



**EASTERN SAN JOAQUIN  
GROUNDWATER AUTHORITY**

# **Informational Meeting – Basin Conditions November 7, 2018**



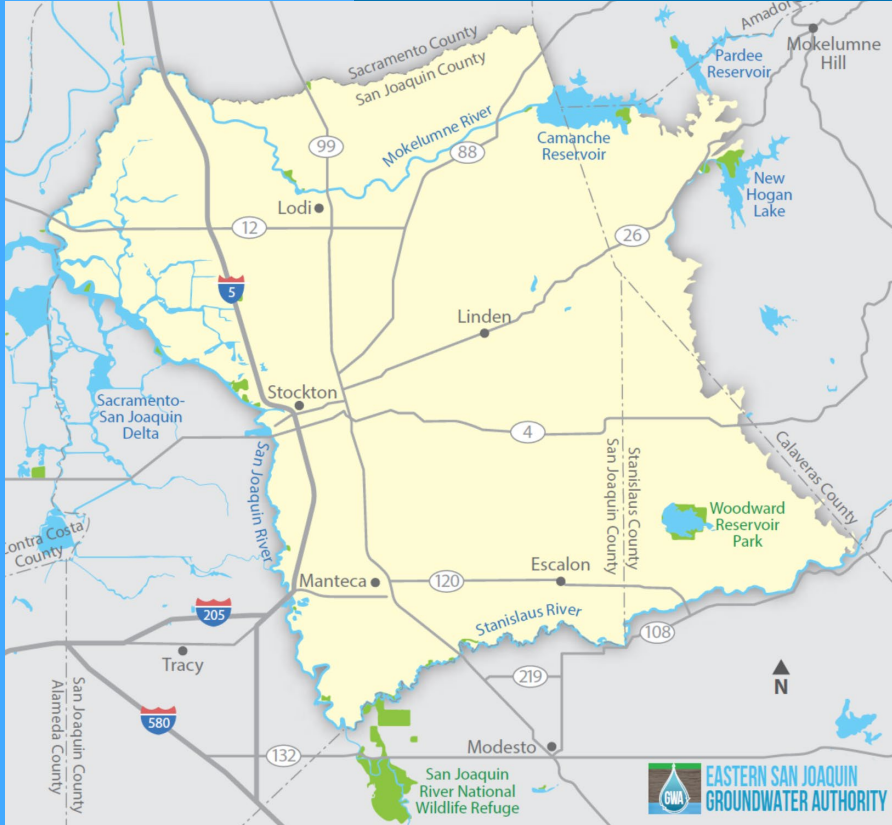
# Basin Setting



# Where is the Eastern San Joaquin Subbasin Boundary?



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ESJ Subbasin boundaries:

- North – Dry Creek
- West – San Joaquin River
- South – Stanislaus River
- East – Sierra Nevada Bedrock Outcrop

1,207 square miles

# ESJ Subbasin: 17 GSAs, One GSP



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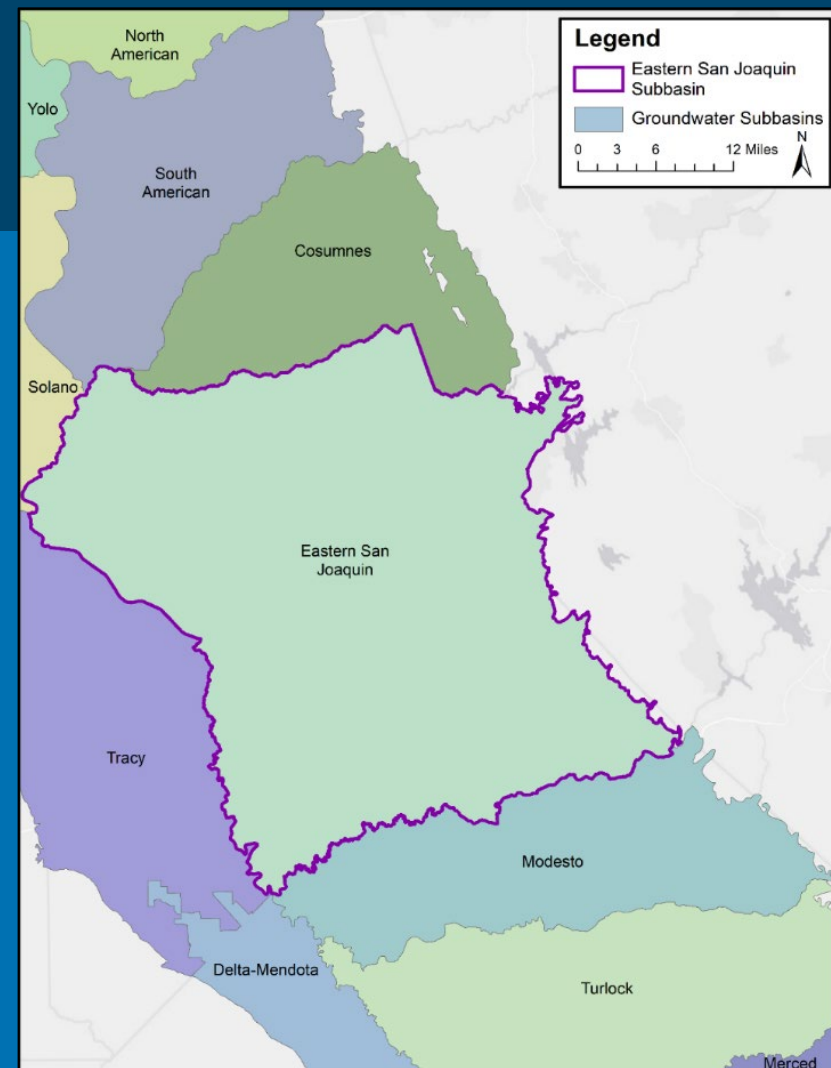
17 GSAs are working collaboratively to develop a single GSP

