

# Tule Probationary Hearing

Public Hearing for Proposed  
Designation of Tule Subbasin as a  
Probationary Basin  
September 17, 2024



Office of Sustainable Groundwater Management

# Language Interpretation In Person

## Interpretación en persona

ਵਿਅਕਤੀਗਤ ਤੌਰ 'ਤੇ ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਵਿੱਚ ਵਿਆਖਿਆ

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

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ਕਿਰਪਾ ਕਰਕੇ ਹੈੱਡਸੈੱਟ ਲਈ ਜਾਂ ਜੇਕਰ ਤੁਹਾਨੂੰ ਤਕਨੀਕੀ ਮੁਸ਼ਕਲਾਂ ਹਨ, ਤਾਂ ਆਪਣਾ ਹੱਥ ਉੱਠਾਓ

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



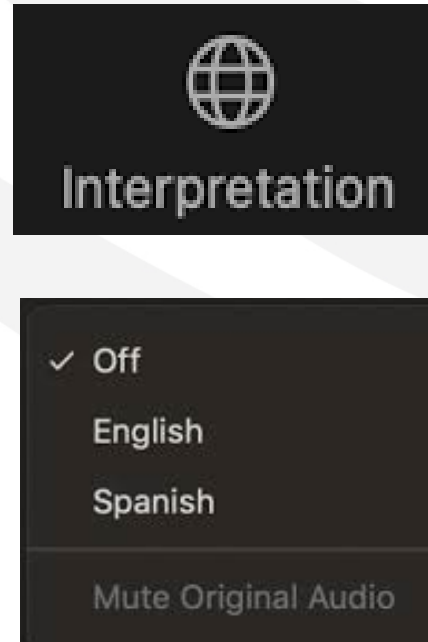
## Opción de Interpretación en Zoom

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](mailto: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 OR Punjabi
- Mute Original Audio

For technical assistance, email

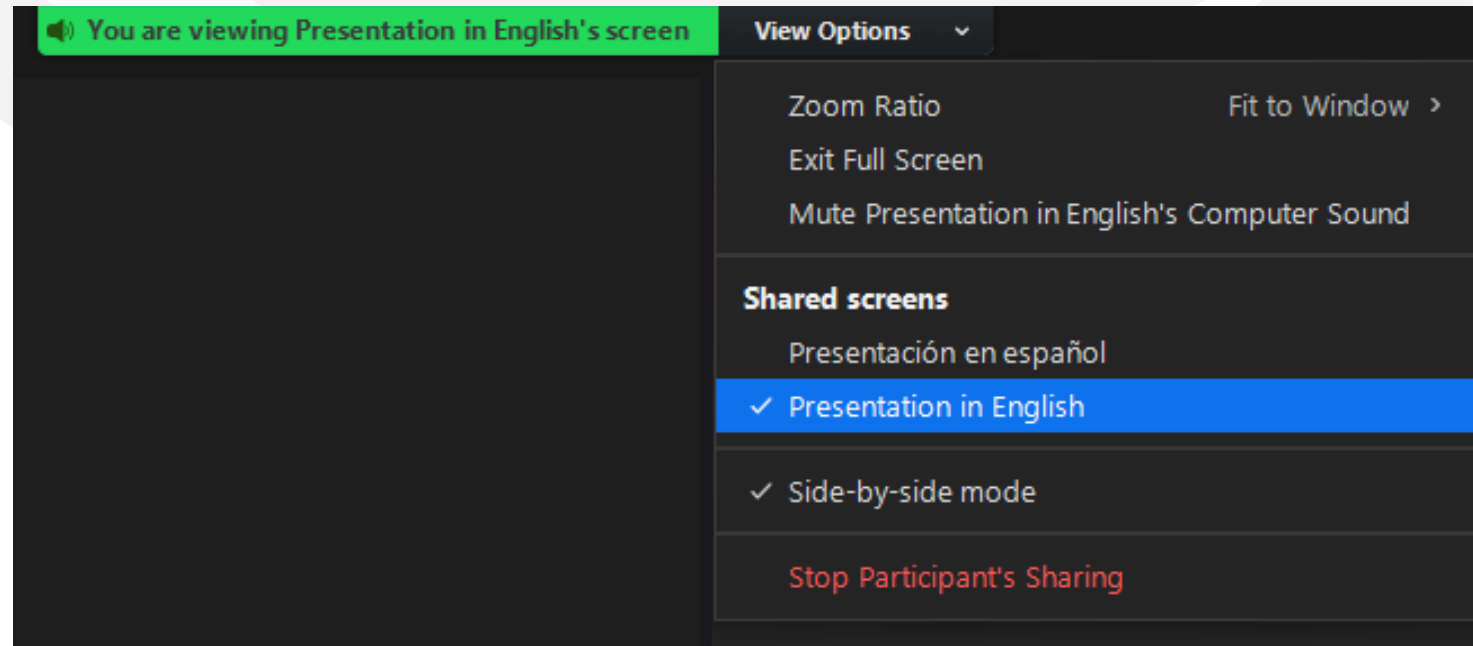
**[Board.Clerk@waterboards.ca.gov](mailto:Board.Clerk@waterboards.ca.gov)**

# Opciones de Pantalla en Zoom

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

Si necesita ayuda técnica, envíe un mensaje electrónico a  
**Board.Clerk@waterboards.ca.gov**

## View Options on Zoom



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

For technical assistance, email **Board.Clerk@waterboards.ca.gov**





# Hearing Agenda

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



# Tule Probationary Hearing

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# Staff Presentation

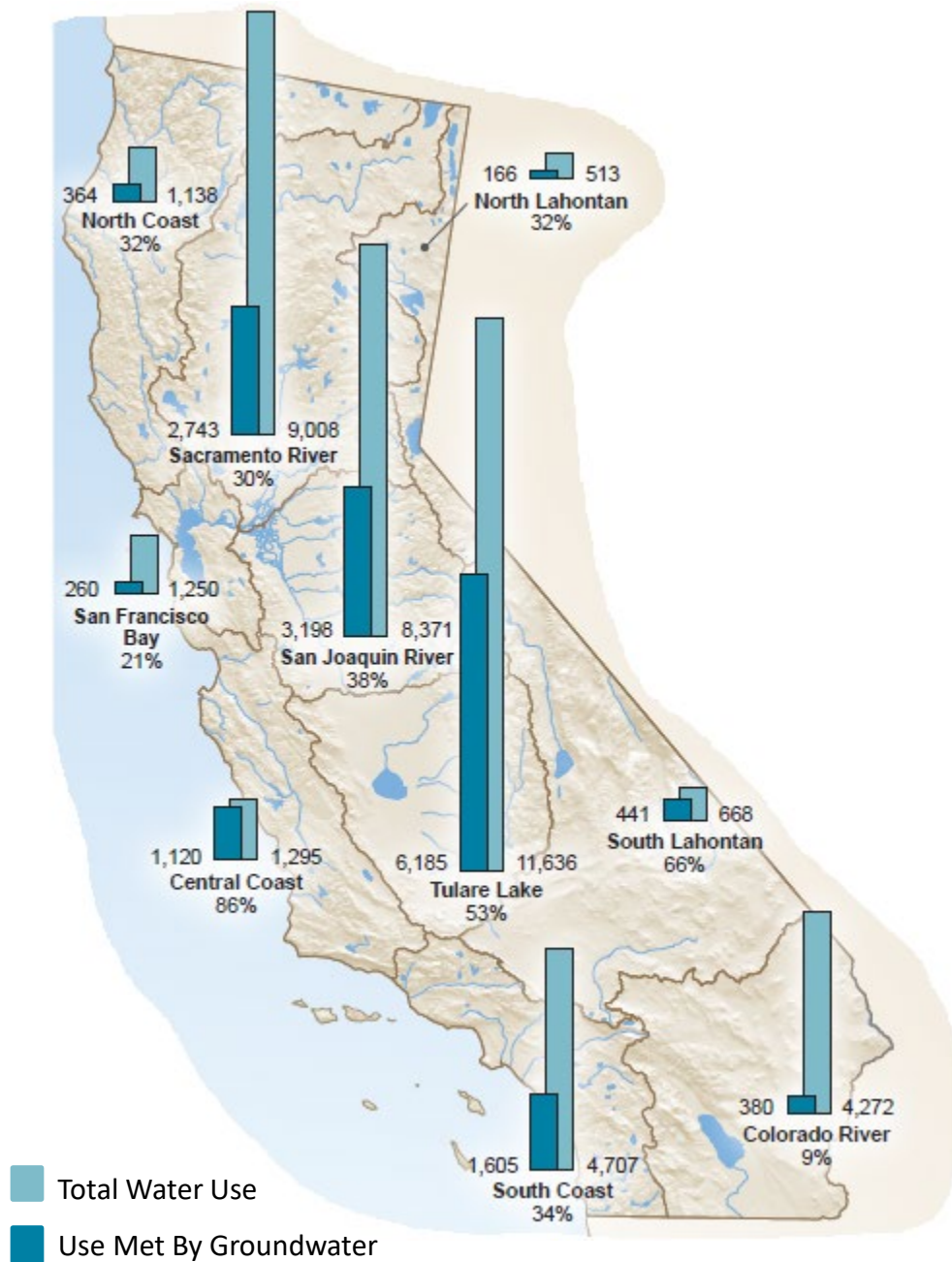
- 1. State Water Board SGMA Intervention Basics**
- 2. Tule Basin Background**
- 3. SGMA Process in Tule Subbasin**
- 4. Sustainability Plan Deficiencies and Likelihood of Future Impacts to Beneficial Uses**
- 5. Current Status of Tule Subbasin**
- 6. Staff Recommendations to the Board**
  - Designate the Basin as Probationary with Two Exclusions**
  - Requirements for Groundwater Extractors**
  - Probation Next Steps**
  - Board Considerations for Lifting Probation**





