Eastern San Joaquin Subbasin

Groundwater Sustainability Workgroup

August 15, 2018

EASTERN SAN JOAQUIN
GROUNDWATER AUTHORITY

Agenda

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

- Comments on Meeting Notes
- Update on Background Conditions
- Undesirable Results & Minimum Thresholds
- Brainstorming for Open House Station
- Announcements
- Other Topics

Comments on Meeting Notes

Groundwater Sustainability Workgroup: Twelve Key Values

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Be implemented in an equitable manner	Be affordable and accessible	Exhibit multiple benefits to local land owners and other participating agencies	Minimize and mitigate adverse impacts to the environment including climate change
Maintain or enhance the local economy	Minimize adverse impacts to entities within the Subbasin	Maintain overlying landowner and Local Agency control of the Subbasin	Protect the rights of overlying land owners
Protect groundwater and surface water quality	Provide more reliable water supplies	Restore and maintain groundwater resources	Increase amount of water put to beneficial use within the Subbasin

Update on Background Conditions

Well Data Availability

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Dataset		Count	Data Provided				
			Well Type	Well Depth	Groundwater Levels	Groundwater Quality	Well Location
CASGEM		147	(Limited)	(Limited)	X		X
CASGEM (Voluntary)		685	(Limited)	(Limited)	X		X
CV-SALTS	*CDPH*	650	X	X		X	X
	Dairies	534	X	X		X	X
	GeoTracker	650	X	X		X	X
Data Received Directly from GSAs		243	X (Public and monitoring wells)	X	(Limited)	X	X
GAMA		225	X	(Limited)		X	X
OSWCR	*Domestic*	10,034	X	X			
	Agricultural	2,909	X	X			
	Public Supply	364	X	X			
San Joaquin County		193	(Limited)	(Limited)	X		X

Public Supply Well Distribution and Depth

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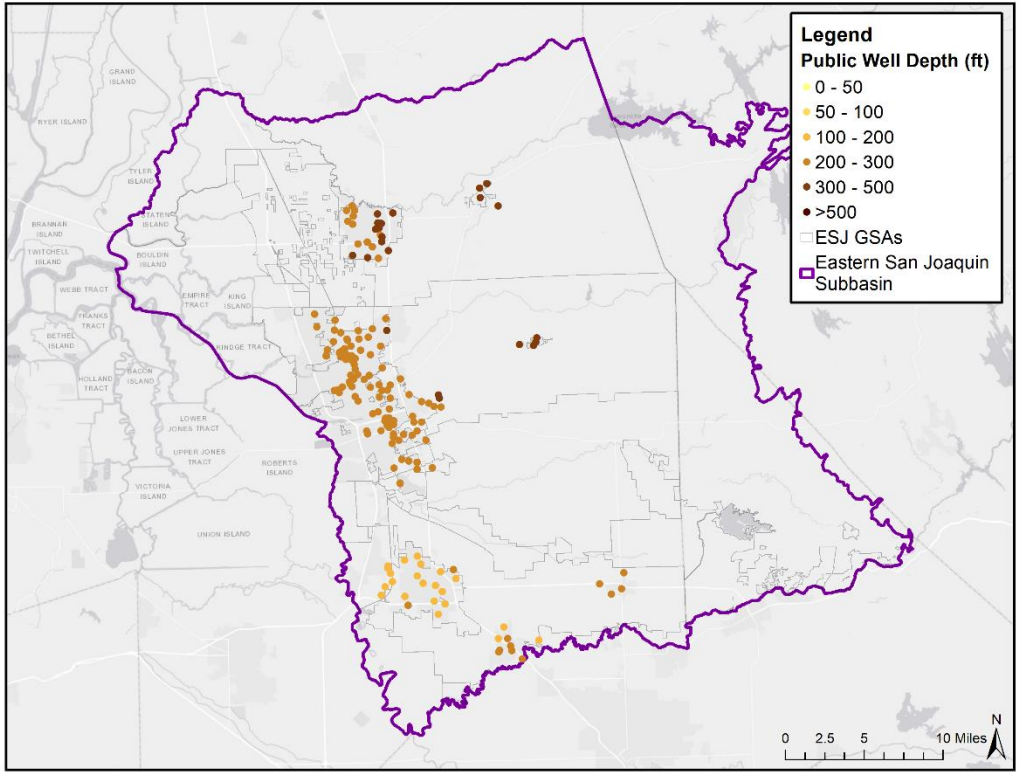

