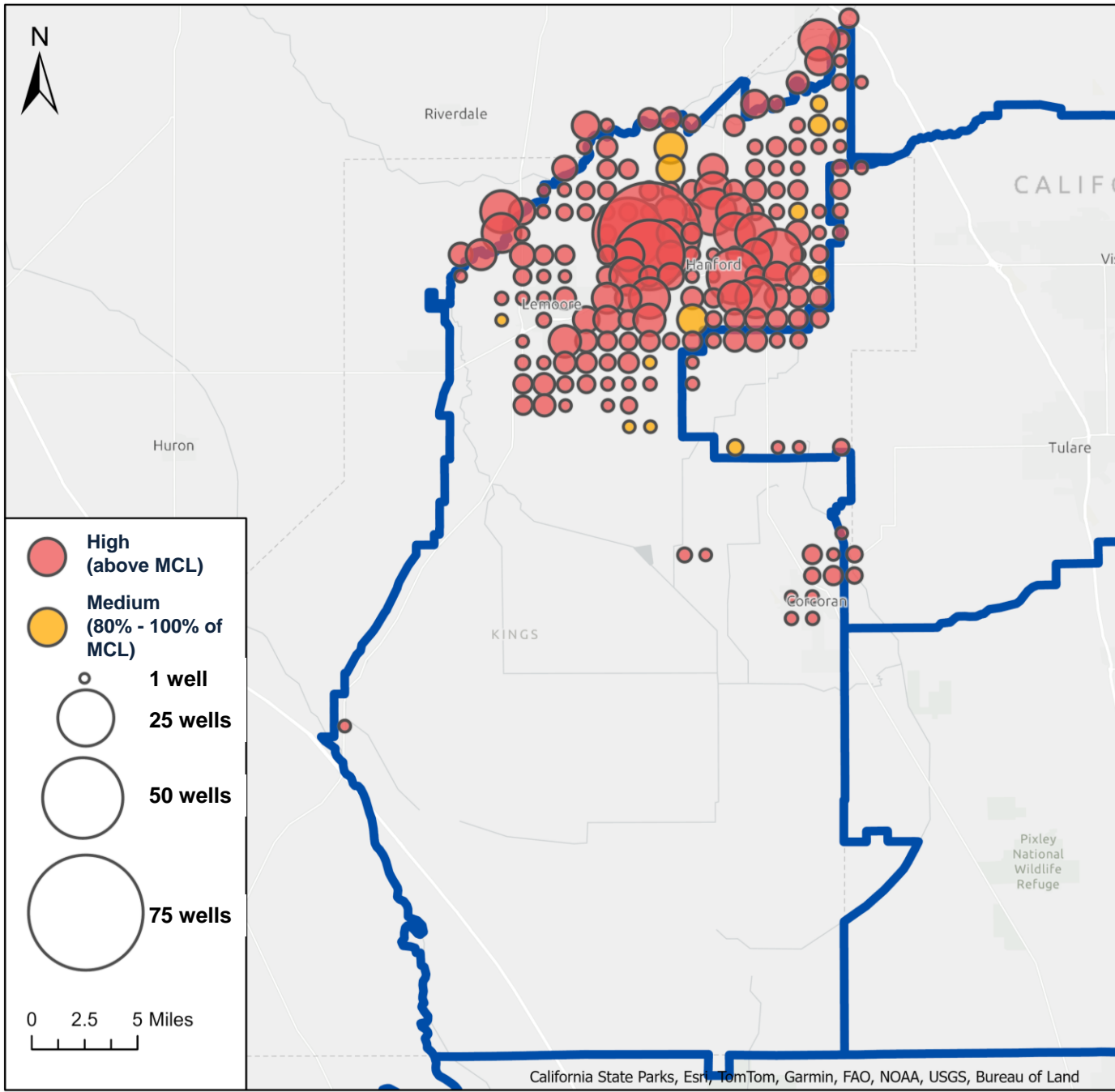


# Potential Actions – Groundwater Quality, continued

<b>Deficiency</b>	<b>Potential Action</b>
<b>4. The proposed monitoring network does not adequately monitor the three key aquifers.</b>	<b>4. Adequately monitor the three key aquifers and better describe monitoring schedules.</b>
<b>5. Management actions are not responsive to groundwater quality degradation. Well mitigation plans lack details.</b>	<b>5. Plan for additional sampling when water quality is degraded. Develop well mitigation programs with clear triggers, eligibility requirements, metrics, and funding sources.</b>