# State Water Board SGMA Intervention Basics

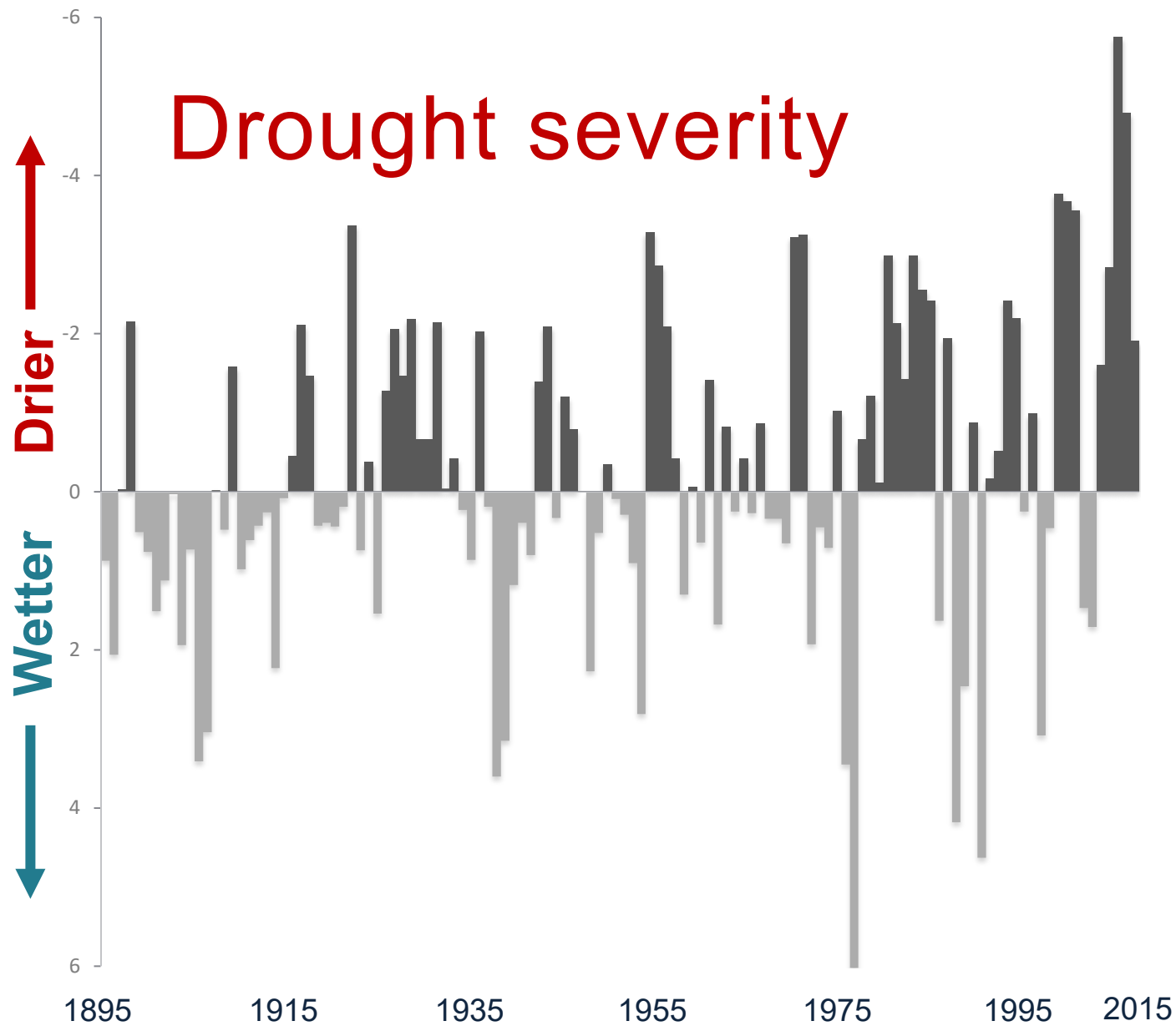




Source: California Water Plan Update 2013

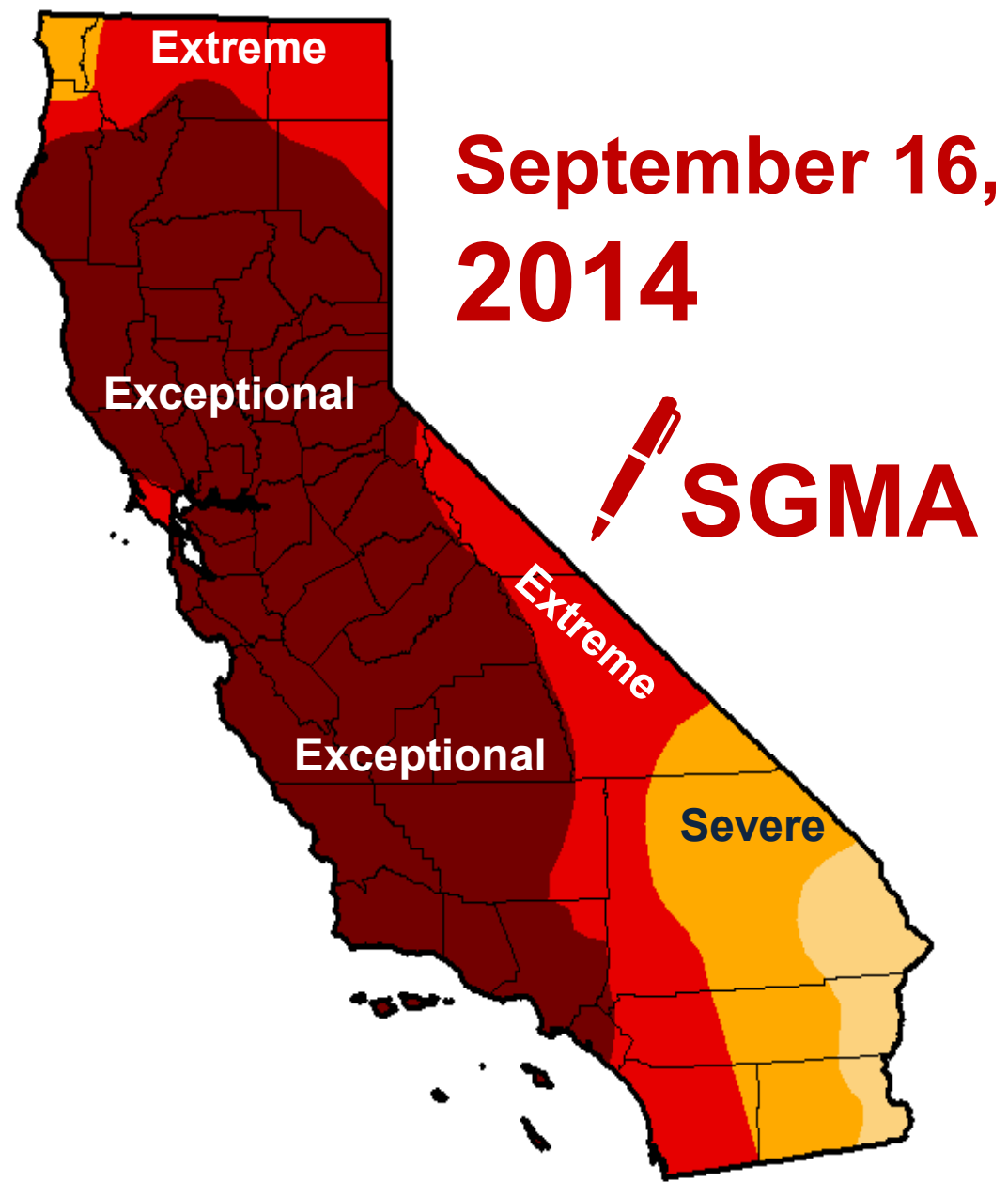
# 80%

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



Source: PDSI from NOAA

Source: NOAA



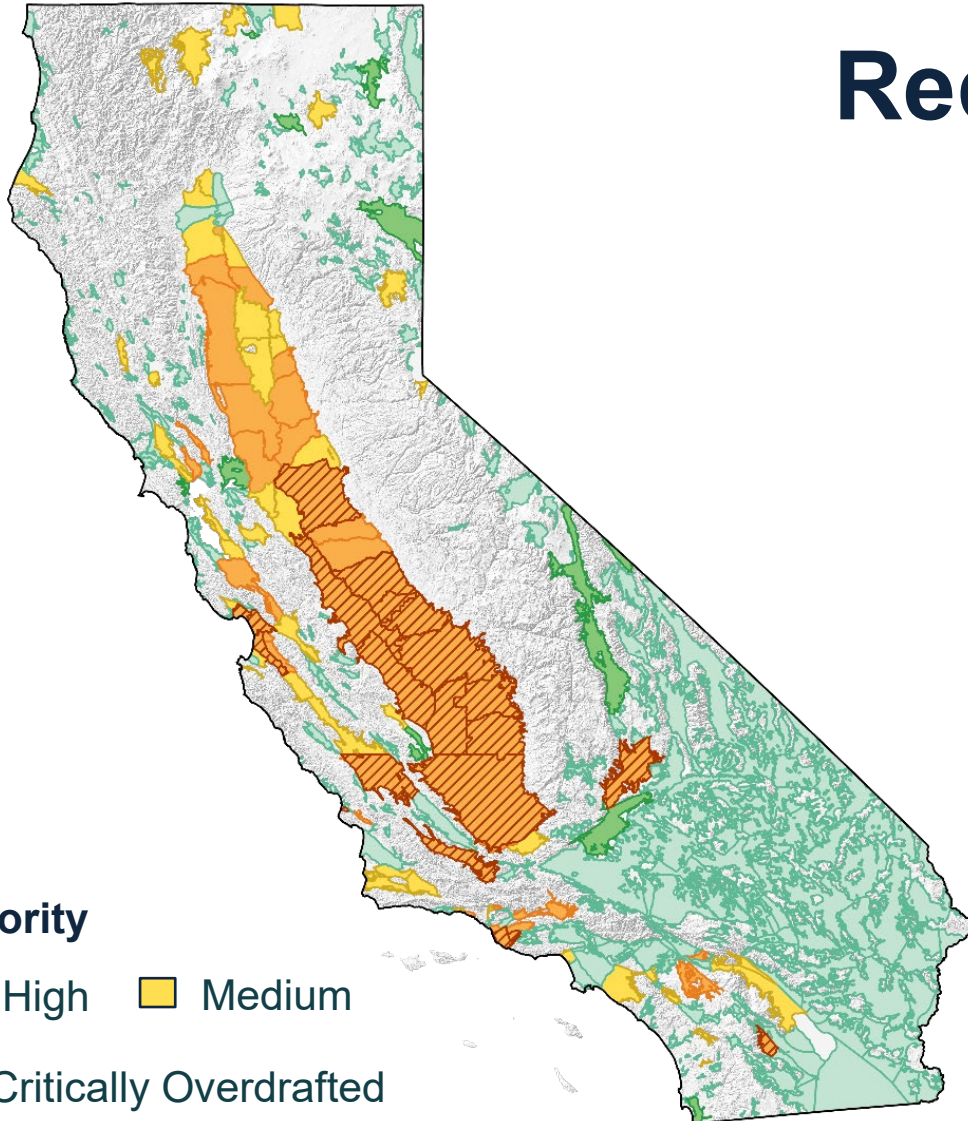
Source: California Drought Monitor



# 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



Reduced  
Storage



Seawater  
Intrusion



Degraded  
Quality



Land  
Subsidence



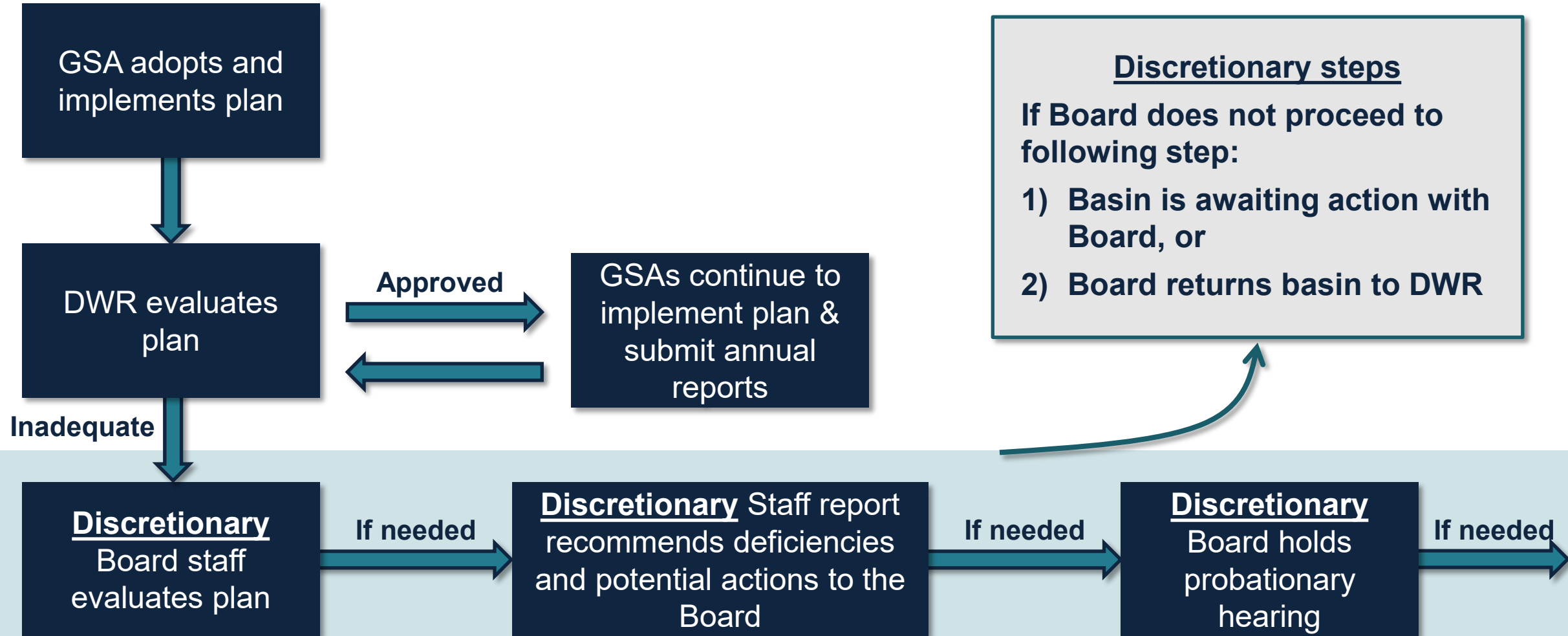
Surface Water  
Depletion

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

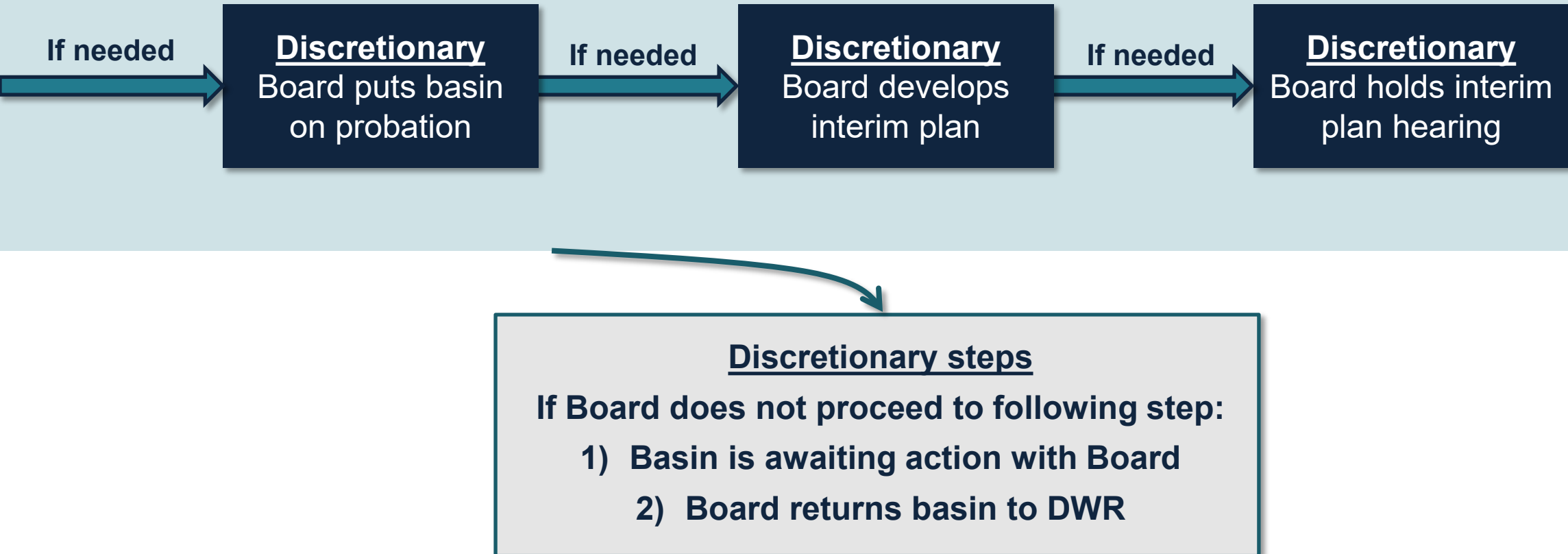
GSAs aren't required to address undesirable results that occurred prior to 2015