- Public supply wells are clustered around urban centers

Agricultural Well Distribution and Depth

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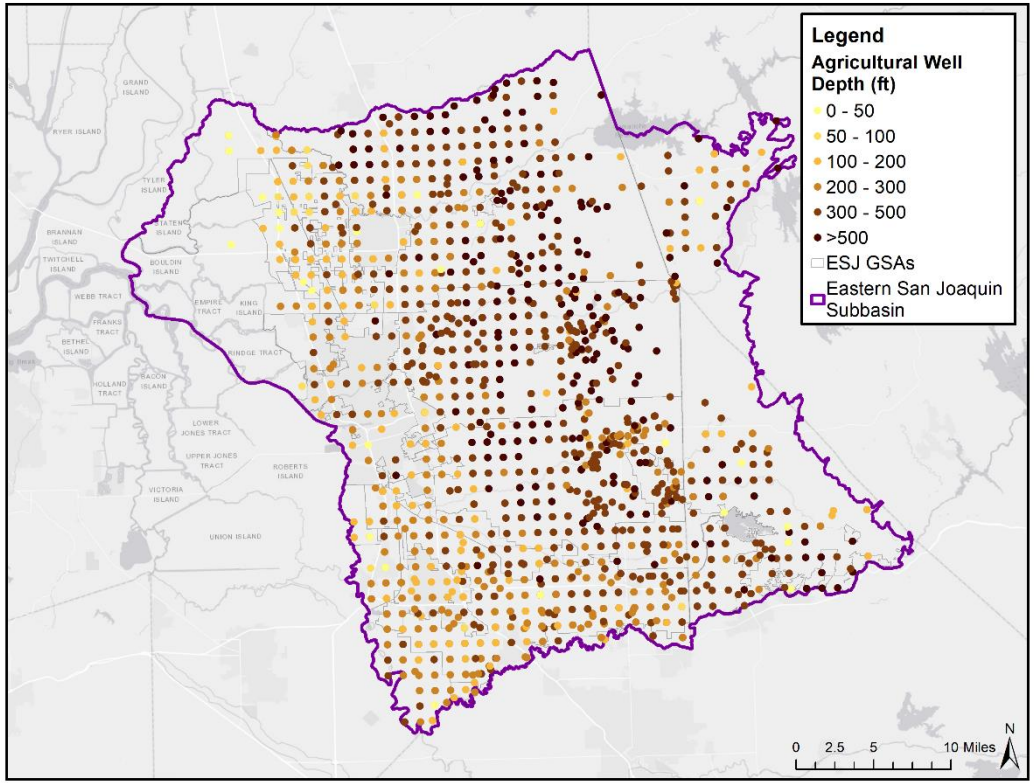

- Agricultural wells are widely distributed and increase in depth as you move from West to East

Domestic Well Distribution and Depth

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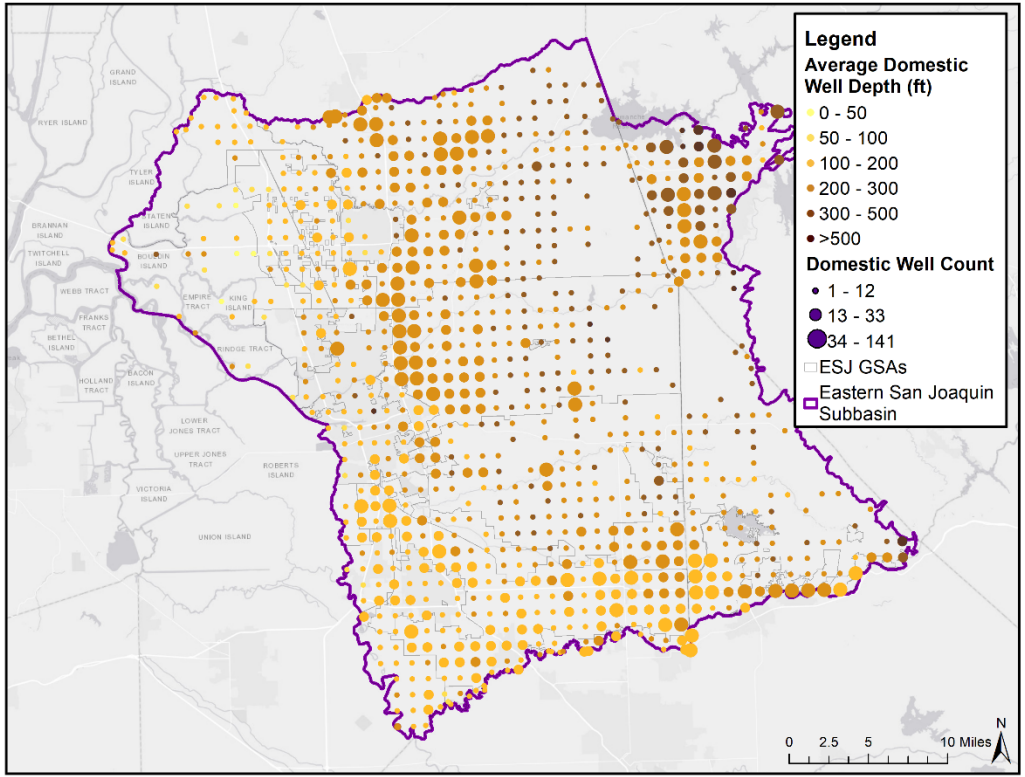