The GSAs formed the Eastern San Joaquin Groundwater Authority (GWA) to jointly develop and implement the Eastern San Joaquin GSP

# Neighboring Subbasins

Neighboring groundwater subbasins

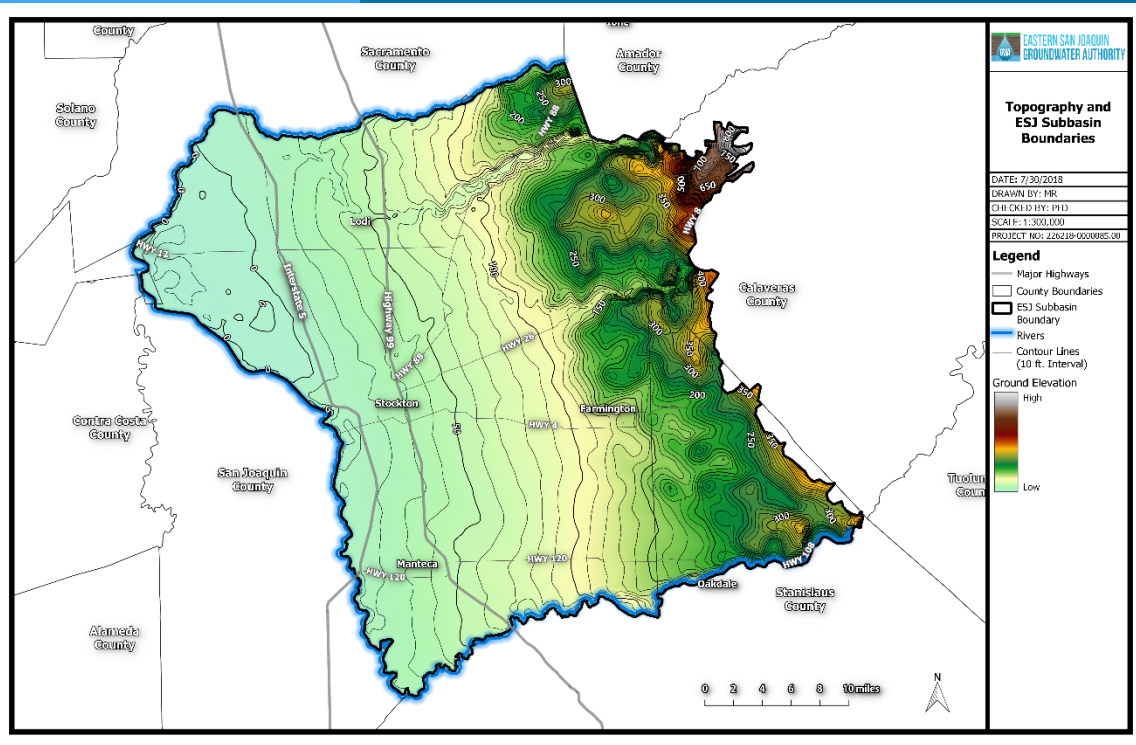
- Cosumnes
- South American
- Solano
- Tracy
- Delta-Mendota
- Modesto