# 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



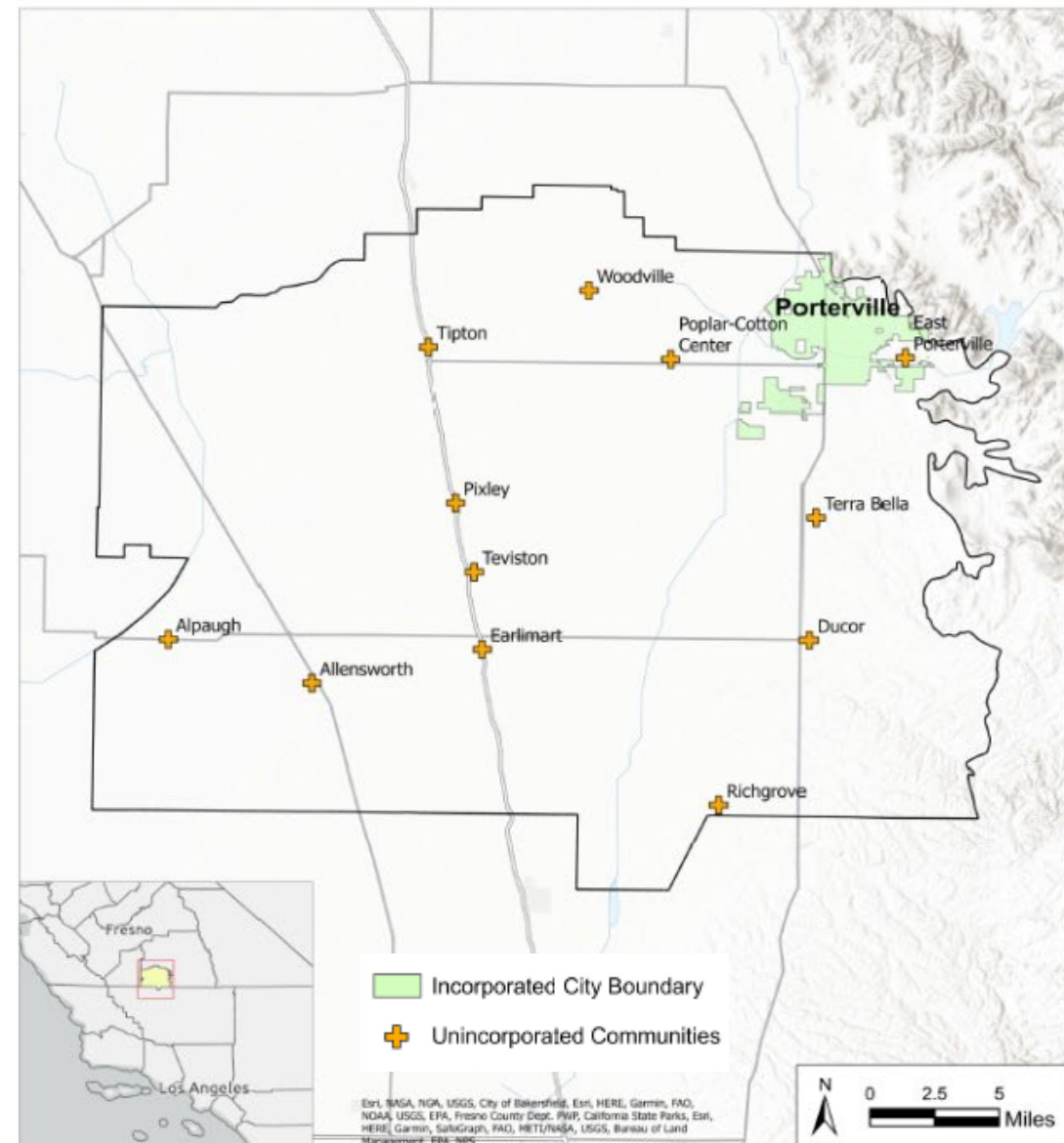




# Tule Subbasin Background



# Tule Subbasin: Physical Setting



# Tule Subbasin: Hydrologic Setting

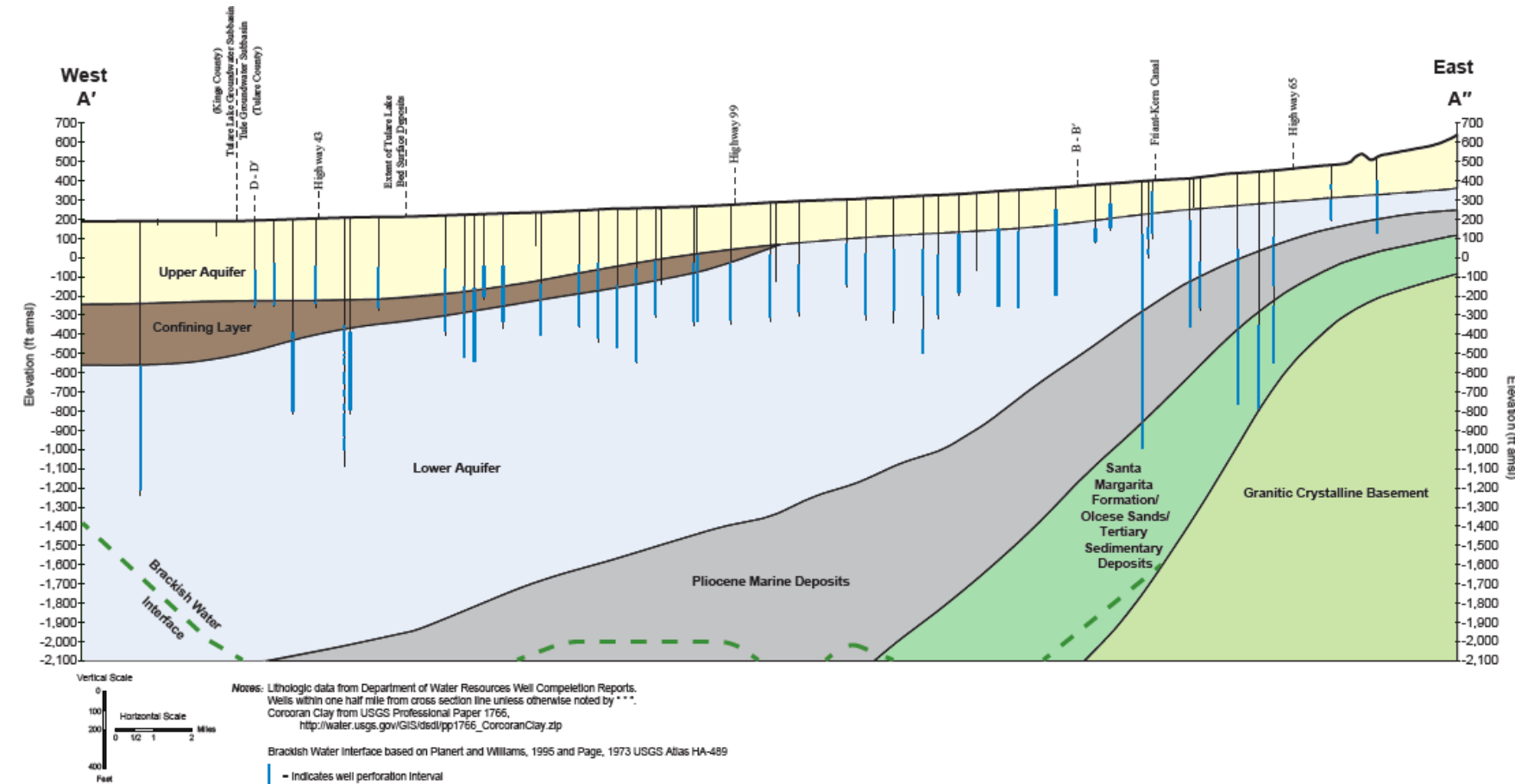
**Upper Aquifer** – unconfined, laterally extensive

**Confining Layer** – Corcoran Clay unit with limited extent

**Lower Aquifer** – Confined at the west, unconfined at the east

**Low Permeability** – Pliocene Marine Deposits, silts and sand

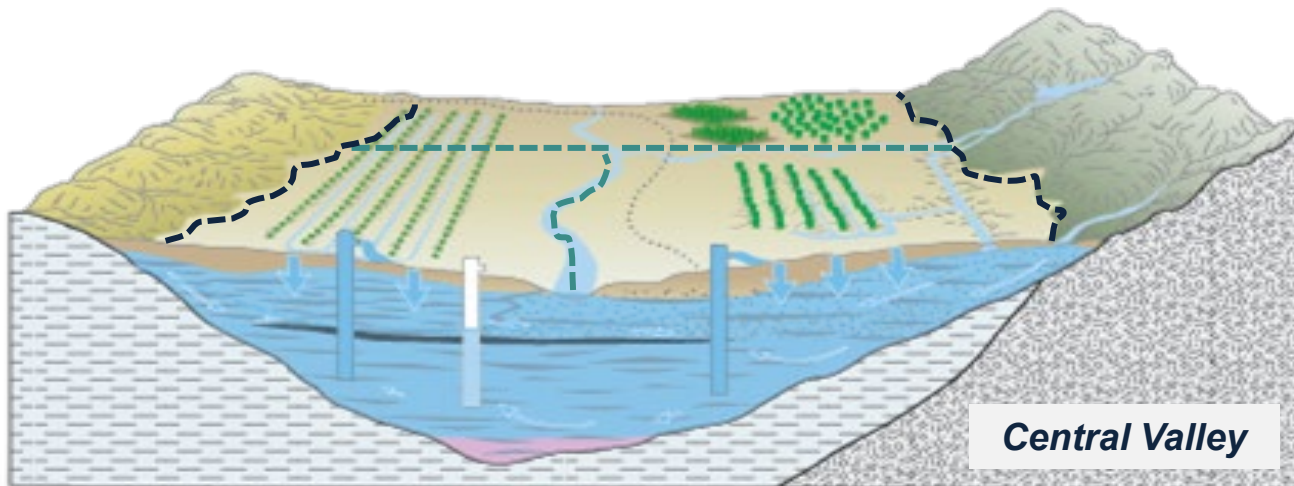
**Santa Margarita Formation** – sand and gravel confined



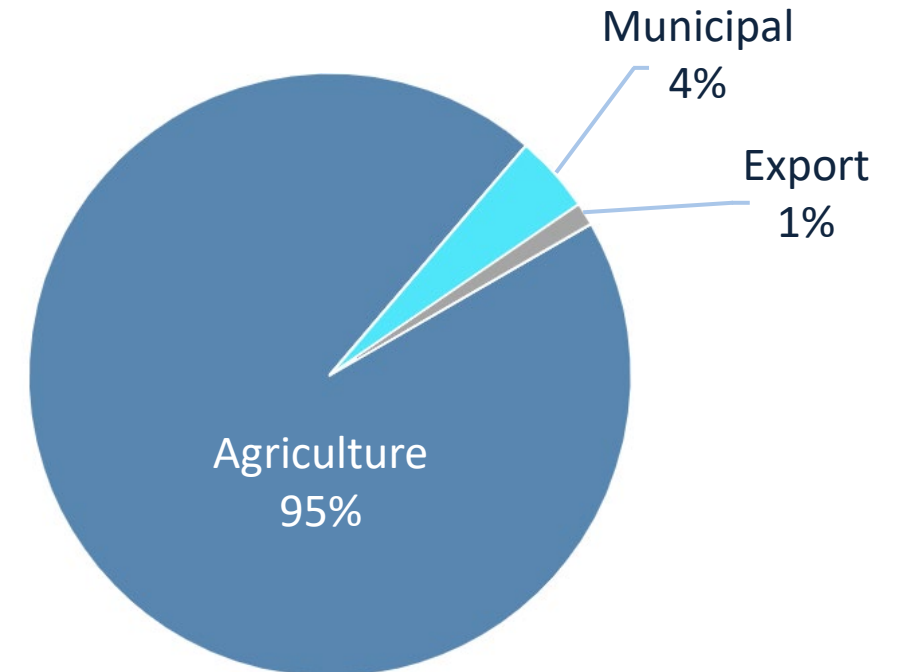
# Tule Subbasin: Beneficial Uses

## Groundwater Uses

- Municipal and domestic supply
- Agricultural supply
- Wildlife habitat
- Industrial and service supply



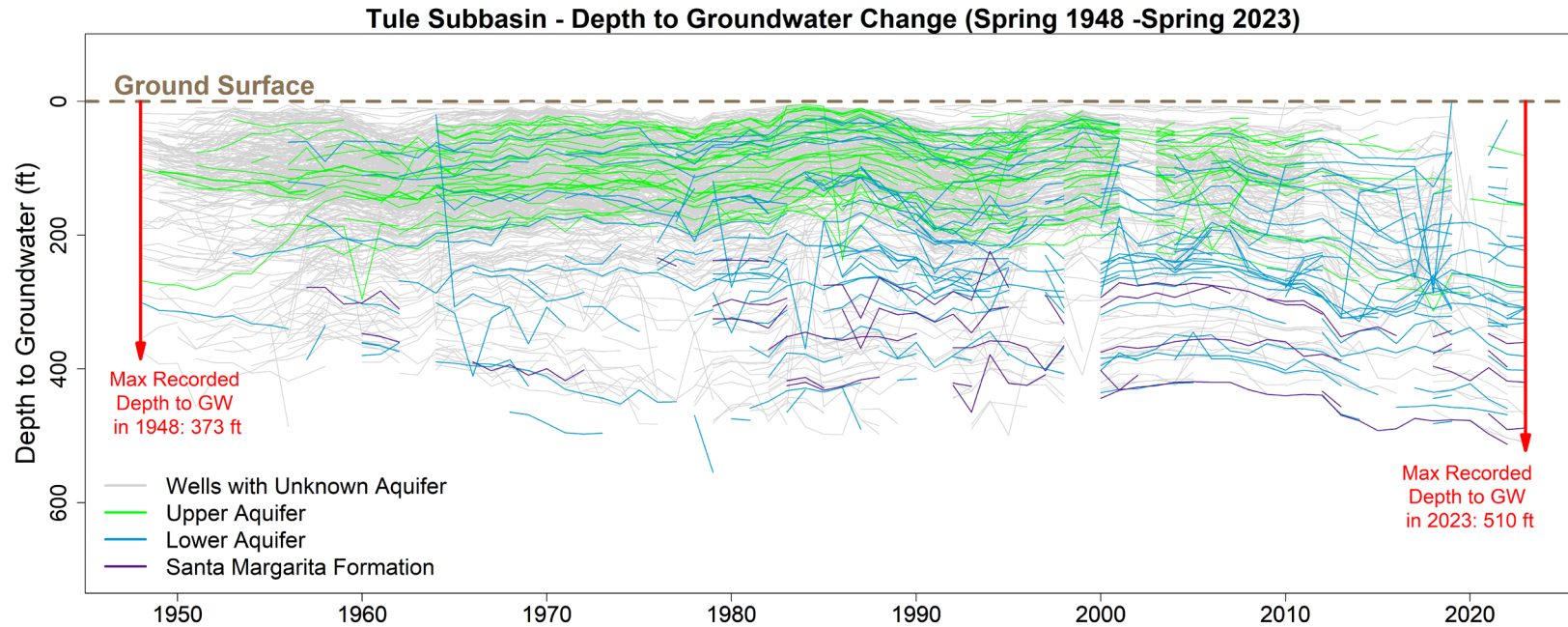
## Groundwater Extractions October 2022 – September 2023



Data Source: WY 2023 Tule Subbasin Annual Report



# Tule Subbasin: Groundwater Overdraft



**Long-term subbasin  
sustainable yield:**  
**130,000 acre-feet per year\***  
**480,000 acre-feet per year\*\***

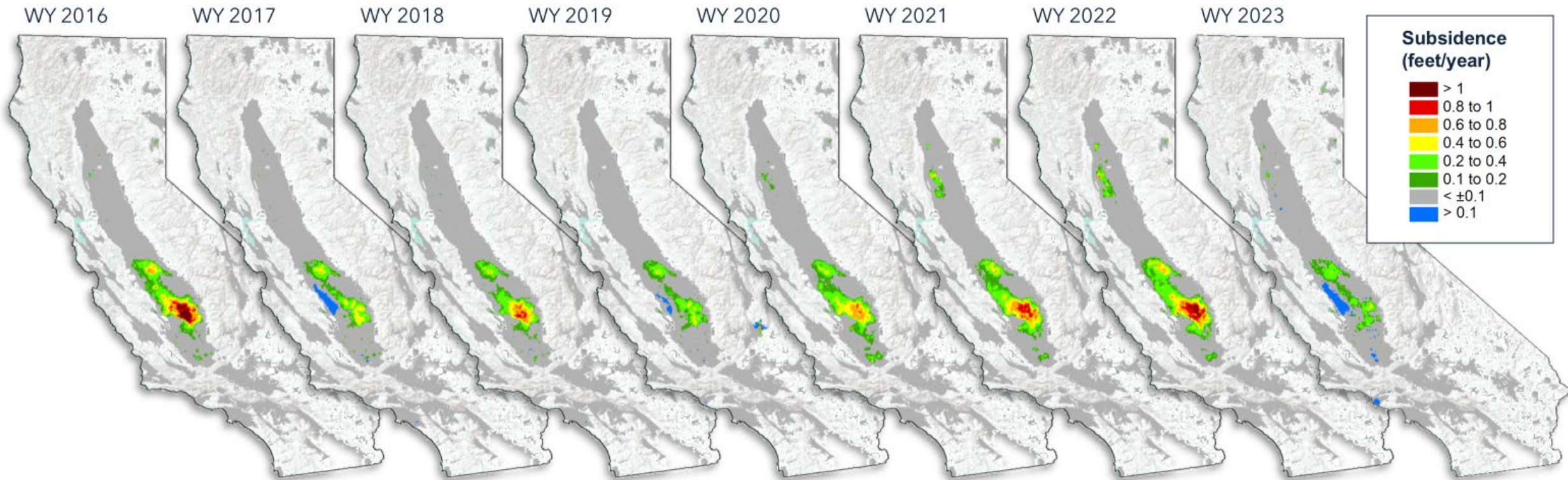
**Total average annual  
groundwater extraction,  
2019 - 2023:**  
**651,632 acre-feet per year\*\***