# Water Quality: Potential impacts to beneficial uses

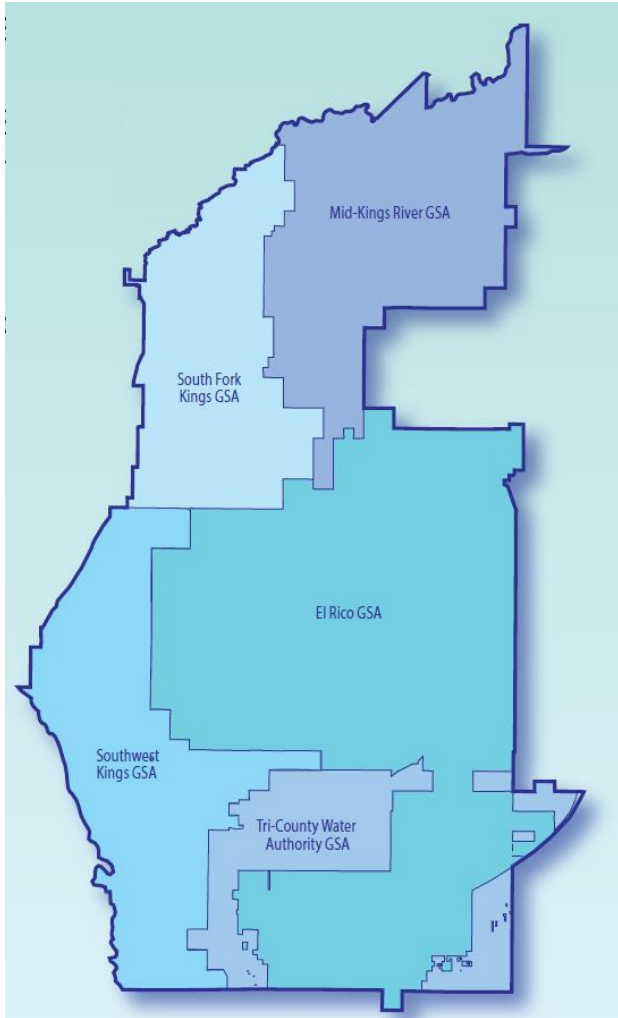
- Number of domestic wells at risk of water quality degradation due to constituents impacted by groundwater management



**Notes:**

**Data source:** State Water Board 2023 Aquifer Risk Map  
**Constituents:** arsenic, Hexavalent chromium, nitrate, 1,2,3-TCP, uranium  
**Well Density:** based on DWR OSWCR well locations  
**Risk:** determined from (1) a single measured exceedance of 80% (medium) or 100% (high) MCL or (2) a trend analysis of long-term data  
**MCL** – Maximum Contaminant Level