# Subbasin Topography



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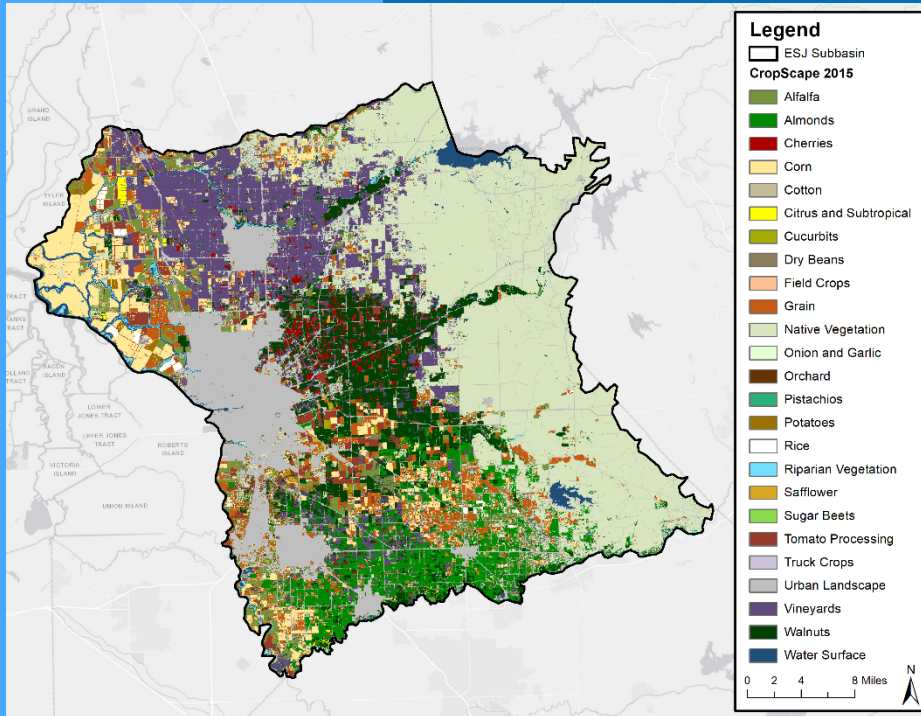


Ground surface elevation increases as you move eastward in the subbasin, toward the Sierra Nevada foothills

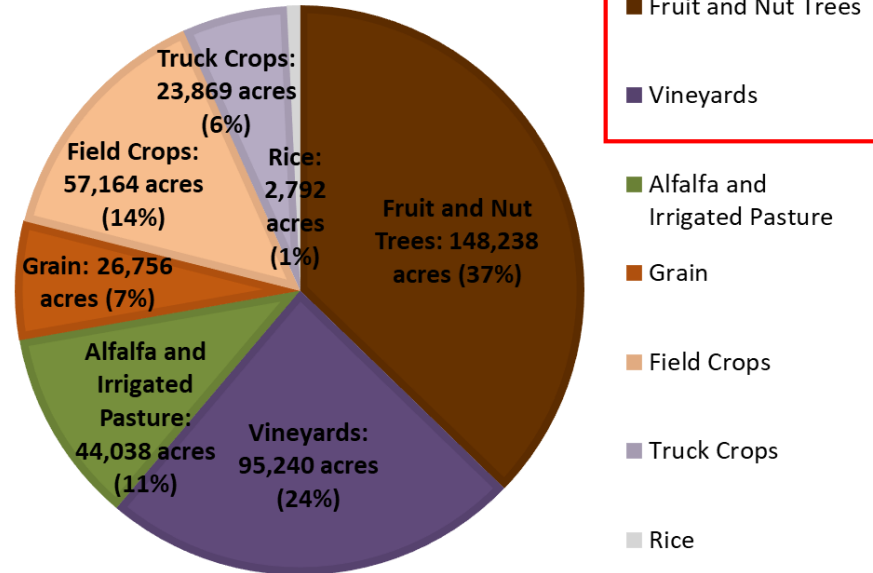
# Agriculture is the Dominant Land Use in the Subbasin



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2015 Cropping Pattern for ESJ Subbasin