\*Data source: 2022 Amended GSP and Addendum

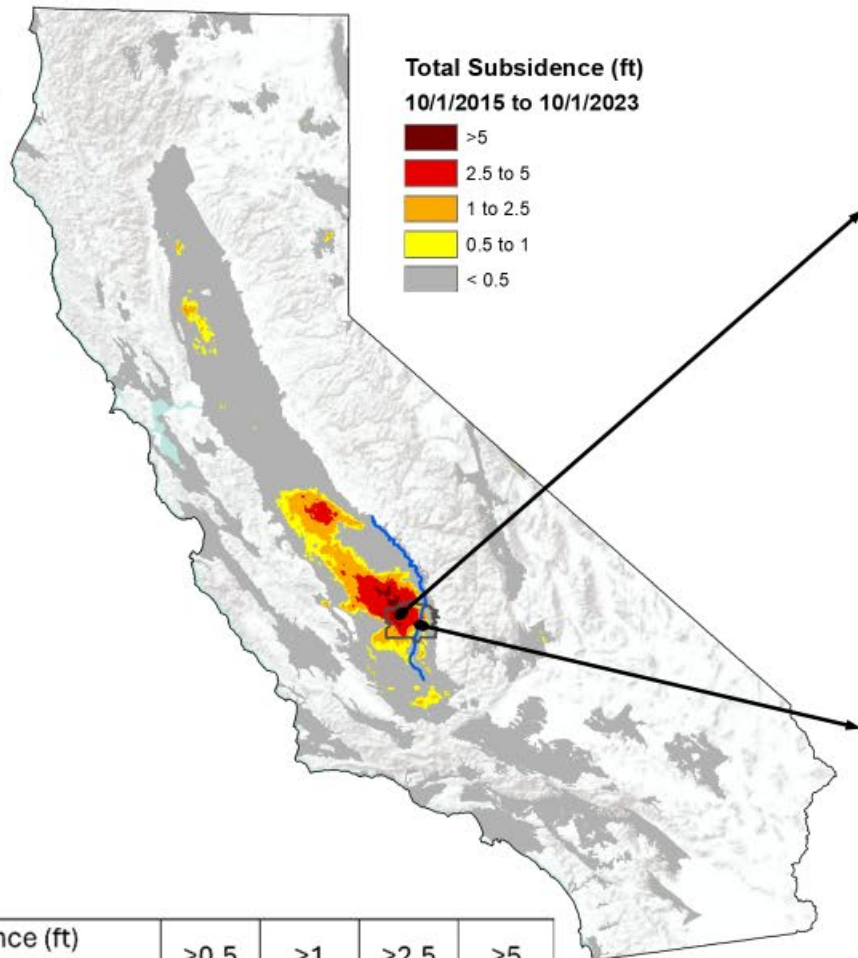
\*\*Data source: 2024 Amended GSP and Addendum

\*\*\*Data source: basin annual reports

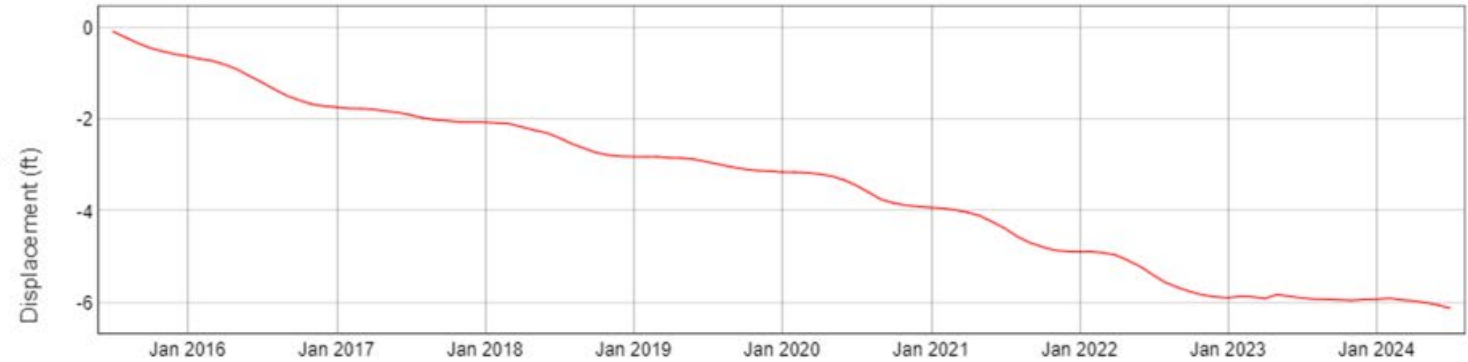
# Recent Subsidence Data



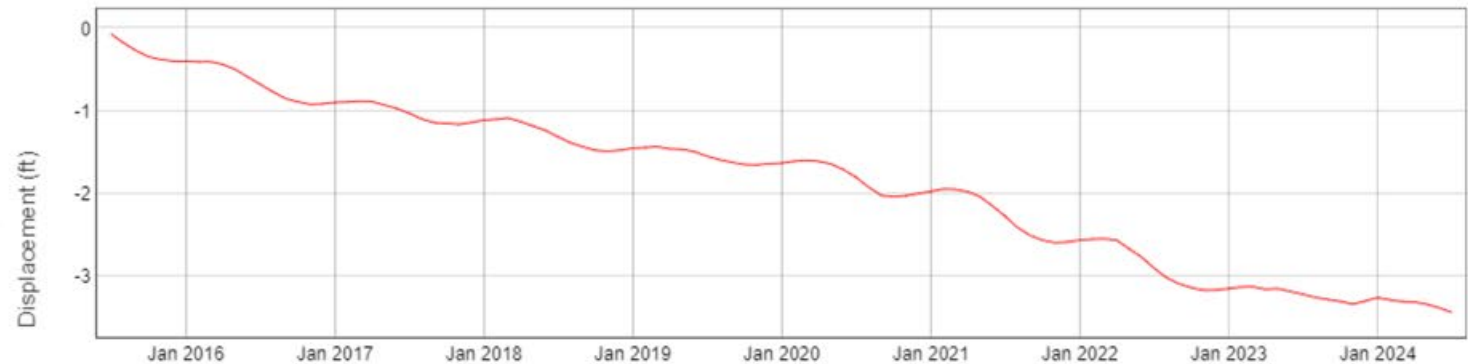
# Recent Subsidence Data



Total Interpolated Vertical Displacement (ft) for (36.24051, -119.49341)



Total Interpolated Vertical Displacement (ft) for (35.94985, -119.12211)



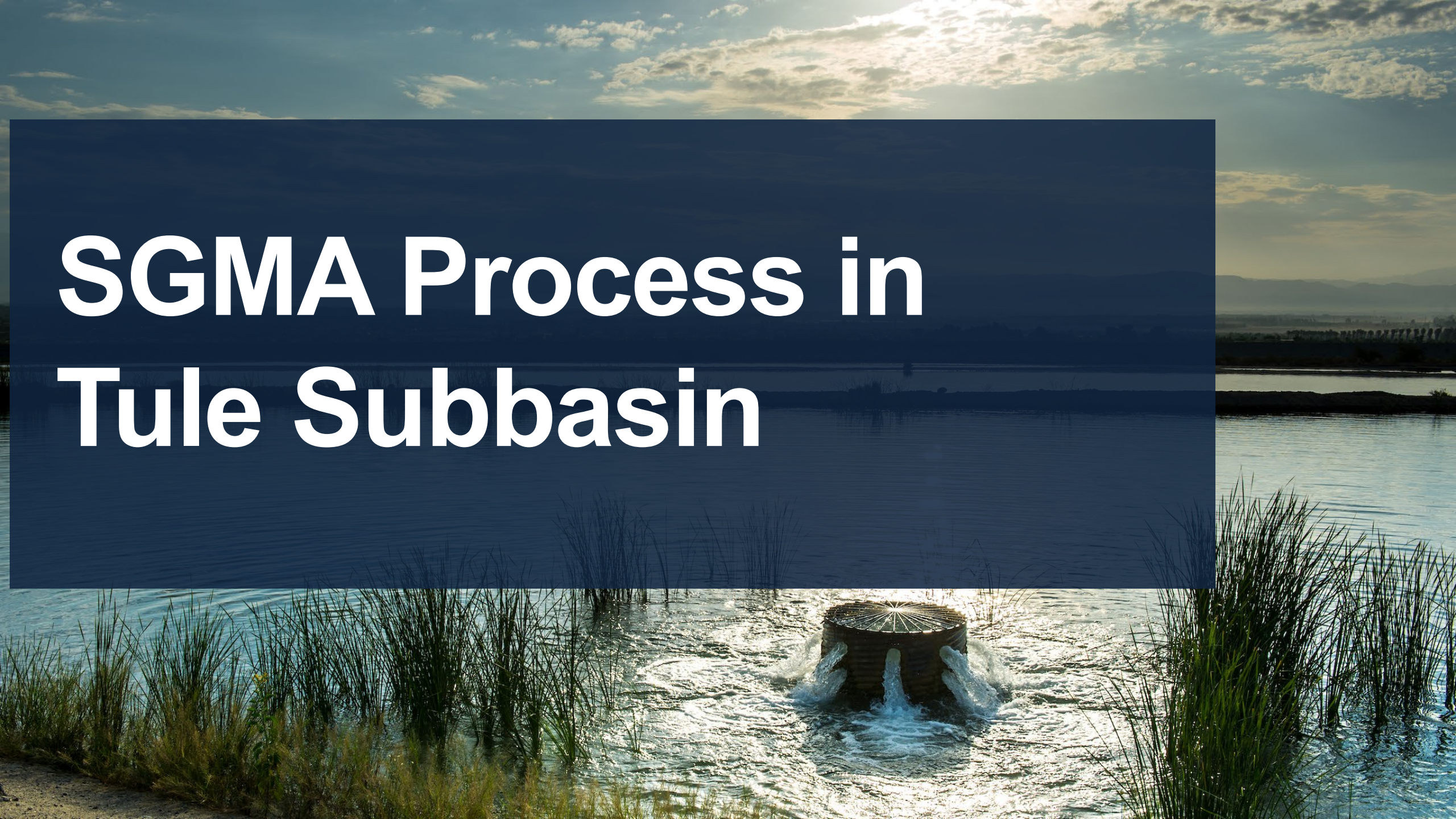
Date

Subsidence Overview

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

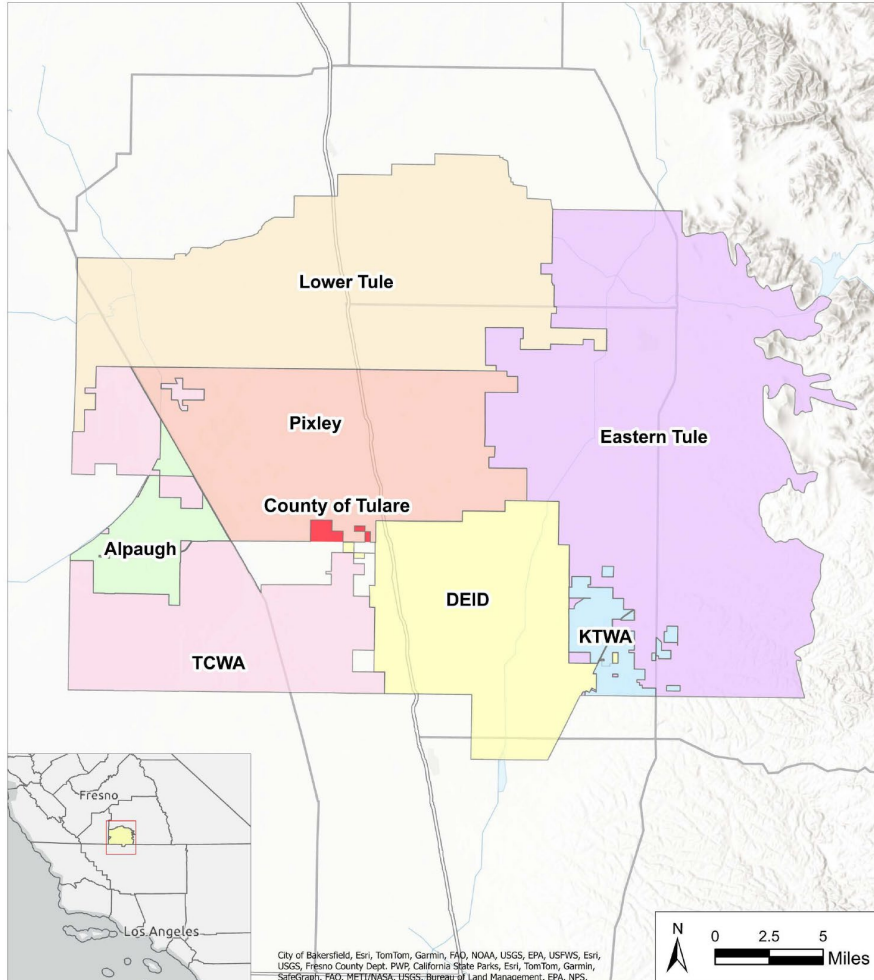


# SGMA Process in Tule Subbasin





# Tule Subbasin: GSAs and GSPs



## **Eight Groundwater Sustainability Agencies (GSAs)**

- Eastern Tule GSA
- Lower Tule River Irrigation District GSA
- Pixley Irrigation District GSA
- Delano-Earlimart Irrigation District GSA
- Tri-County Water Authority GSA
- Alpaugh GSA
- County of Tulare GSA
- Kern Tulare Water District GSA

## **Six Groundwater Sustainability Plans (GSPs)**

- No GSP for County of Tulare GSA
- New Kern Tulare Water District GSA drafted new GSP