# Subbasin Status Since Inadequate Determination

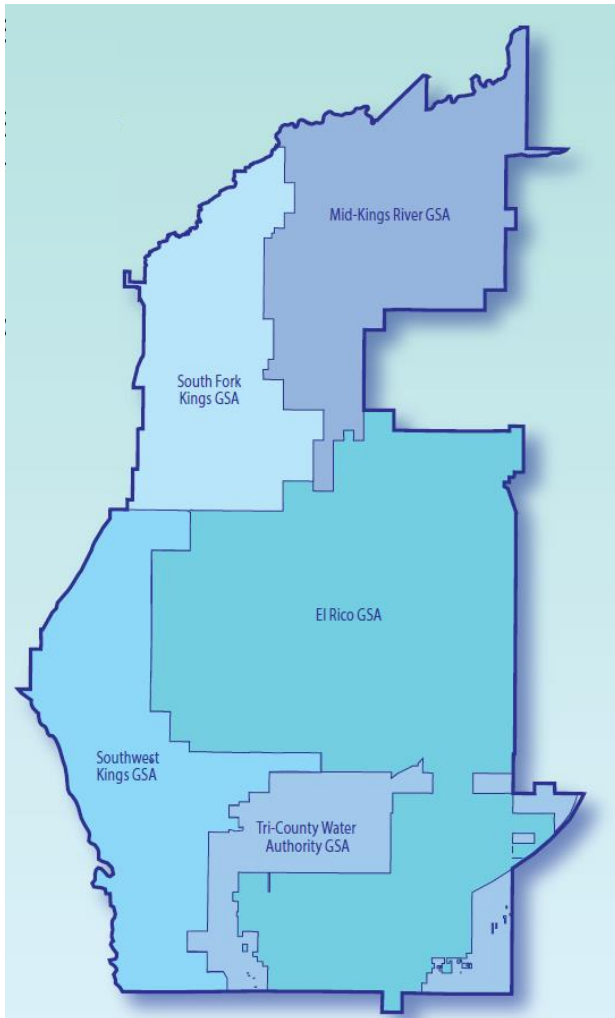


- **Staff-GSAs Meetings: 7 meetings to discuss concerns**
- **Unclear whether the GSAs have fully considered and/or incorporated staff report recommendations**
- **Note: staff will need time (3+ months) for a substantive review of revised GSPs**

A scenic view of a lake at sunset. The sky is filled with soft, golden light and scattered clouds. In the foreground, tall reeds grow in the shallow water. A circular structure, possibly a well or a small island, is partially submerged in the water, with water splashing around its base. The background shows a distant shoreline with a city and mountains under a hazy sky.

# Staff Recommendations for Tulare Lake Subbasin

# Staff Recommendations: Designate the Basin Probationary



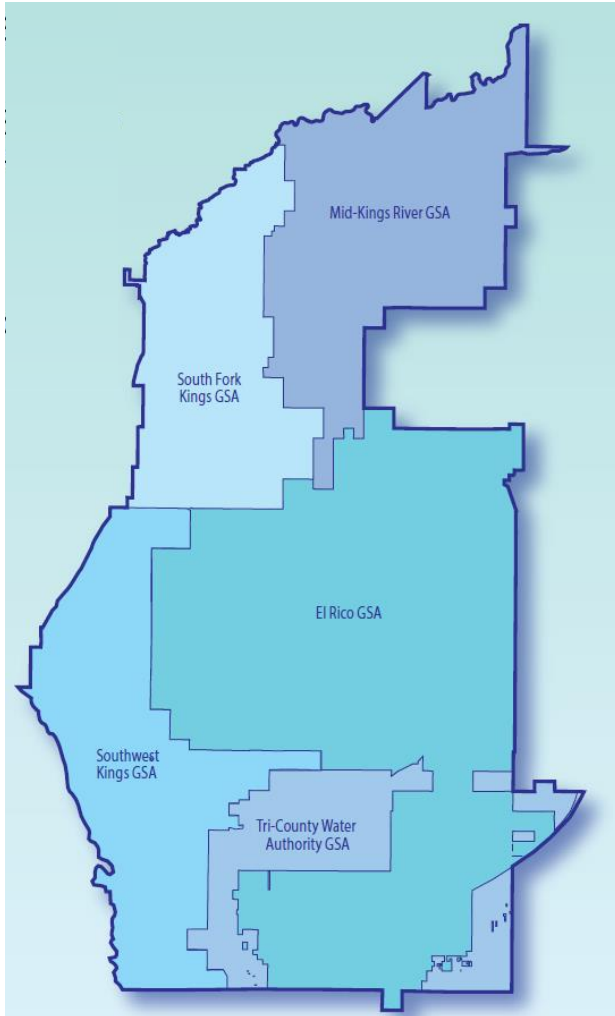
The 2022 plan will allow substantial impacts to:

- Domestic wells users
- Critical infrastructure, e.g., canals, levees
- Aquifers

Plan will not achieve groundwater sustainability by 2040.