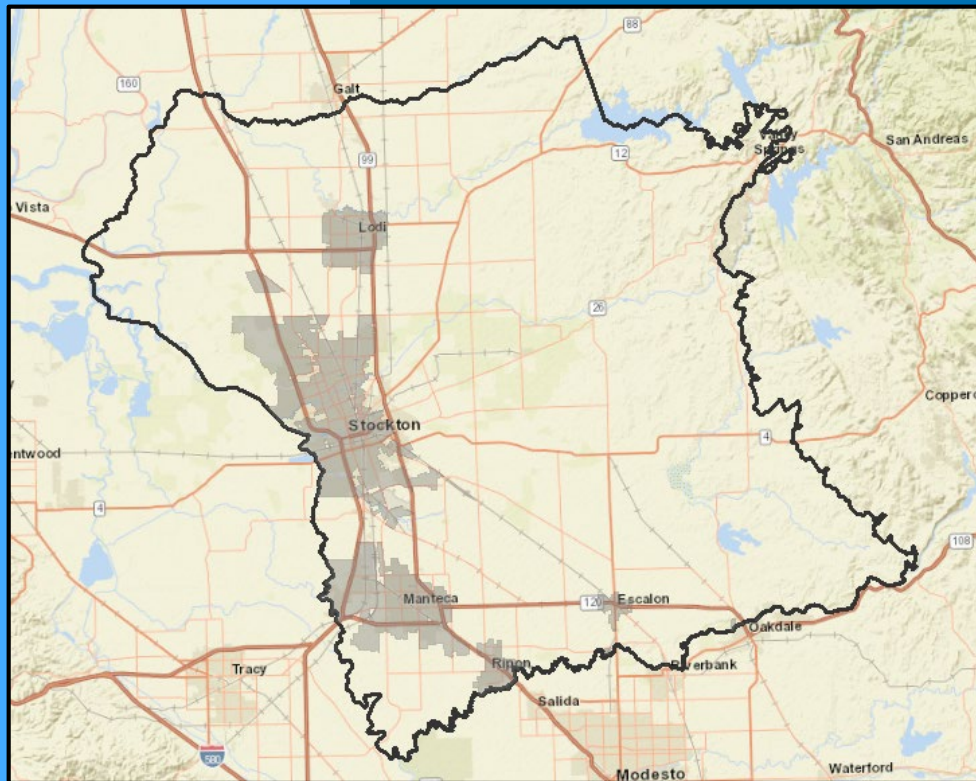




# Urban Centers



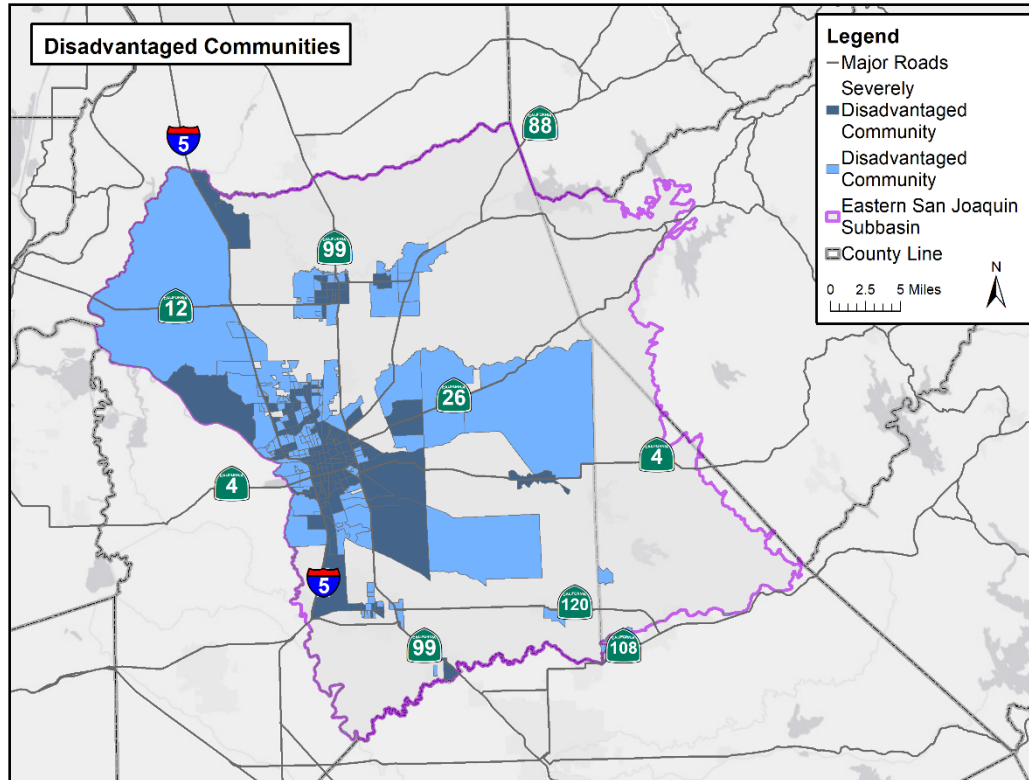
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- Stockton
- Manteca
- Lathrop
- Lodi
- Escalon
- Ripon



# Disadvantaged Communities (DACs) in ESJ



**Disadvantaged Communities (DACs)**  
Median household income less than 80% of the statewide average

**Severely Disadvantaged Communities (SDACs)**  
Median household income less than 60% of the statewide average

# Groundwater is Stored in Aquifers Underground



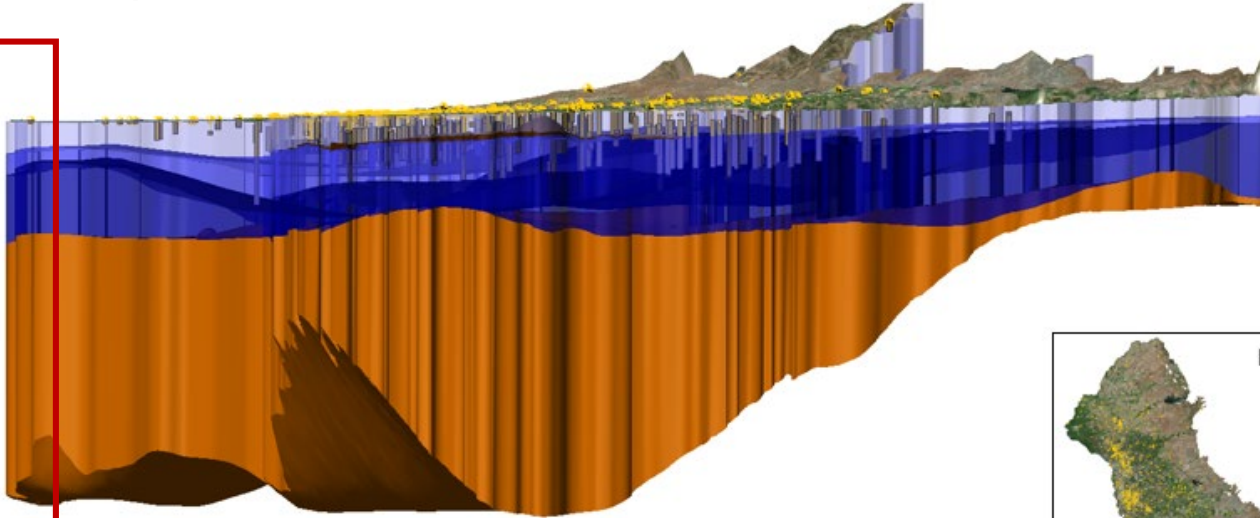
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Layer 1  
Corcoran  
Layer 2  
Layer 3  
Layer 4