- Domestic wells are widely distributed, generally shallower, and increase in depth as you move from West to East

Average Domestic Well Depth

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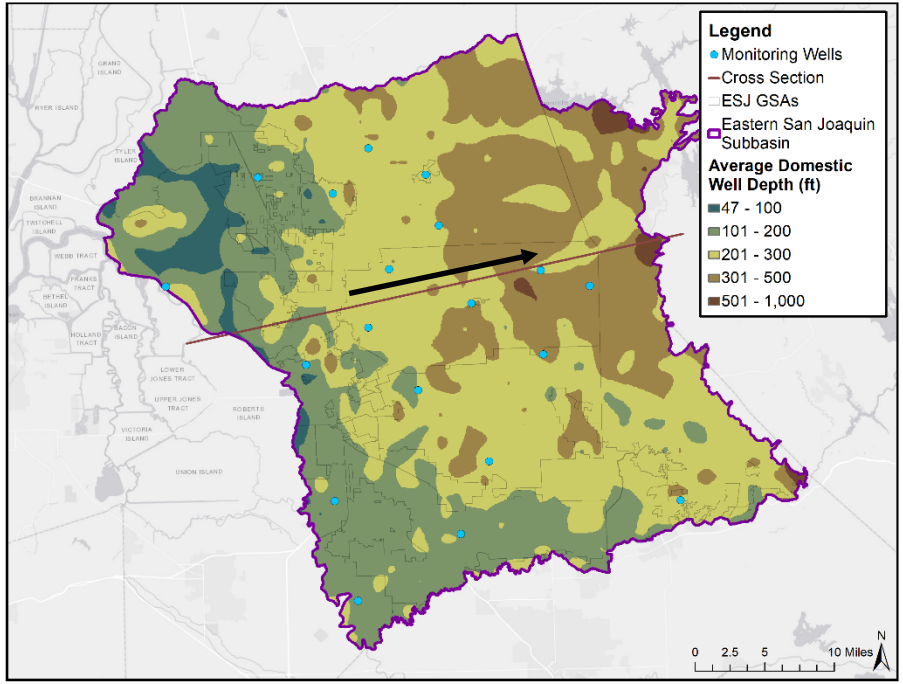

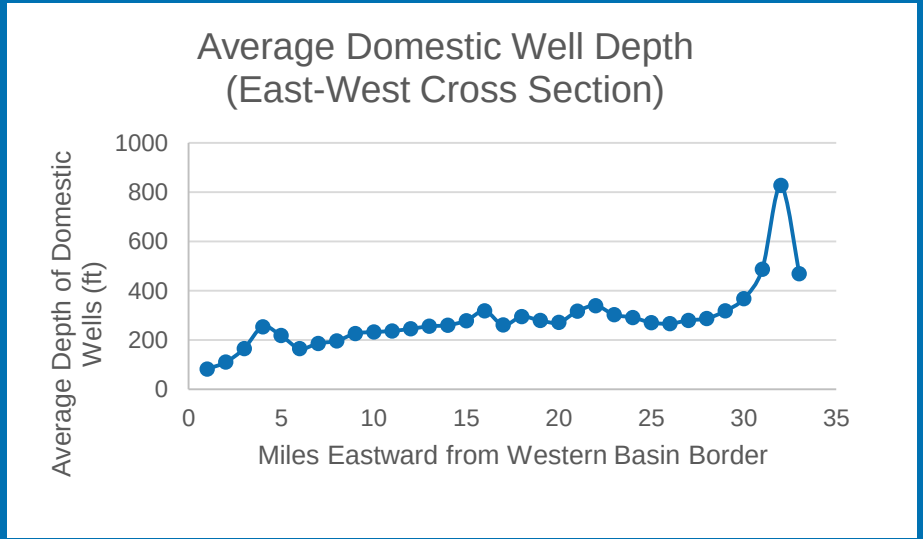

Source: OSWCR

Sustainability Indicators and Undesirable Results

Review – Six Sustainability Indicators to be Addressed

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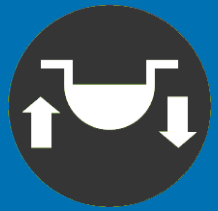
Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply

Significant and unreasonable degraded water quality

Significant and unreasonable reduction of groundwater storage

Significant and unreasonable land subsidence

Significant and unreasonable seawater intrusion



Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

Review – We Will Develop Measurable Objectives for Each Sustainability Indicator

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These objectives, and the pathway to achieving them (projects, management actions, etc), are the "guts" of the GSP

We start by thinking about what our desired future condition looks like, and what negative impacts we are trying to avoid.

Undesirable Results are Negative Impacts that can Occur for Each Sustainability Indicator

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- Undesirable Results are conditions that we do not want to have happen
- They will be used to guide and justify other GSP components including:
  - Monitoring Site Locations
  - Management Thresholds
  - Projects and Management Actions

Minimum Thresholds are the Levels at which Undesirable Results May Begin to Occur

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- Minimum Thresholds are the lowest levels the basin can go at a given monitoring point without something significant and unreasonable happening to groundwater
- These are quantitative thresholds

Understanding Undesirable Results and Setting Minimum Thresholds

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- Chronic Lowering of Groundwater Levels
- Reduction in Groundwater Storage
- Seawater Intrusion
- Degraded Water Quality
- Land Subsidence
- Depletion of Interconnected Surface Water

Undesirable Results for Chronic Lowering of Groundwater Levels

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Chronic Lowering of Groundwater Levels

Why is this a concern? What are we trying to avoid?

- **Wells going dry**
- **Reduced production**
- **Higher pumping costs due to greater lift**
- **Deeper installation (more expensive drilling)**

Discussion: other potential effects to consider?

Review – Groundwater Elevation Conditions

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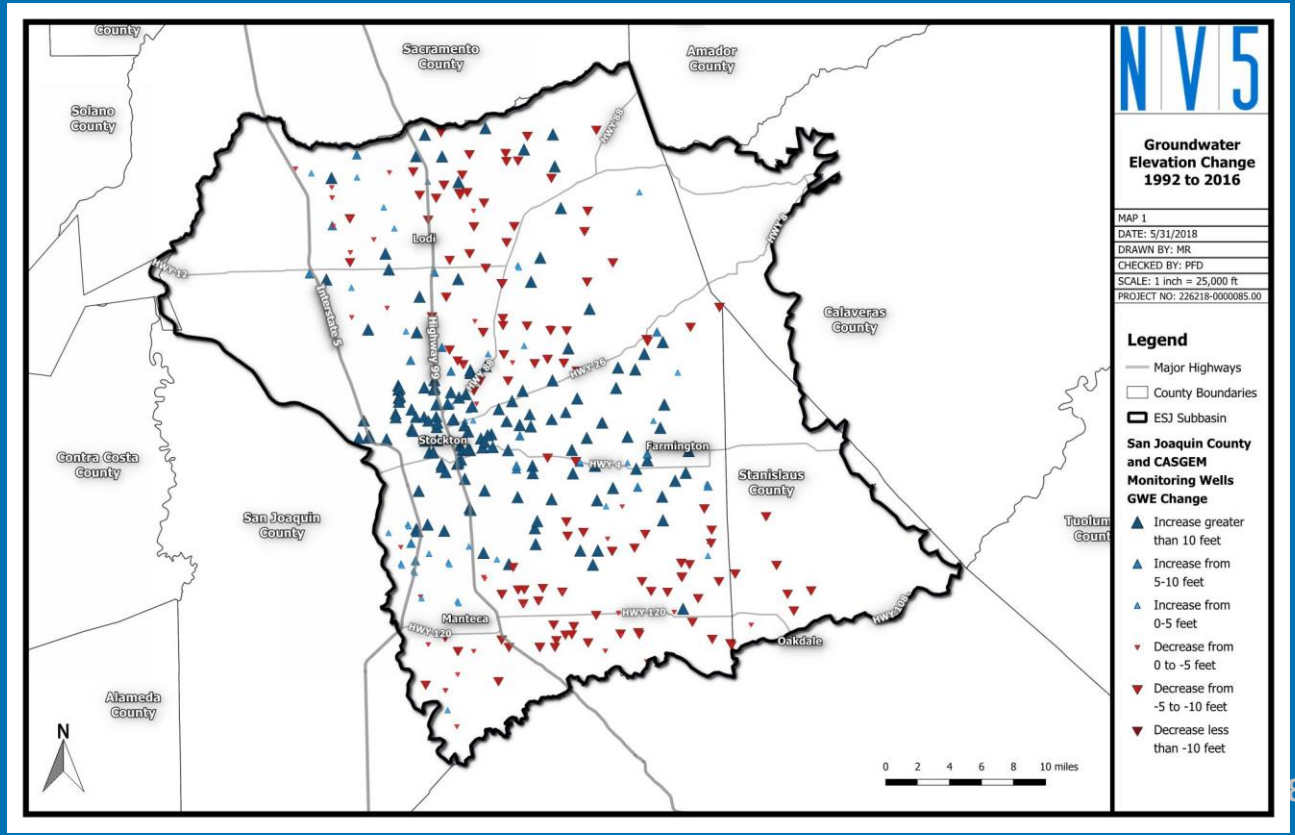
(blue) – Areas that have recovered since 1992 drought