# Staff Recommendations:

## Do Not Exclude Any Portion of the Basin



**Qualification for the exclusion from probation requires\*:**

- 1. GSA coverage**
- 2. GSP that is being implemented**
  - **Achieves sustainable groundwater management**
  - **Implements measures targeted to ensure basin operated within sustainable yield**

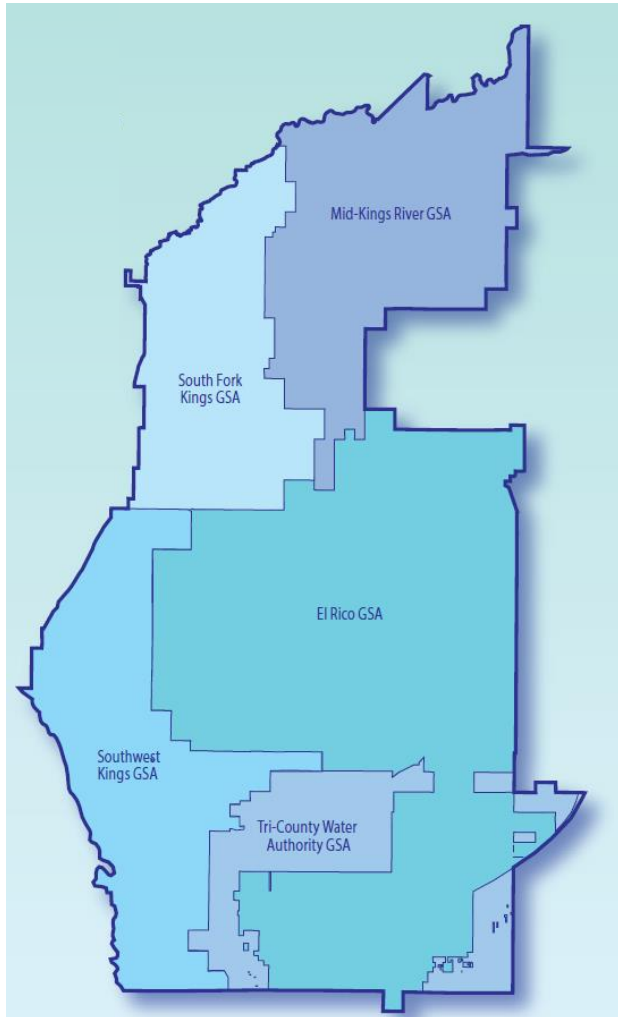
**Requests to be excluded from probationary status:**

- **Southwest Kings GSA, Tri-County Water Authority GSA**
- **Neither meets the statutory criteria**

**The Board may amend a probationary designation to apply the exclusion at any time**

\* Water Code §§ 10721(u) & 10735.2 (e)

# Staff Recommendations: Reporting Requirements



- All people who extract groundwater (unless excluded\*) must report:
  - ☑ well location & capacity
  - ☑ monthly extraction volumes
  - ☑ place & purpose of use
- Begin recording July 15, 2024
- Reports due annually starting December 1, 2024
- People who extract more than 500 acre-feet per year: measure extractions with a certified meter

\* EXCLUDE de minimis (2 acre-feet per year or less) domestic well users from reporting and fees

# Probationary Extraction Reporting Fees

If the Board places the basin on probation today,  
for groundwater extractions beginning July 15, 2024:



**Late reporting fee: 25% per month late**

\*Fee waivers available for water systems and schools serving disadvantaged communities and for those with low income