Layers 1-3 are freshwater  
Layer 4 is saline

Unit: feet  
GSE: -2.6

0  
-100  
-200  
-300  
-400  
-500  
1000  
1500  
2000  
2500  
3000

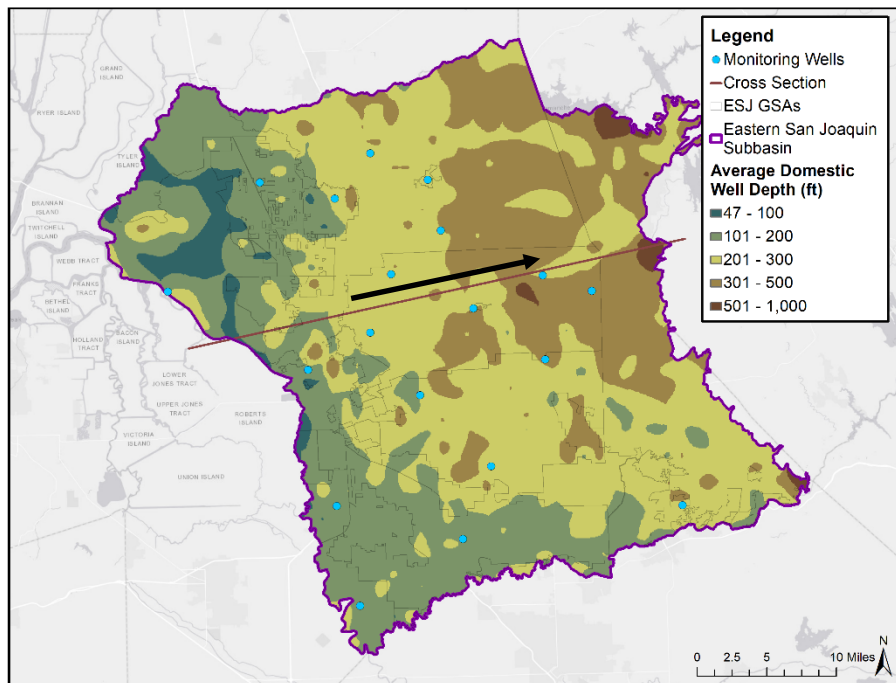


View

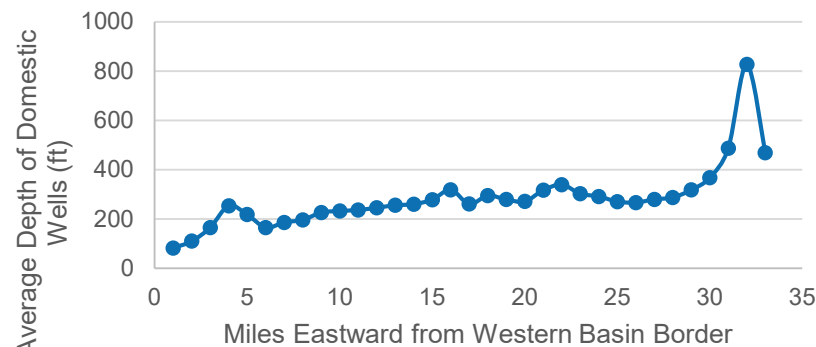
# Average Domestic Well Depth



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Average Domestic Well Depth  
(East-West Cross Section)