# Tule Subbasin: SGMA History

**January  
2020**

**Original GSPs  
submitted**

**January  
2022**

**DWR  
evaluation of  
original GSPs:  
**Incomplete****

**July  
2022**

**Revised GSPs  
submitted**

**March  
2023**

**DWR  
evaluation of  
revised GSPs:  
**Inadequate****

**March  
2024**

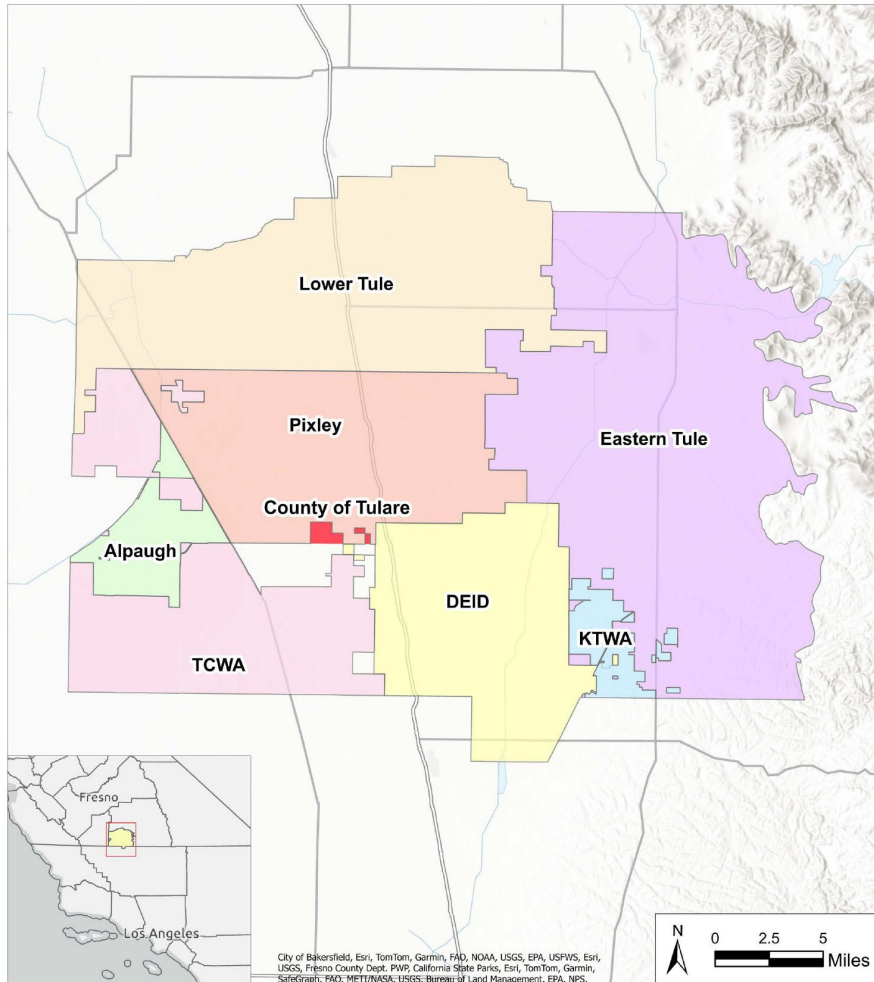
**Draft staff  
report and  
beginning of  
public  
comment**

**April  
2024**

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



# State Water Board Staff Report



**Tule staff report evaluates the July 2022 GSPs:**

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



**Groundwater levels**



**Subsidence**



**Groundwater quality**



**Interconnected Surface Water**

- **Potential actions to correct deficiencies**
- **Tentative evaluations of 2024 GSPs**
- **Responses to public comments on draft staff report (Appendix C)**

# Engagement and Public Input

Since April 2024



- **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



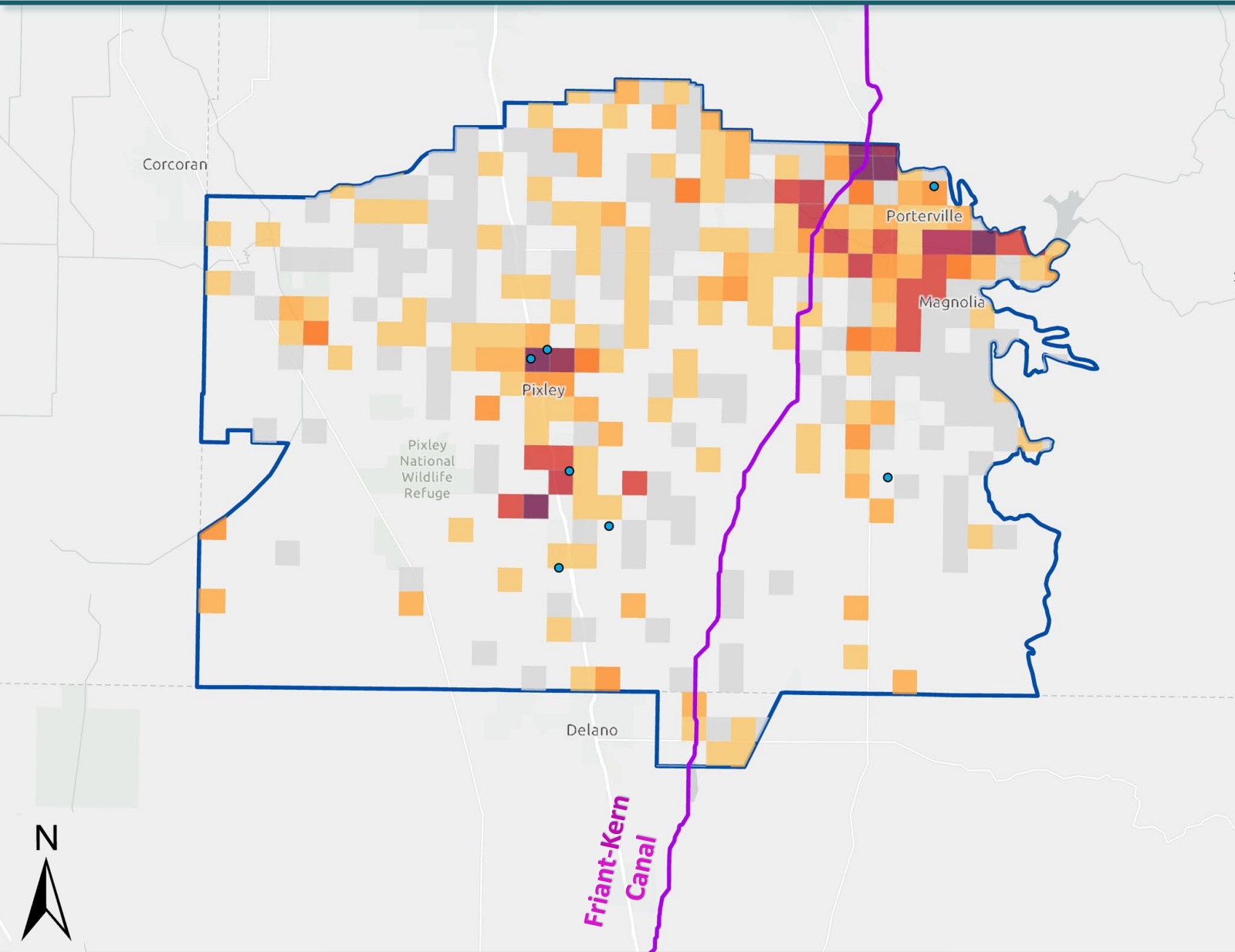
# Potential Consequences: Declining Groundwater Levels

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- **Threatens drinking water sources by causing wells to go dry or reducing their productivity**
  - **Under 2022 GSPs, about 1 in 5 domestic wells and at least 20 public supply wells could dry**
  - **Under 2024 GSPs, about 1 in 10 domestic wells**
- **Increases costs to deepen or drill new wells**
- **Increases energy costs of pumping**
- **Increases costs of water for everyone**
- **Causes subsidence, degrades water quality, and depletes interconnected surface water**



# Tule Subbasin: Domestic Wells



**Susceptible: 561**  
**Reported dry in 2023: 8**





# Groundwater Levels

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## Tentative Evaluation: 2024 GSPs



**Deficiency appears to have been mostly addressed**



**Deficiency appears to have been partially addressed**



**Deficiency does not appear to have been addressed**



**Staff has not reviewed yet**

# Groundwater Levels

## Deficiency

## Potential Action



**1. Inadequate definition of undesirable result.**

**1. Clearly define the undesirable result, e.g., how many impacted wells would be considered significant and unreasonable.**



**2. Tri-County Water Authority GSP undesirable result is not consistent with the Coordination Agreement.**

**2. Manage Tule portion of GSA and include undesirable result consistent with Tule subbasin.**



**3. GSPs used modeled (rather than observed) 2015 groundwater levels to identify wells dry as of 2015.**

**3. Use observed 2015 groundwater levels in impacted wells analyses.**

# Groundwater Levels, continued

## Deficiency

## Potential Action



**4. The GPS's goals do not achieve sustainability.**

**4. Revise goals to prevent overdraft. Evaluate feasibility of projects that GSPs rely on to increase water supply.**



**5. Minimum thresholds (MTs) do not clearly represent undesirable results.**

**5. Set MTs representative of undesirable results, rather than projected groundwater elevations.**



**6. Estimates of number of wells to be impacted are not consistent between Coordination Agreement and Delano-Earlimart Irrigation District GSP.**

**6. Resolve discrepancies.**



# Groundwater Levels, continued

## Deficiency

## Potential Action



**7. Insufficient explanation for Tri-County Water Authority GSP MT selection.**

**7. Revise definition of undesirable result to include impacts that would cause "lack of access to water supplies", and set MTs accordingly.**



**8. Well mitigation plans lack crucial detail.**

**8. Add detail to well mitigation plans.**



**9. The GSPs contain inconsistencies in detailing the monitoring well network.**

**9. Resolve monitoring well network discrepancies.**

# Plan Deficiencies – Subsidence





# Potential Consequences: Land Subsidence

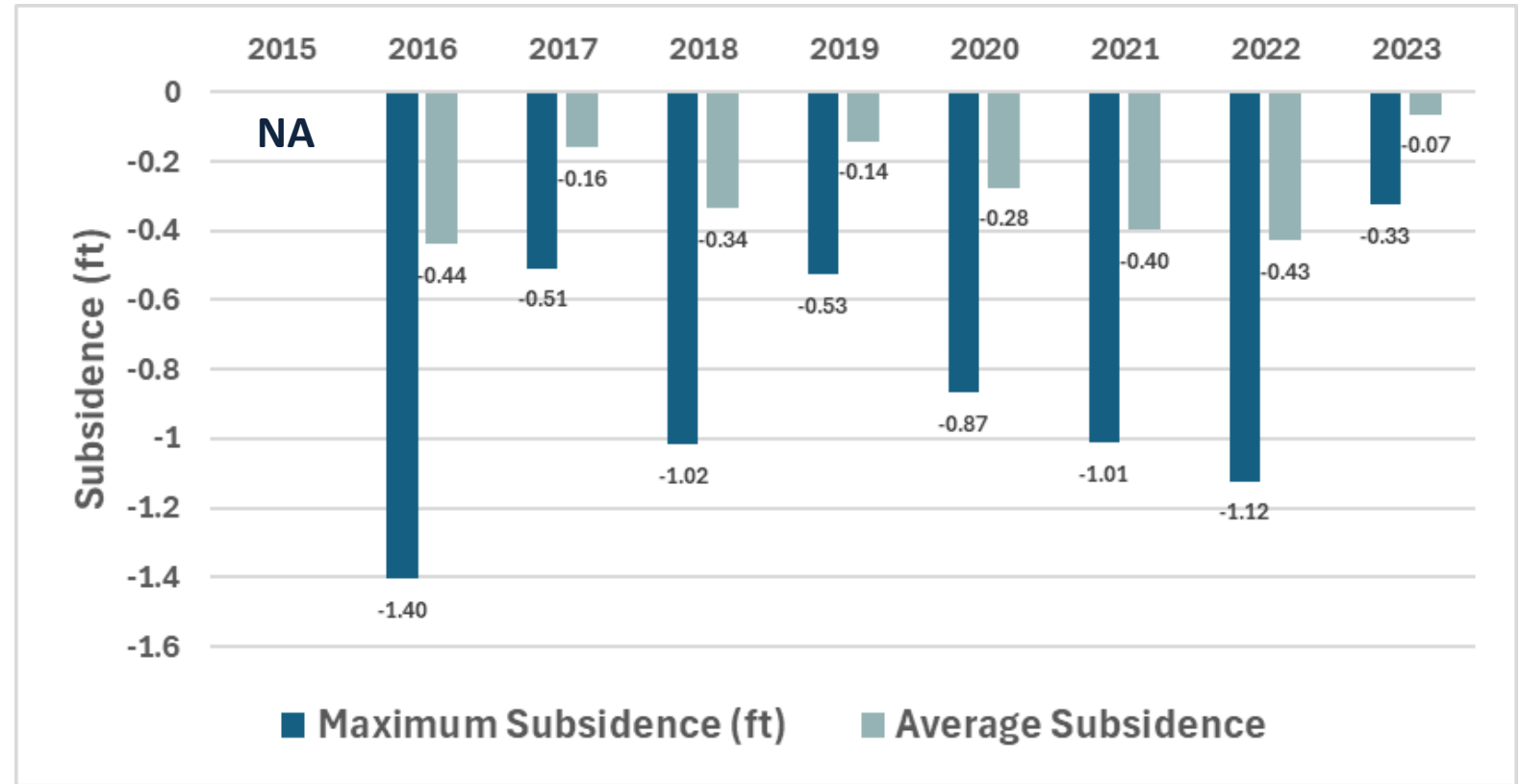
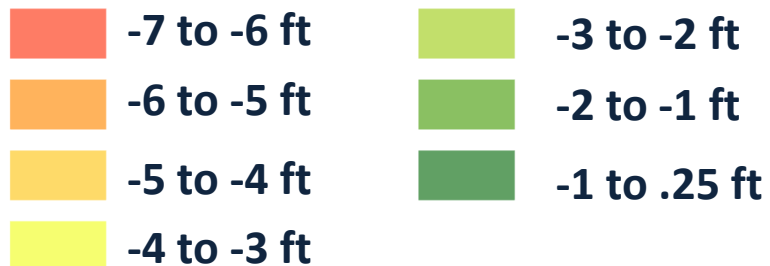
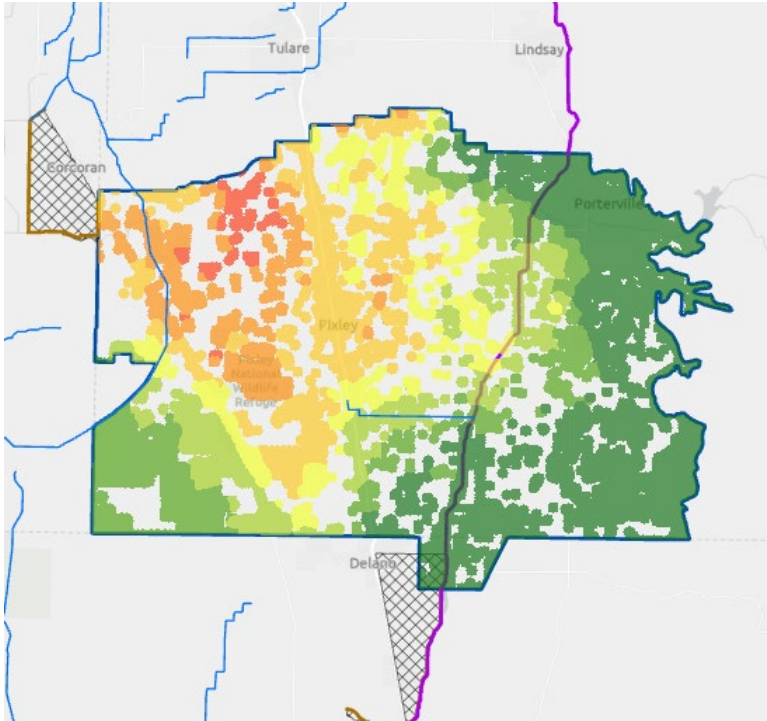
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- **Reduces carrying capacity of gravity-driven water conveyance**
  - Reduces surface water deliveries and increases flooding risks
  - Example: Friant-Kern Canal had lost more than 50% capacity by 2019 due to subsidence. Repair is costing about half a billion dollars.
- **Damages deeper wells**
- **Damages infrastructure like roads, utilities, and pipelines**
- **Causes irreversible damage to groundwater aquifers and lasting damage to aquatic ecosystems**
- **Can cause degradation of water quality**