(red) – Areas that have declined since 1992 drought



Minimum Thresholds for Groundwater Elevation: Status

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1) Mapped the lower groundwater elevation for 1992 or 2015, compared to current levels

2) Met with GSAs to confirm understanding

3) Compared to domestic well depths

4) Identified monitoring locations for groundwater thresholds

Understanding Undesirable Results and Setting Minimum Thresholds

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- Chronic Lowering of Groundwater Levels
- Reduction in Groundwater Storage
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Undesirable Results for Reduction in Groundwater Storage

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Reduction in Groundwater Storage

Why is this a concern? What are we trying to avoid?

- **This is not a major concern**
- **Large basin storage (42 MAF), no chronic reduction that impacts supply needs**
- **Undesirable result = running out of sufficient storage to get through drought**

****This does not mean we do not need to bring the basin into balance, it only means that groundwater-related impacts will be more sensitive to other indicators, such as groundwater elevations.*

The ESJ Subbasin has Large Amounts of Groundwater in Storage

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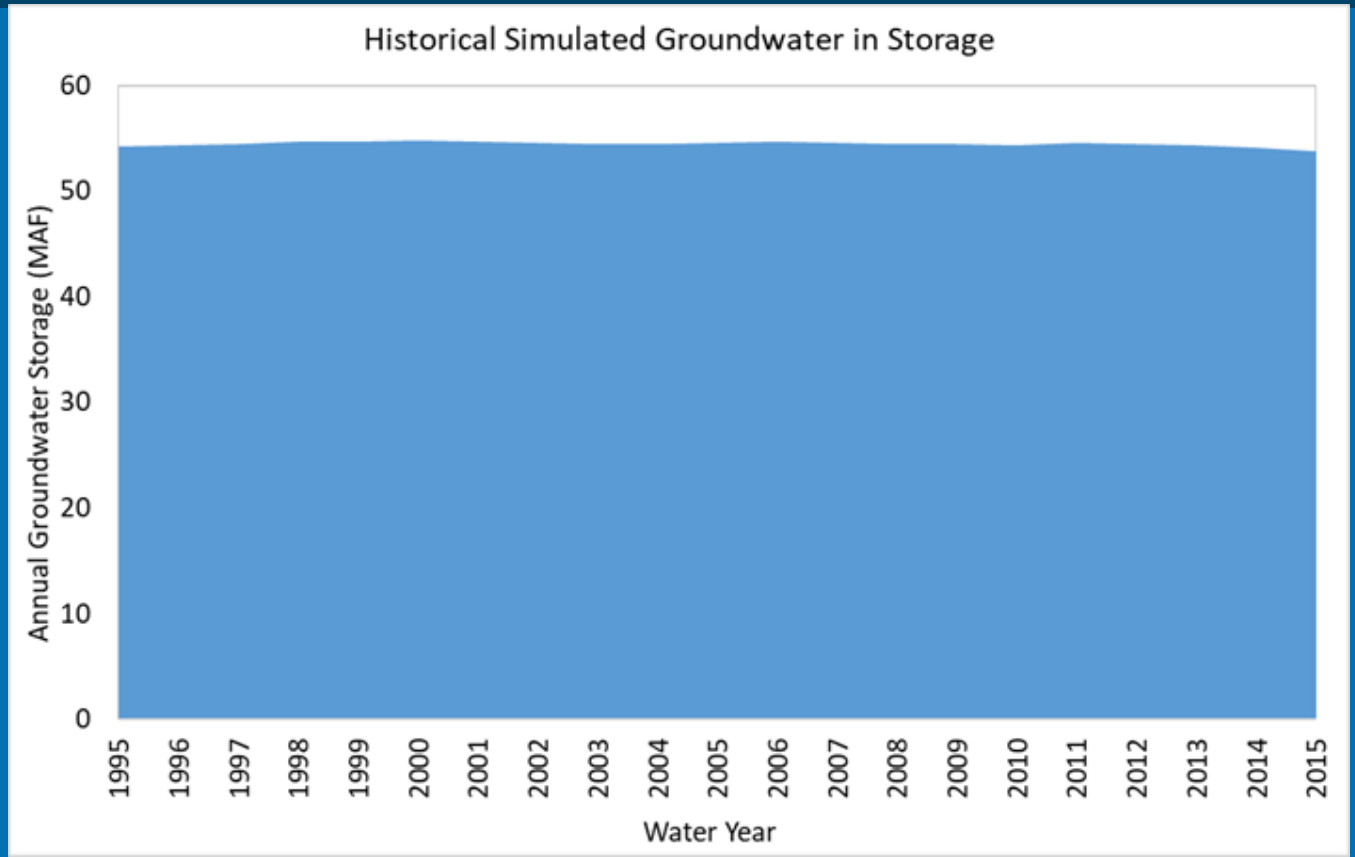
This graph shows freshwater only (model layers 1 through 3)