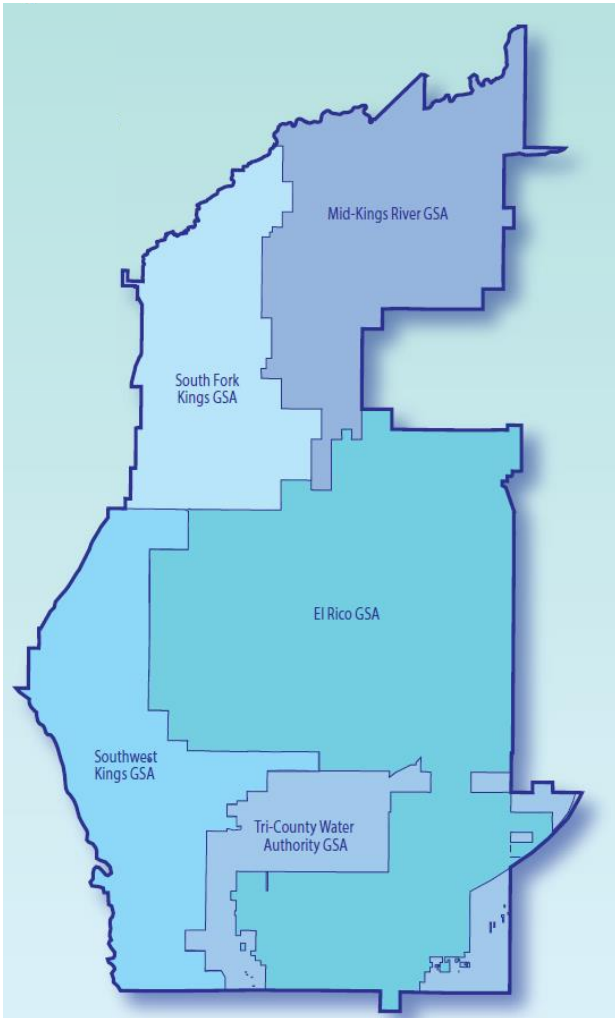


# Probation Next Steps

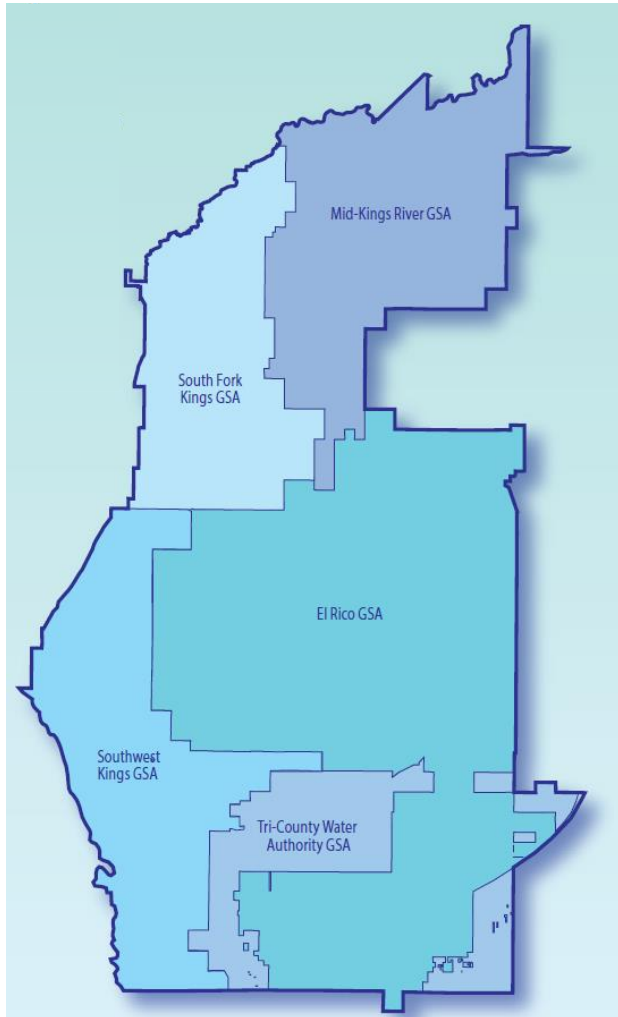
**Board considers whether to designate the basin as probationary**