# Subsidence Since 2015

## Subsidence from InSAR June 2015 to Apr 2024






**Maximum Subsidence in Tule Subbasin  
June 2015- Apr 2024: -7.15 feet**

# Plan Deficiencies – Subsidence

| Deficiency  | Potential Action  |
|---|---|
|  <p data-bbox="257 382 1243 654">1. The GSPs claim without justification that their goals would prevent significant and unreasonable impacts.</p>     | <p data-bbox="1294 418 2507 615">1. Revise goals so that they demonstrably prevent significant and unreasonable impacts.</p>              |
|  <p data-bbox="257 779 1225 976">2a. Minimum thresholds were not established based on avoiding undesirable results.</p>                               | <p data-bbox="1294 779 2481 976">2a. Define minimum thresholds based on the level of subsidence that would cause undesirable results.</p> |
|  <p data-bbox="257 1122 1243 1393">2b. GSPs allow more subsidence along Friant-Kern Canal than allowed between GSAs and Friant Water Authority.</p> | <p data-bbox="1294 1193 2517 1322">2b. Limit subsidence to, at most, the limits in other agreements.</p>                                  |

# Plan Deficiencies – Subsidence, continued

| Deficiency  | Potential Action   |
|---|--|
|  <p data-bbox="257 415 1243 765">3. GSPs lack crucial detail about how they plan to meet their goals; subsidence since 2020 indicates that GSAs are not on track to meet their goals.</p> | <p data-bbox="1289 379 2440 729">3. Develop and implement plans to limit pumping near critical infrastructure. Do not allow new wells near critical infrastructure. Develop plans to repair damage caused by subsidence.</p> |
|  <p data-bbox="257 868 1169 1133">4. Tri-County Water Authority GSP undesirable result is not consistent with the Coordination Agreement.</p>  | <p data-bbox="1289 905 2481 1093">4. Manage Tule portion of GSA and include undesirable result consistent with Tule subbasin.</p>  |
|  <p data-bbox="257 1233 1085 1362">5. GSPs allow subsidence to continue beyond 2040.</p>  | <p data-bbox="1289 1268 2481 1329">5. Do not allow subsidence beyond 2040.</p>   |



# Plan Deficiencies – Groundwater Quality



# **Potential Consequences: Degraded Groundwater Quality**

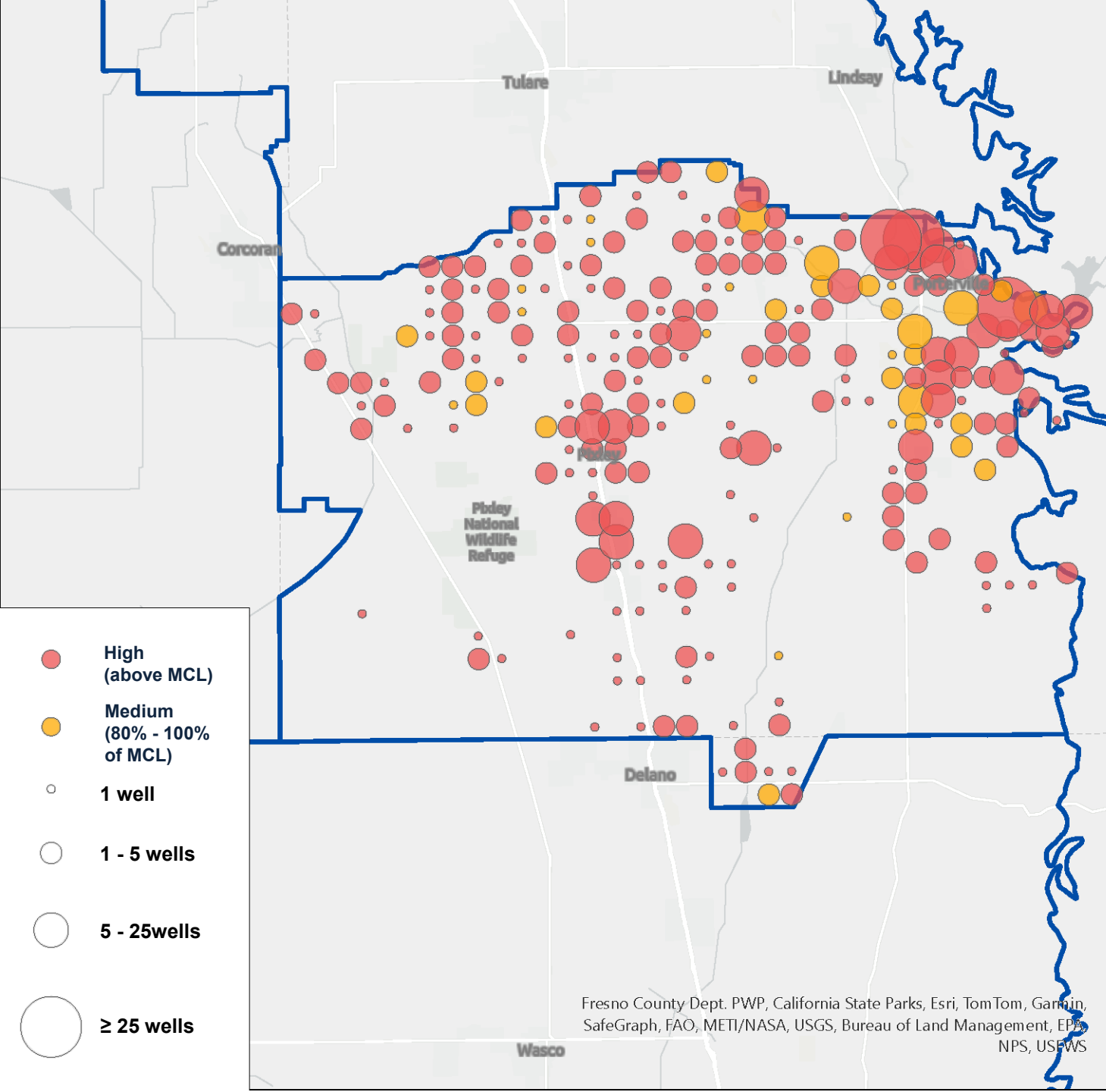
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- **Can cause chronic disease that could result in death**
- **Can cause foul odor or taste**
- **Can result in irrigation water that is not suitable for crops**
- **Treatment may be difficult and very expensive**
- **May require alternative water source**



# 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






# Plan Deficiencies – Groundwater Quality

| Deficiency   | Potential Action  |
|--|---|
|  <p data-bbox="257 379 1174 651">1. The GSPs goals are not well described, so it is unclear if the goals would prevent significant and unreasonable results.</p>                   | <p data-bbox="1294 415 2507 611">1. Clearly describe the impacts that would be considered significant and unreasonable.</p>   |
|  <p data-bbox="257 704 1174 1125">2a. The GPSs would allow continued and unmanaged degradation of groundwater quality where water quality was degraded before SGMA was passed.</p> | <p data-bbox="1294 776 2507 1055">2a. Identify representative monitoring wells, in areas where groundwater quality has already been degraded, and develop goals that prevent further degradation.</p> |
|  <p data-bbox="257 1189 1245 1396">2b. GSPs do not address detected pollutants that can be impacted by basin management.</p>   | <p data-bbox="1294 1225 2392 1358">2b. Address uranium and nitrite, also consider addressing PFAS and PFOA.</p>   |

# Potential Actions – Groundwater Quality, continued

| Deficiency   | Potential Action   |
|--|--|
|  <p data-bbox="257 425 1235 696"><b>2c. GSPs allow for degradation of some domestic drinking water wells because of use of agricultural water standards.</b></p> | <p data-bbox="1294 461 2423 661"><b>2c. Revise GSPs so domestic well drinking water does not degrade below drinking water standards.</b></p> |
|  <p data-bbox="257 782 1166 1046"><b>3a. Tri-County Water Authority GSP undesirable result is not consistent with the Coordination Agreement.</b></p>            | <p data-bbox="1294 818 2479 1011"><b>3a. Manage Tule portion of GSA and define undesirable result consistent with Tule subbasin.</b></p>     |
|  <p data-bbox="257 1132 1166 1382"><b>3b. Tri-County Water Authority GSP minimum thresholds not consistent with the Coordination Agreement.</b></p>            | <p data-bbox="1294 1160 2479 1353"><b>3b. Manage Tule portion of GSA and define minimum thresholds consistent with Tule subbasin.</b></p>    |

# Potential Actions – Groundwater Quality, continued

| Deficiency  | Potential Action  |
|---|---|
|  <b>4a. GSPs are inconsistent in how they will monitor for water quality.</b>               | <b>4a. Ensure monitoring networks are consistent with coordination agreement.</b>   |
|  <b>4b. GSPs do not propose frequent enough monitoring.</b>                                 | <b>4b. Clearly describe how groundwater quality will be monitored frequently so to detect short-term and seasonal trends.</b> |
|  <b>5a &amp; b. GSPs do not include plans for degraded water quality impact to wells.</b> | <b>6. Plan additional monitoring and develop plans to restore access to clean water when it degrades below standards.</b>     |



# Plan Deficiencies – Interconnected Surface Water



# **Potential Consequences: Depletion of Interconnected Surface Water**

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- **Substantially transforms/harms habitat and wildlife**
- **Threatens recreation: Fishing, hunting**
- **Reduces surface water available for human use**



# Plan Deficiencies – ISW

## Deficiency

## Potential Action



**1. GSPs do not demonstrate there is no interconnected surface water.**

**1. Evaluate best available data for presence of interconnected surface water, explaining monitoring data used in analysis.**



**2. GSPs use incorrect definition of interconnected surface water in their consideration.**

**2. Use the correct definition of interconnected surface water.**

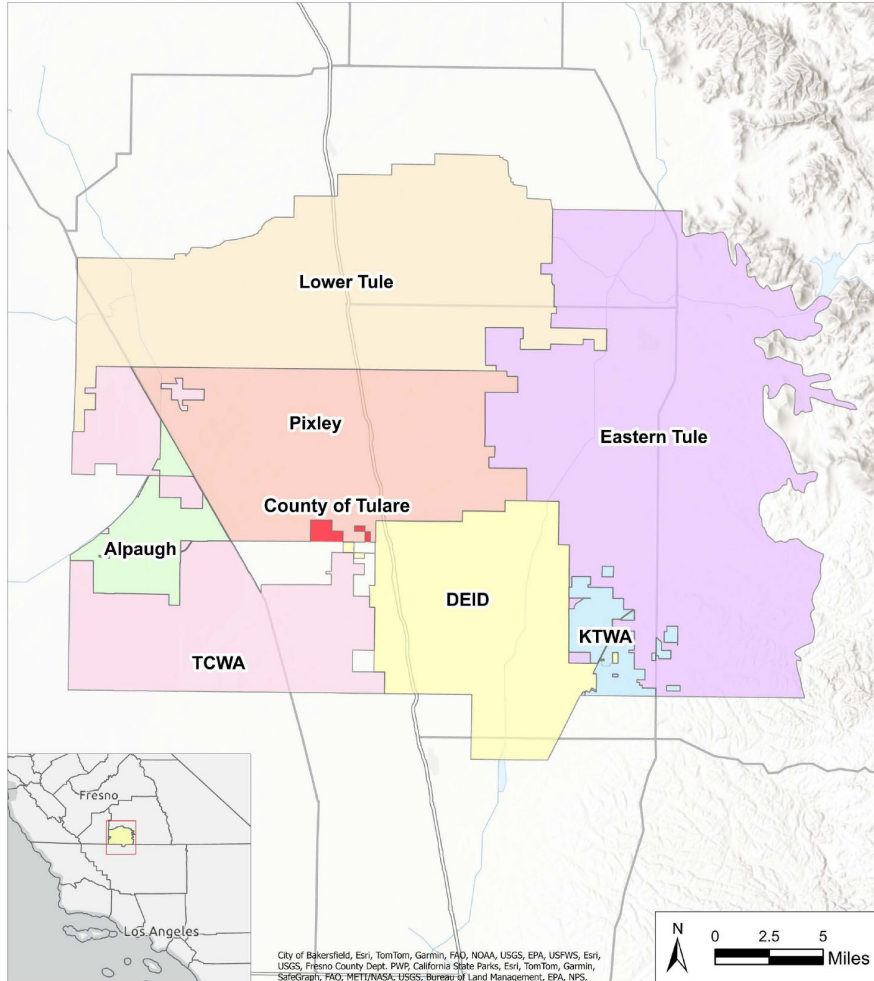


**3. Conditional: GSPs do not include plans to avoid significant and unreasonable impacts to interconnected surface water.**

**3. If interconnected surface water are present, then the GSP should provide a plan to avoid significant and unreasonable impacts to interconnected surface water.**



# Subbasin Status Update



- **Staff-GSAs Meetings: 7 meetings to discuss concerns**
- **DEID submitted a new GSP on July 19**
- **Six Other GSPs submitted August 7**
- **Staff conducted red-flag review of the 2024 GSPs**