Understanding Undesirable Results and Setting Minimum Thresholds

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- Chronic Lowering of Groundwater Levels
- Reduction in Groundwater Storage
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Undesirable Results for Seawater Intrusion

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Seawater Intrusion

Why is this a concern? What are we trying to avoid?

- **Direct seawater intrusion does not occur in the Subbasin and thresholds do not need to be addressed; salinity will be addressed via the Water Quality Sustainability Indicator**

Understanding Undesirable Results and Setting Minimum Thresholds

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- Chronic Lowering of Groundwater Levels
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Undesirable Results for Degraded Water Quality

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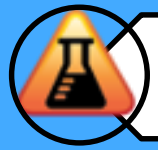

Degraded Water Quality

Why is this a concern? What are we trying to avoid?

- **Localized salinity issues – connate water and delta brackish water intrusion from reduced water levels**
- **Nitrates – septic and agricultural historical issues. Being addressed through CV SALTS and Irrigated Lands programs.**

Discussion: other potential effects to consider?

Identified Concerns for Water Quality

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What we've heard from the GWA Advisory Committee:

- Salinity
- Arsenic (naturally occurring)
- Plumes
  - 1,2,3 TCP
- Others?

Max. TDS Concentrations 2008 - 2018

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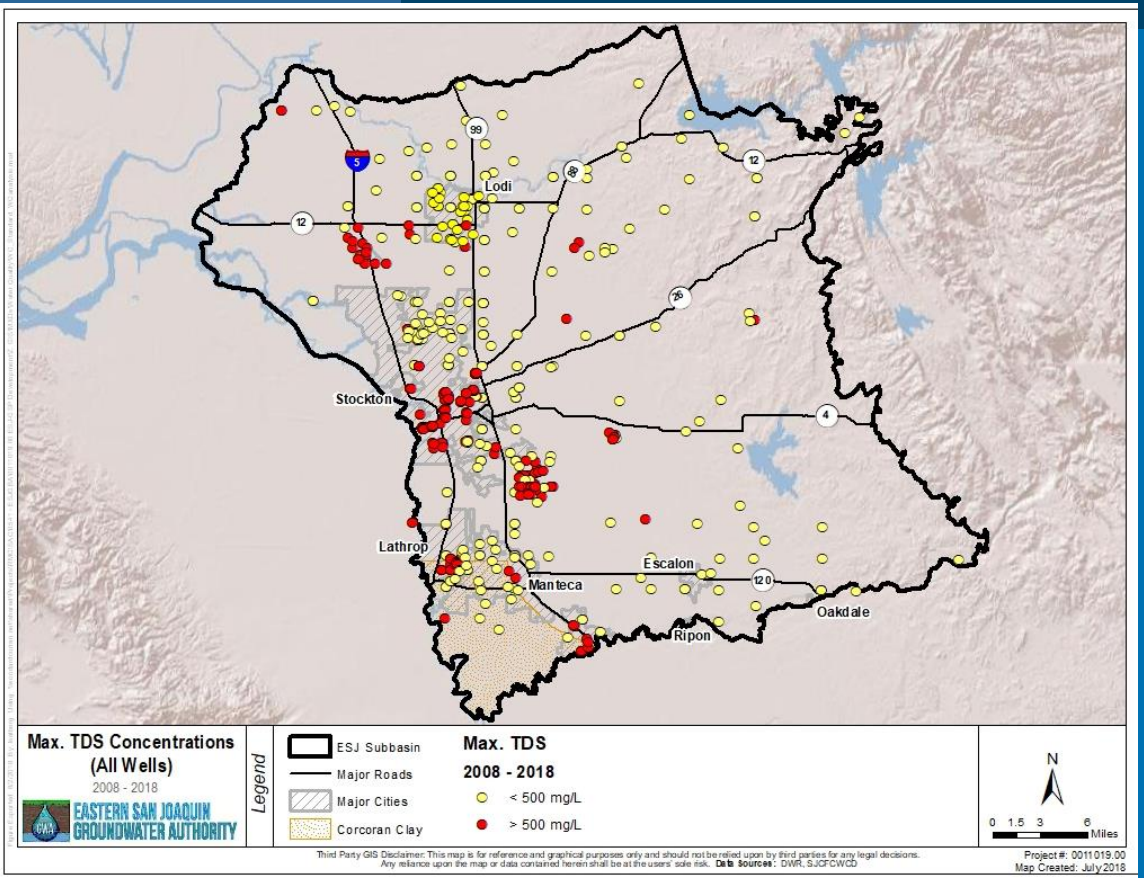