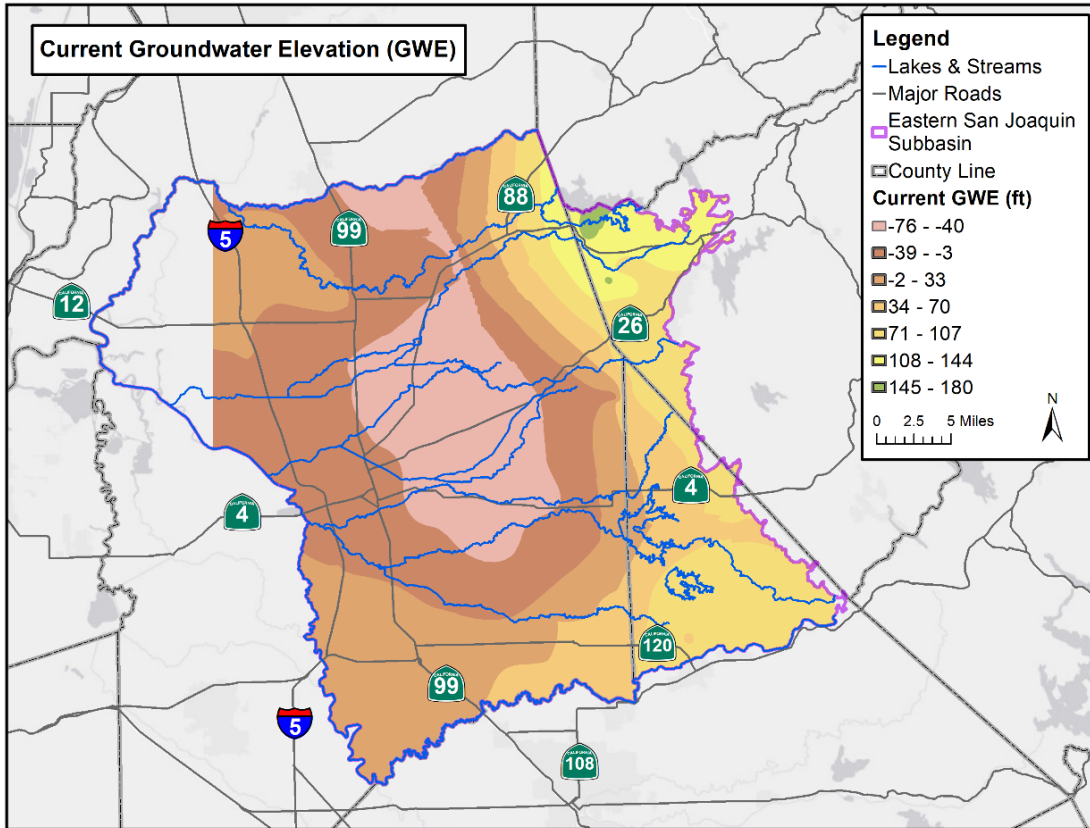
Source: Online System for Well Completion Reports (OSWCR)



# Current Basin Conditions



# Groundwater Elevation

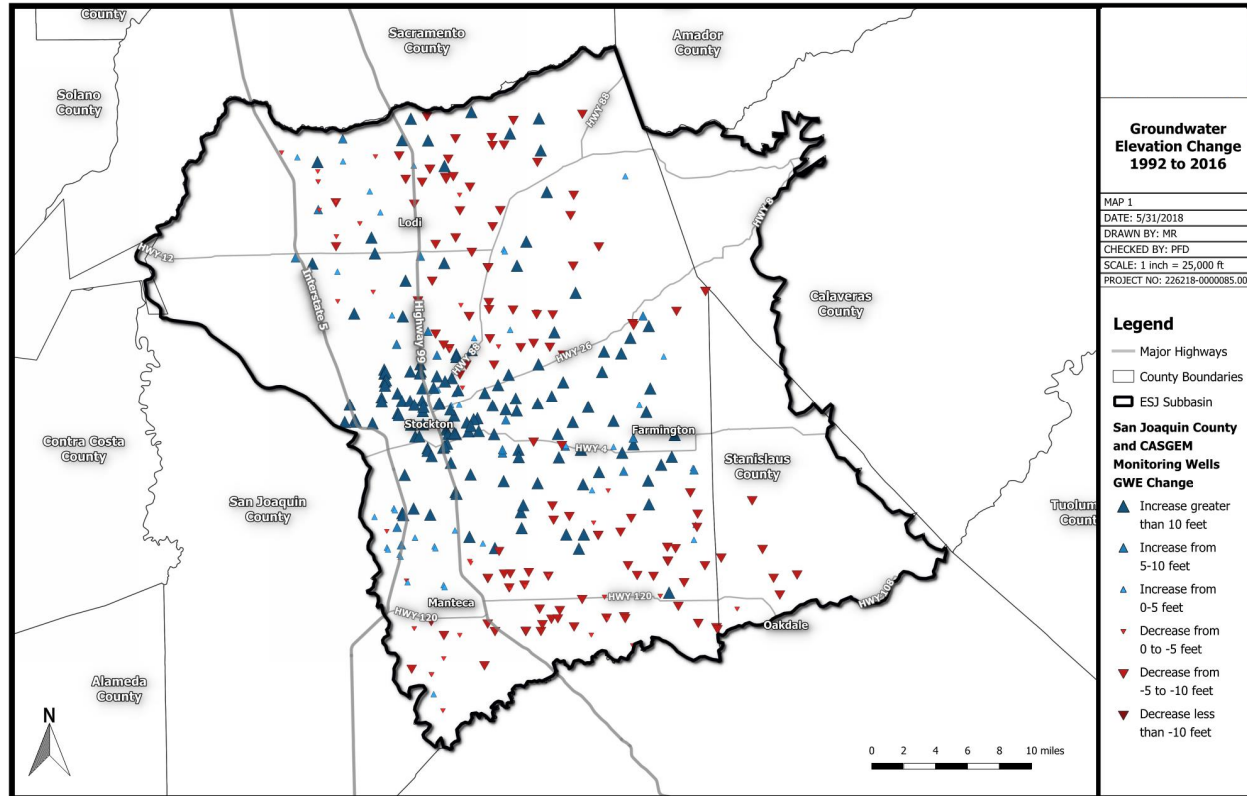


4<sup>th</sup> Quarter 2017  
Groundwater Elevation  
levels in the Eastern San  
Joaquin Subbasin