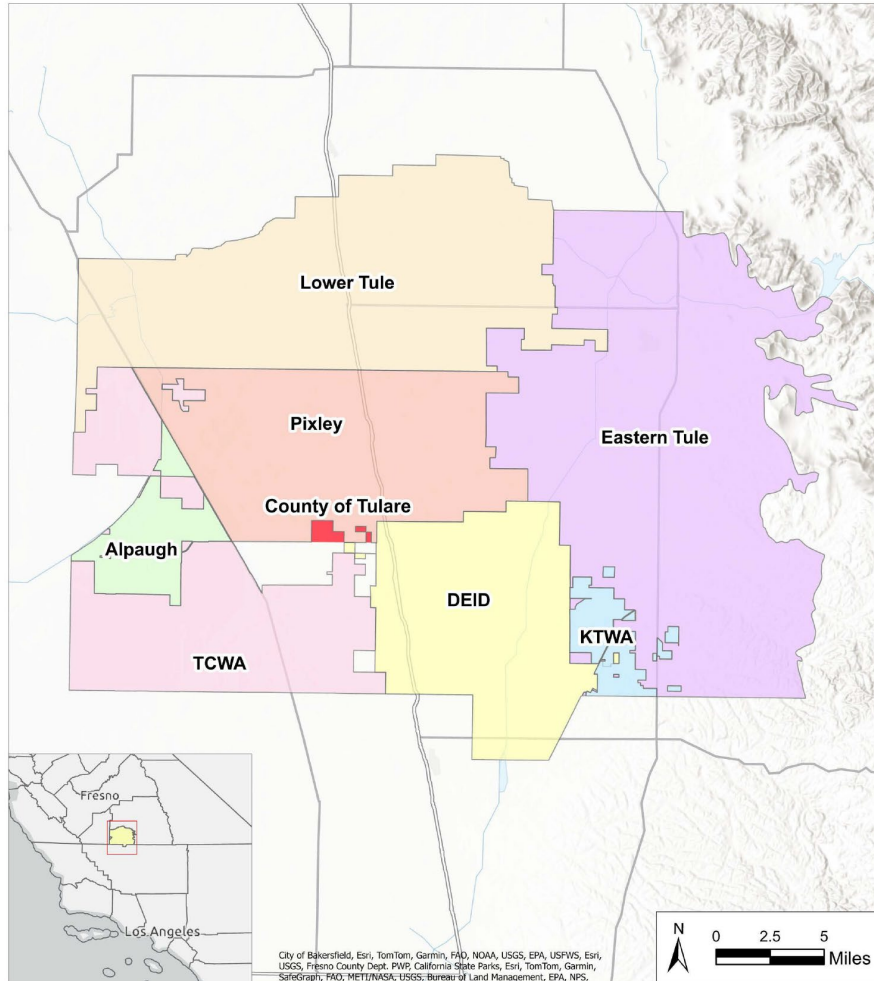


# Staff Recommendations for Tule Subbasin





# Staff Recommendations: Designate the Basin Probationary



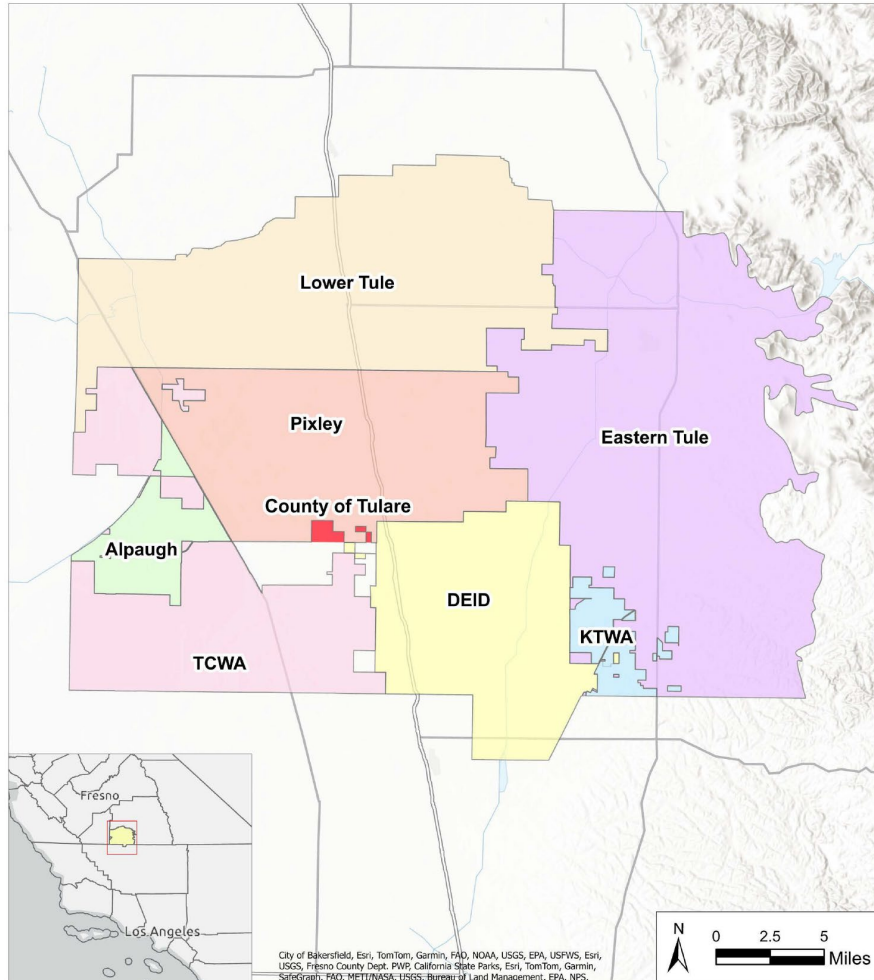
**The 2022 plans will allow substantial impacts to people who rely on:**

- **Domestic wells**
- **Critical infrastructure such as levees or canals (for example, the Friant-Kern Canal)**
- **The aquifer itself**

**The 2024 plans appear to address many deficiencies, but key deficiencies remain.**



# Staff Recommendations: Exclusions



**Two types of exclusions possible:**

- **Probation Exclusion**
- **Reporting and Fee Exclusion**

## Probation Exclusion

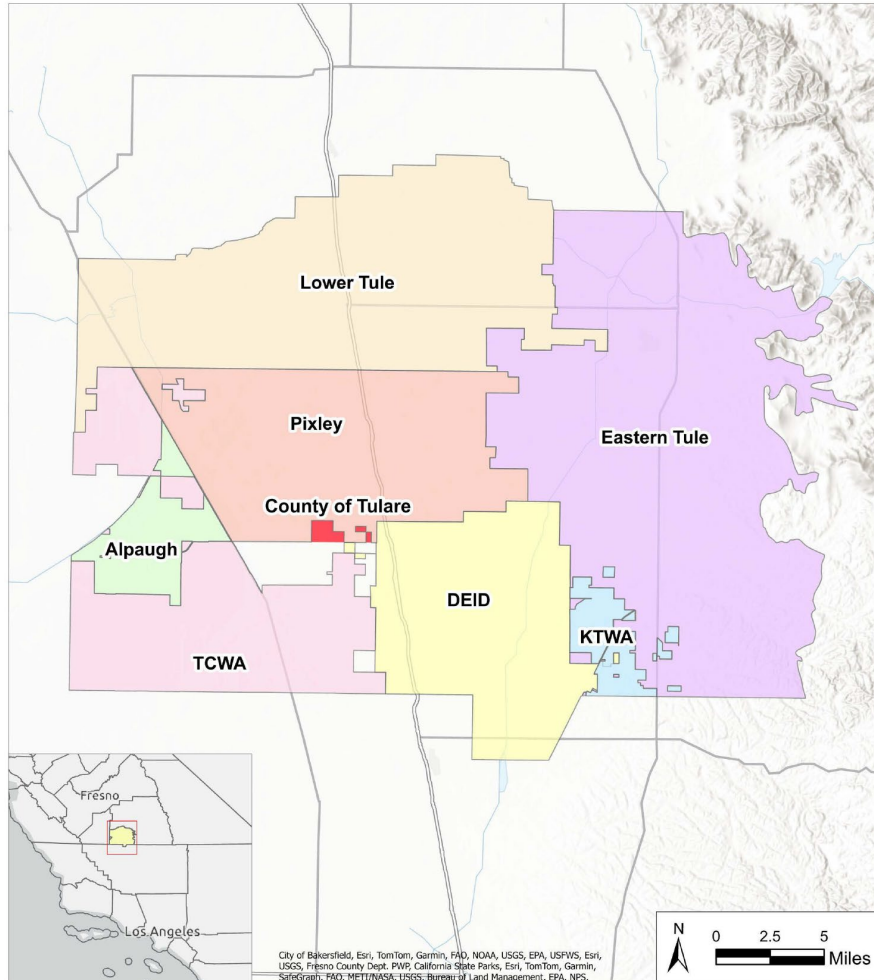
Excludes a portion of the basin from probation

Requires demonstrating compliance with sustainability goal:

- Existence and implementation of a GSP
- GSP adequately defines and monitors undesirable results
- Implementing actions that ensure portion of basin operates within sustainable yield

\* Water Code 10735.2 (e)

# Staff Recommendations: Exclusions



**Two types of exclusions possible:**

- **Probation Exclusion**
- **Reporting and Fee Exclusion**

## Reporting and Fee Exclusion

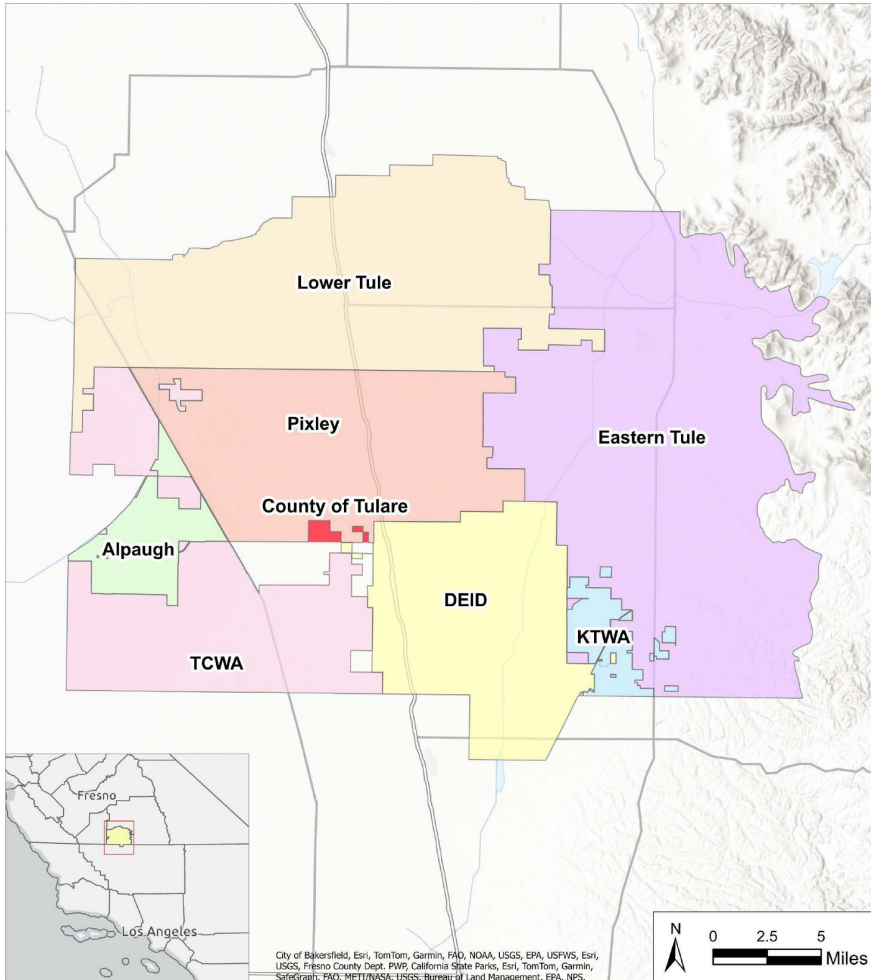
Excludes extractions from reporting and fee requirements

Requires demonstrating either:

- Minimal impacts on basin withdrawals
- Subject to a local plan or program that adequately manages groundwater
  - Examples: balanced water budget, demand management, contingencies for dry conditions

\* Water Code 10735.2 (c)

# Staff Recommendations: Exclude Two Portions of the Basin



## Requests to be excluded from probationary status:

- DEID, Angiola Water District
- No GSA demonstrates compliance with sustainability goal
- DEID and Kern-Tulare Water District GSAs have demonstrated adequate groundwater management



# Staff Recommendations:

## Exclude DEID GSA from Reporting and Fees



DEID's Turnipseed Water Banking Facility

**Delano-Earlimart Irrigation District (DEID) GSA has adequate groundwater management and therefore meets the qualification for reporting and fee exclusion\*.**

**DEID is:**

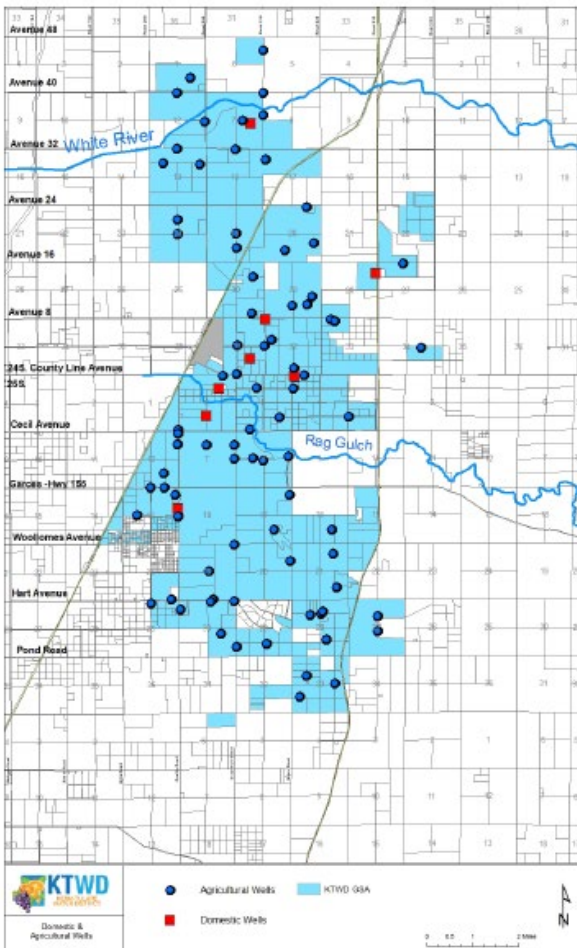
- 1. Has a generally surplus water budget (a net recharger of groundwater)**
- 2. Developing demand management plans**

\* Water Code 10735.2 (c)

# Staff Recommendations:

## Exclude KTWD GSA from Probation

Figure 1-8 Active Well Locations



**Kern-Tulare Water District (KTWD) GSA has adequate groundwater management and therefore meets the qualification for a reporting and fee exclusion\*.**