TDS exceedances are generally found in the western half of the Subbasin

Potential Plumes

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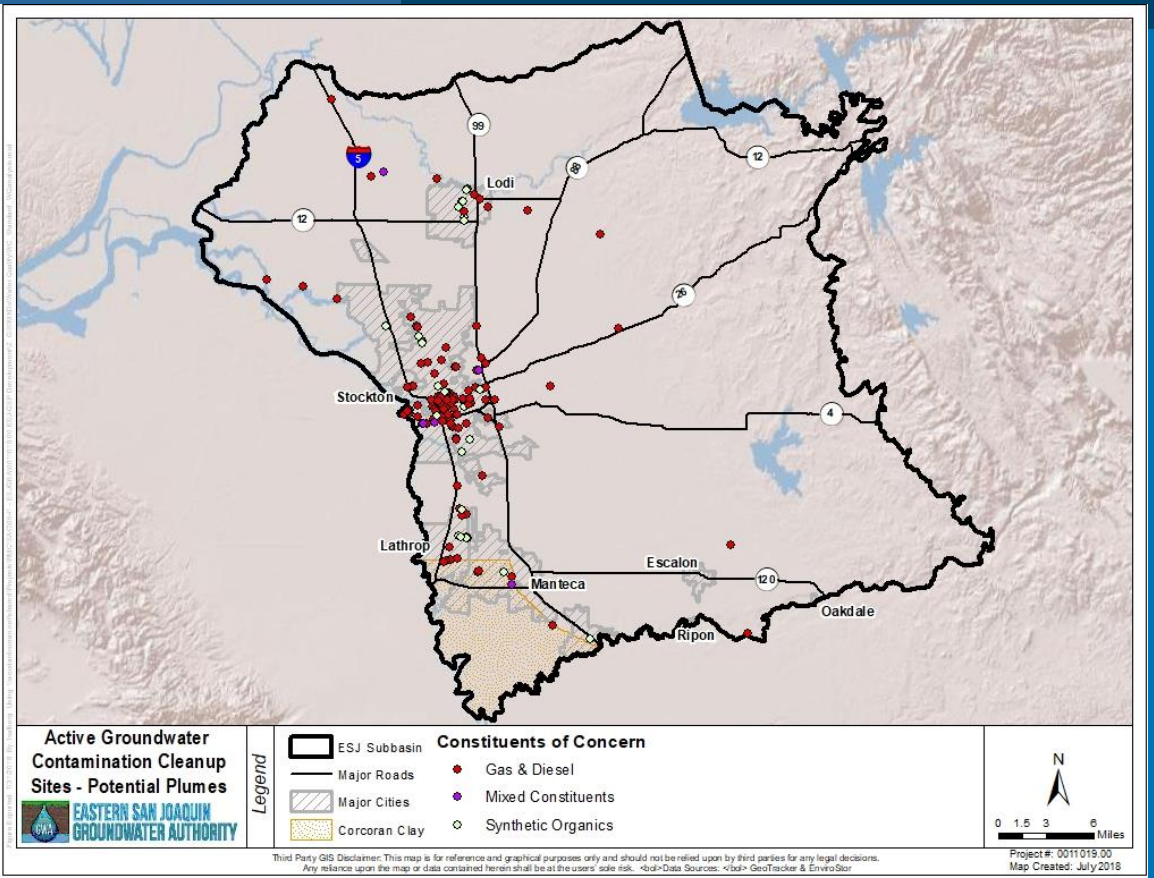