**Proposed probationary hearing resolution includes:**

- **Background, factual findings, and probationary designation**
- **Deficiencies and potential actions**
- **Reporting requirements (de minimis exemption)**
- **Limited delegation to Executive Director**
- **Direction to staff to provide at least 30 days' notice and public comment before any changes before the Board considers any changes to the resolution**



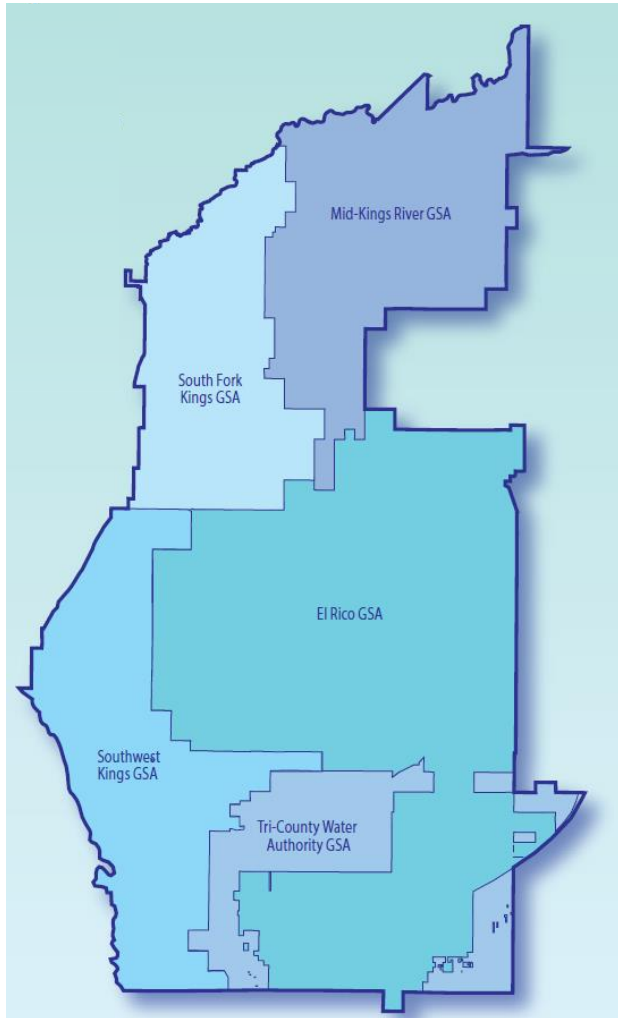
# Probation Next Steps



## GSA's continue working to address plan deficiencies

- **Implement the potential actions or similarly effective actions**
- **Meet with Board staff to discuss progress**
- **Submit revised GSP to Board for evaluation**
- **Board staff evaluate the plan**
- **Continue implementing proposed projects and management actions**

# Board Considerations for Lifting Probation



**Staff evaluate any resubmitted plan:**

**If (1) deficiencies are resolved and (2) GSAs are on track to achieve the basin sustainability goal,**

- staff will recommend that the Board repeal the probationary resolution.**
- Basin oversight would then return to DWR.**

**If (1) deficiencies are not resolved and (2) after at least one year:**

- Board may develop an interim plan to manage overdraft**
- Effective until GSP deficiencies are resolved and GSAs are able to resume basin management.**

# Office of Sustainable Groundwater Management

[SGMA@waterboards.ca.gov](mailto:SGMA@waterboards.ca.gov)

[www.waterboards.ca.gov/sgma](http://www.waterboards.ca.gov/sgma)