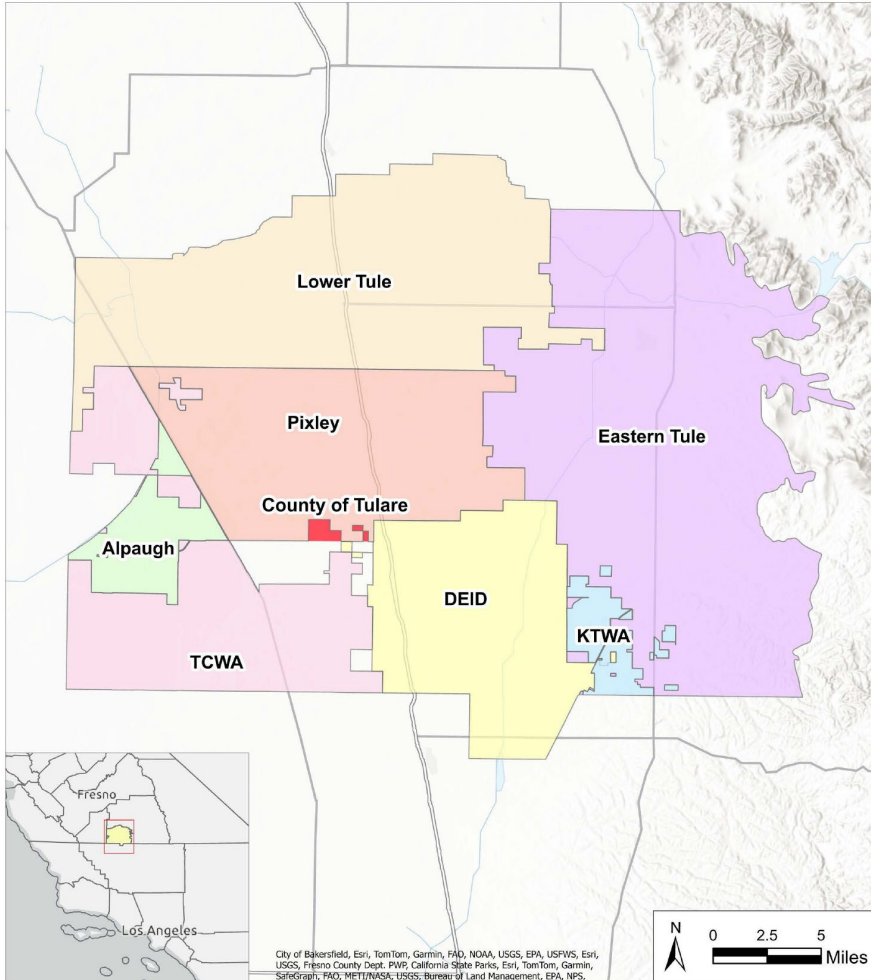
**KTWA is:**

- 1. Has a generally balanced water budget**
- 2. Registering and metering all wells**
- 3. Implementing a flexible fee schedule to reduce extractions when necessary**

**KTWA Active Well Locations**

**\* Water Code 10735.2 (c)**

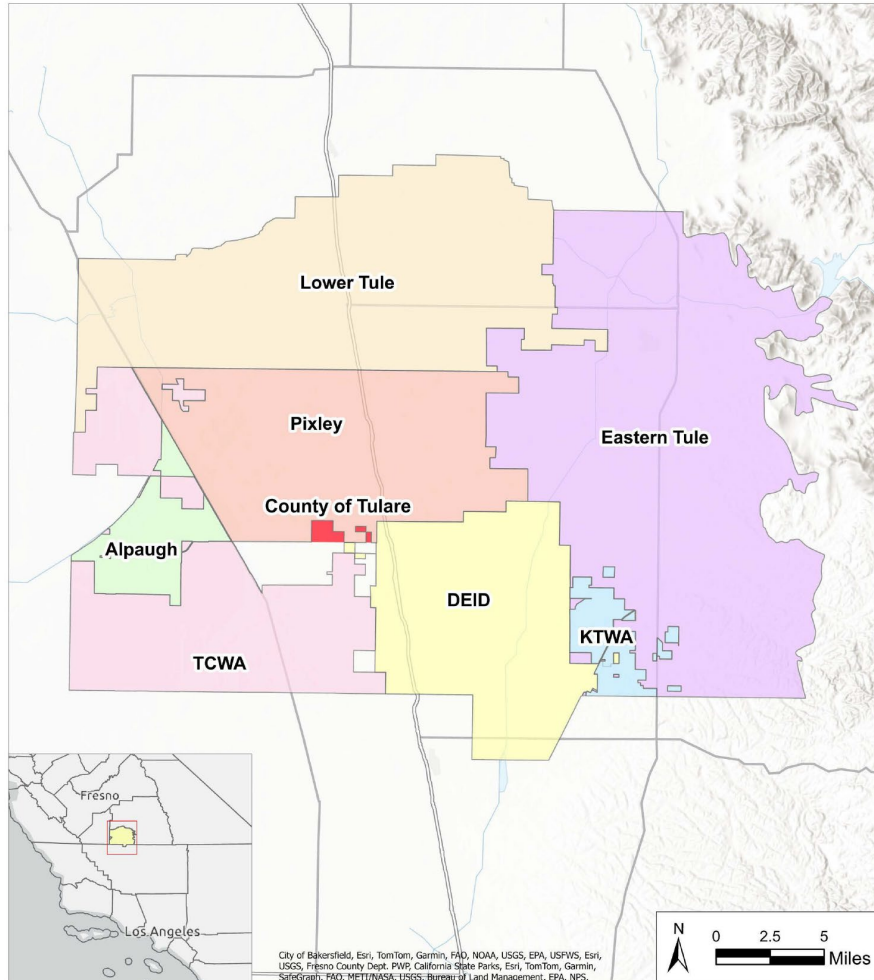
# Staff Recommendations: Reporting Requirements



- All people who extract groundwater (unless excluded\*) must report:
    - ☑ well location & capacity
    - ☑ monthly extraction volumes
    - ☑ place & purpose of use
  - Begin recording January 1, 2025
  - Reports due annually starting February 1, 2026
- \* EXCLUDE de minimis (2 acre-feet per year or less) domestic well users from reporting and fees



# Staff Recommendations: Reporting Requirements



**People who extract more than 500 acre-feet per year**

- **Measure extractions with a certified meter or alternatives in resolution**
  - **Hybrid Meter-Evapotranspiration method**
  - **Evapotranspiration method**

**People who extract within the Friant-Kern Canal subsidence management area:**

- **Measure extractions with a certified meter**

# Probationary Extraction Reporting Fees

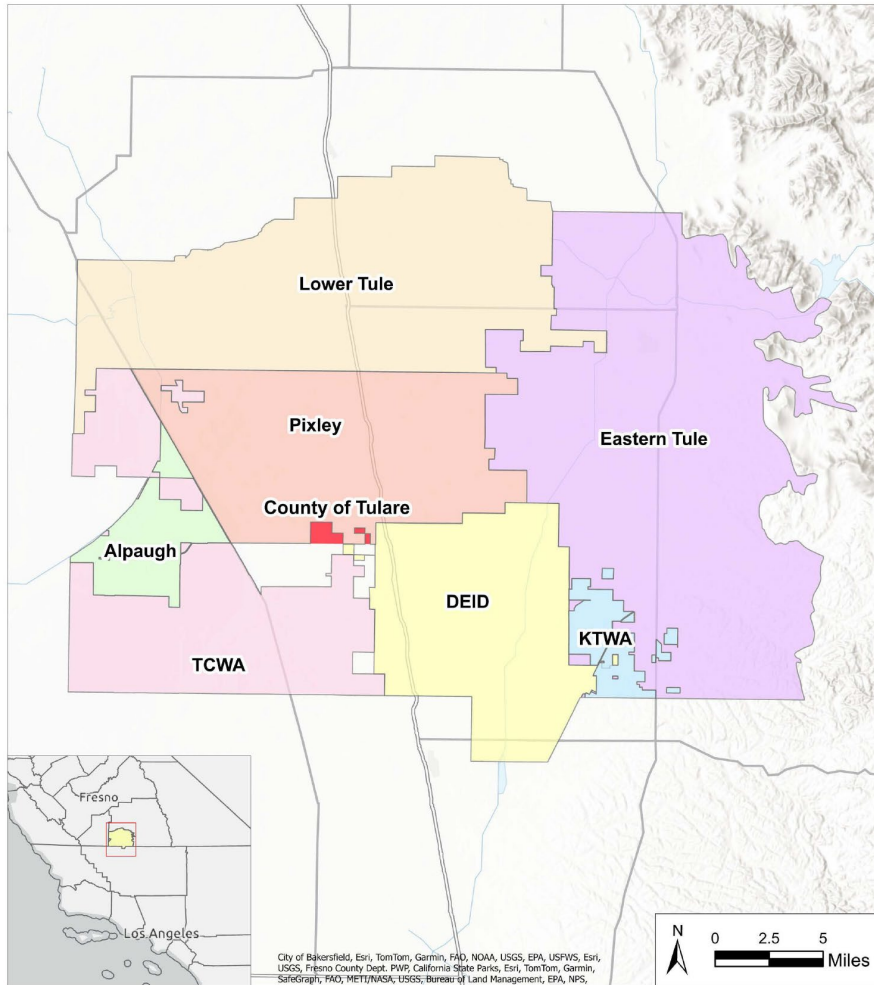
If the Board places the basin on probation today,  
for groundwater extractions beginning January 1, 2025:



**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



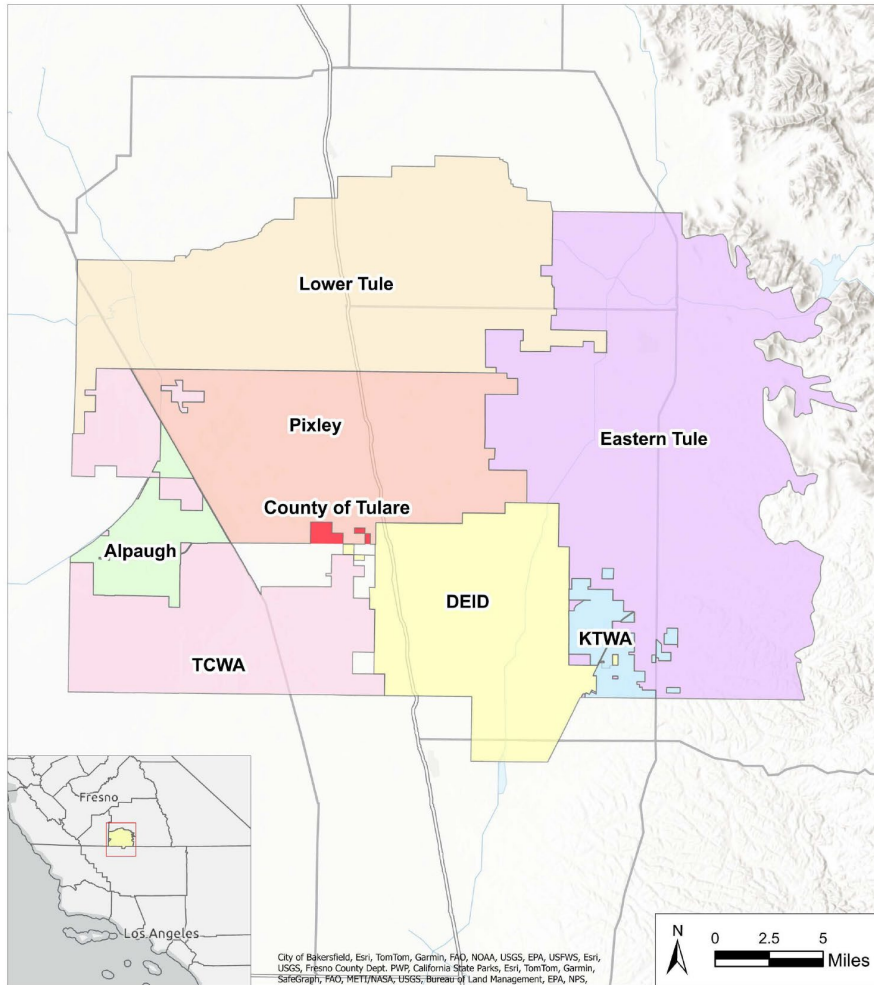
## **Board considers whether to designate the basin as probationary**

**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**



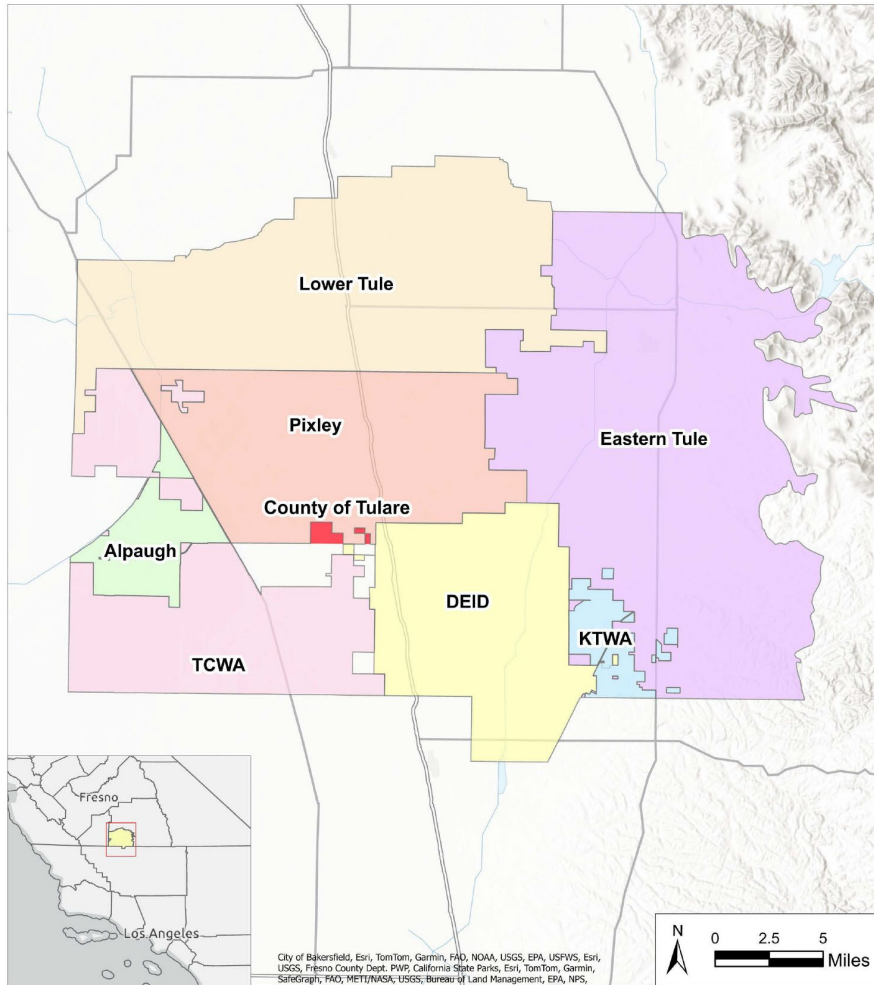
# Probation Next Steps



## GSAs continue working to address plan deficiencies

- Board Staff finalizes 2024 GSP review and provides clear feedback
- GSAs implement the potential actions or similarly effective actions
- Meet with Board staff to discuss progress
- Submit revised GSPs to Board for evaluation
- Board staff evaluate the plans
- 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 rescind 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

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