# Groundwater Elevation



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Some areas have recovered and some have declined since 1992 drought

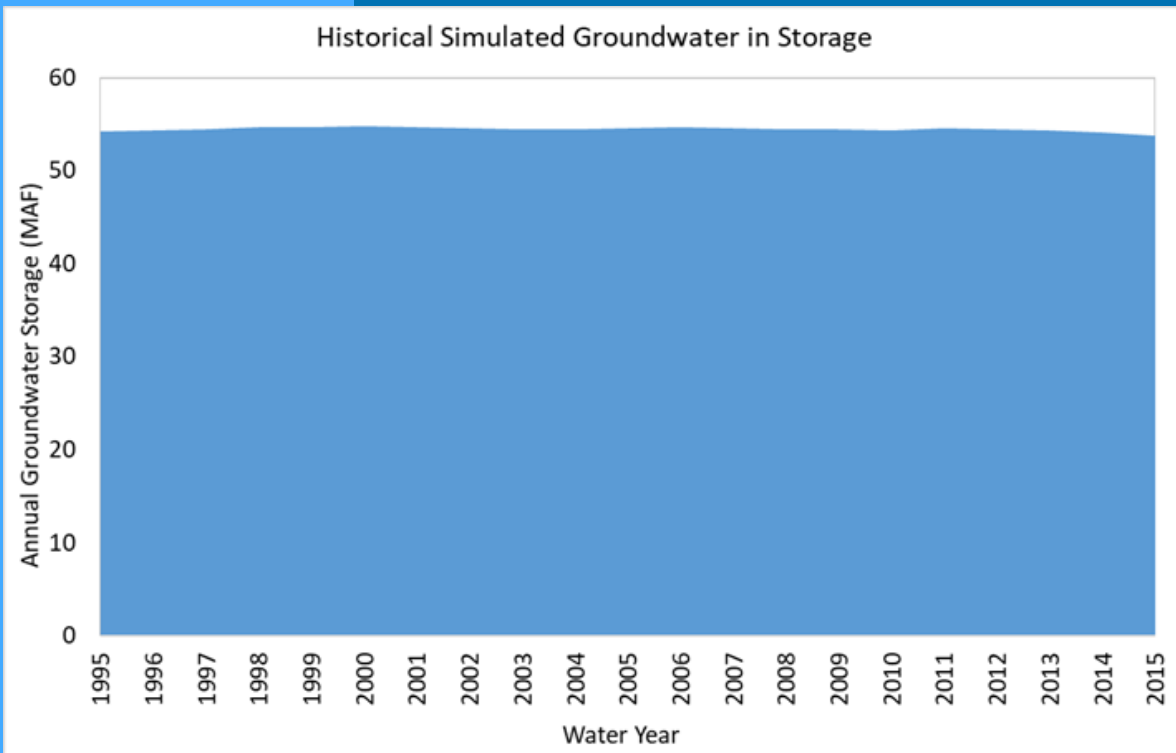
(blue) – areas that have recovered since 1992

(red) – areas that have declined since 1992

# Groundwater Storage



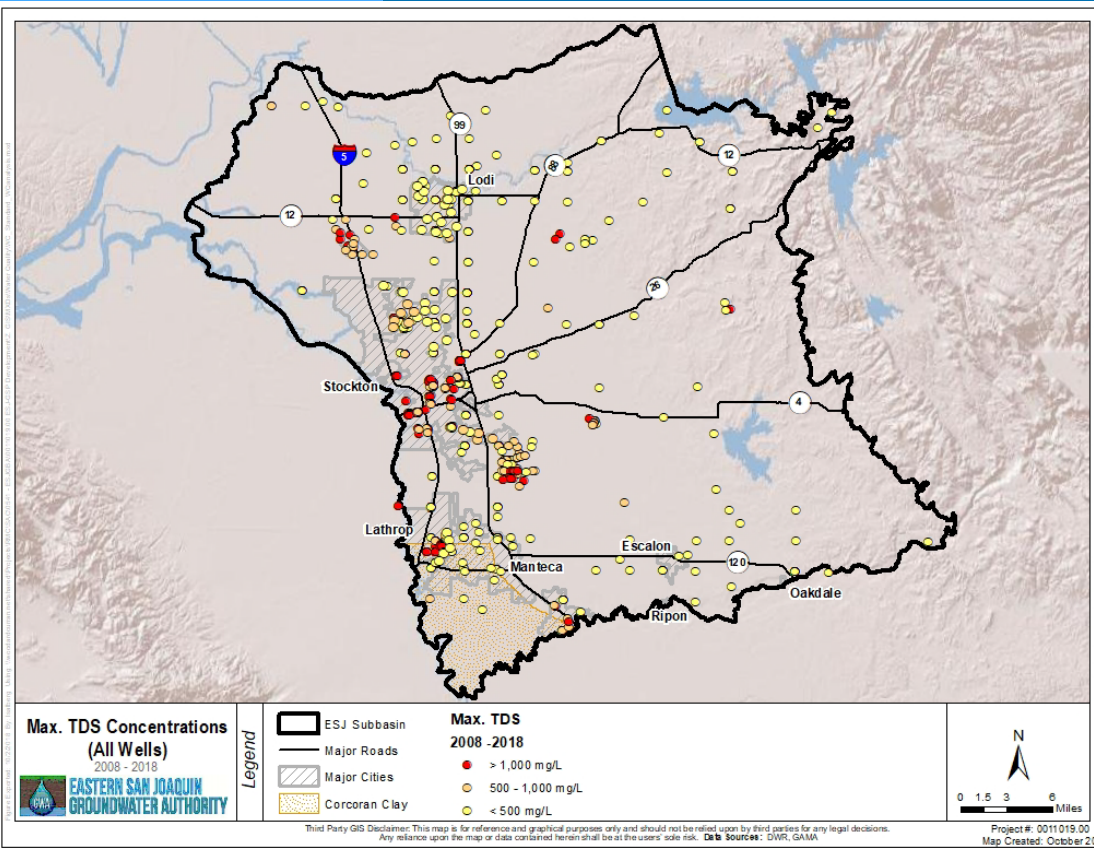
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The Basin has large amounts of groundwater in storage

This graph shows freshwater only

# Groundwater Quality - Salinity



Salinity contamination of freshwater wells is a concern in some areas

Total Dissolved Solids (TDS) concentrations  $> 500$  mg/L are generally found in the western half of the Subbasin

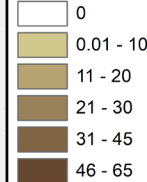


## Contours of Corcoran Clay Thickness

### Legend

Eastern San Joaquin Subbasin

Corcoran Clay Thickness (ft)



0 2.5 5 10 Miles



Data Source: USGS, by Page (1986), Central Valley Hydrogeologic Model

# Subsidence



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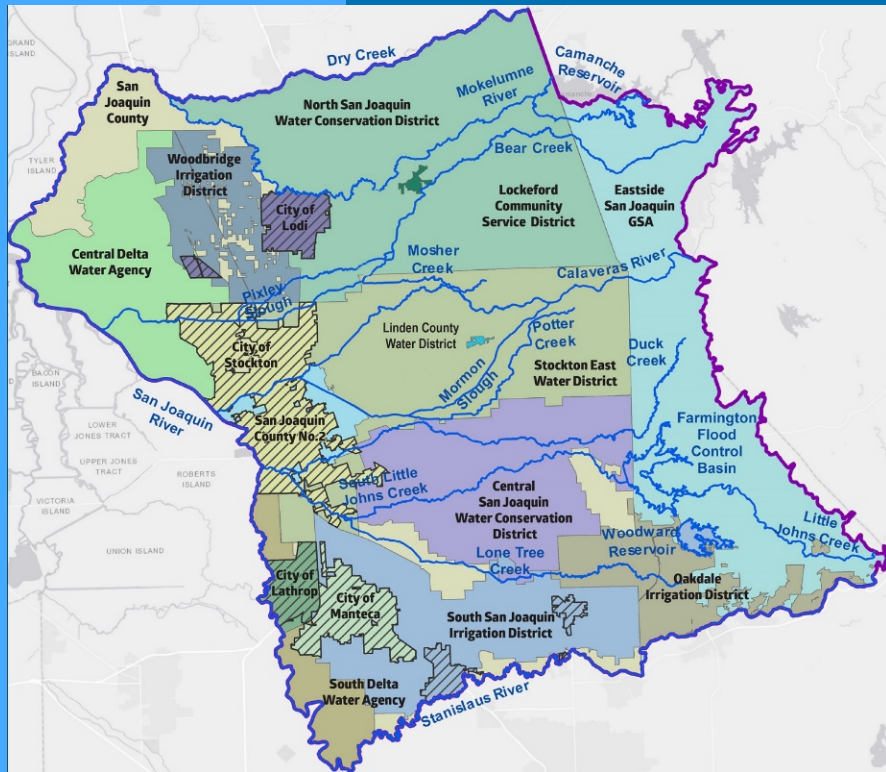
Areas with subsidence potential are generally limited to the portion of the Subbasin with a Corcoran Clay layer

Groundwater elevations in this area are typically high

# Interconnected Surface Waters



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Major river systems in the Subbasin are highly managed

Instream flow requirements, water quality standards, and water rights govern upstream releases



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