Sites with the potential to cause a groundwater plume (based on constituents)

Avoid these sites when considering monitoring programs

Minimum Thresholds for Water Quality: Status

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1) Identifying a subset of monitoring wells through advisory committee and GSAs in areas with or bordering high saline

2) Identifying sites where regulated contaminants are present and developing coordination and communication pathways

Understanding Undesirable Results and Setting Minimum Thresholds

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Undesirable Results for Land Subsidence

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Land Subsidence

Why is this a concern? What are we trying to avoid?

- **Impacts to private and public infrastructure**

Discussion: other potential effects to consider?

Understanding Undesirable Results and Setting Minimum Thresholds

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- Chronic Lowering of Groundwater Levels
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Undesirable Results for Depletion of Interconnected Surface Water

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Depletion of Interconnected Surface Water

Why is this a concern? What are we trying to avoid?

- **Ability to meet minimum flow requirements**
- **Recreation impacts**
- **Fisheries impacts/temperature**
- **Habitat impacts**
- **GDEs**
- **Impacts to water supply for reservoirs**
- **Water rights issues**
- **Water quality issues**

Discussion: other potential effects to consider?

Minimum Threshold Development for Depletion of Interconnected Surface Water

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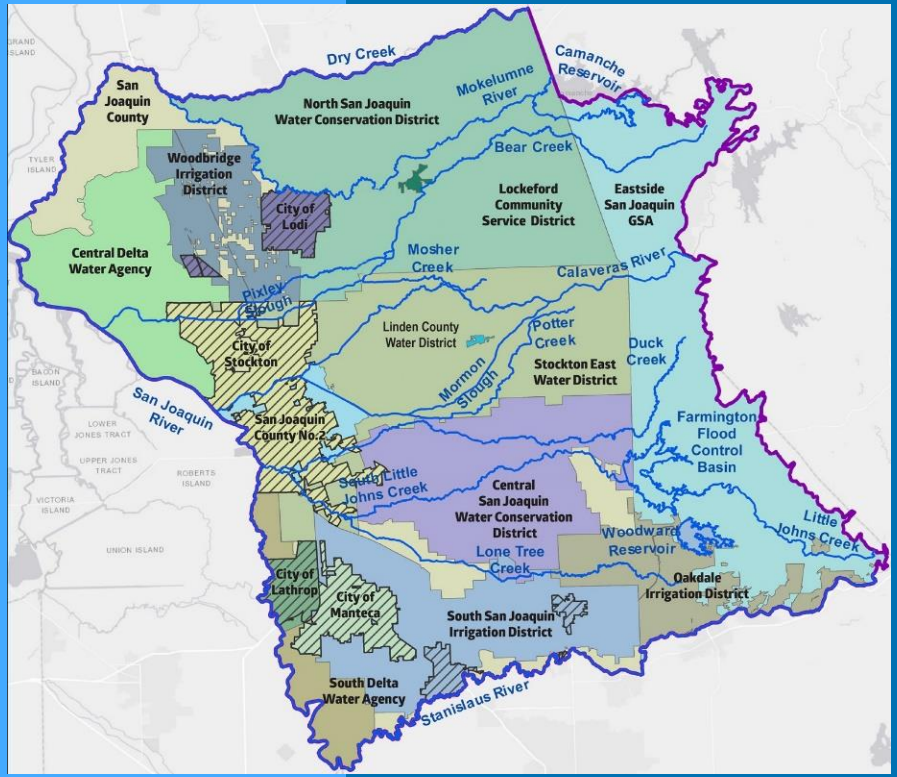

Major river systems in the Subbasin are highly managed.

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

Potential Approach for Developing Minimum Thresholds for Interconnected Surface Waters

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1) Recognize existing management and regulatory programs in place

2) Identify coordination and management activities that integrate with existing programs

3) Identify losing streams and consider elevation thresholds to protect against significant and unreasonable stream depletion

Brainstorming for Open House Stations

Public Meeting/Open House – August 29th

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- The first Public Open House will be held on **August 29 at 6:30pm**
- The event will follow an open house format with one outreach station for each GSA
- SGMA background provided through four stations (Background, Process, Get Involved, Technology)
- GSAs are strongly encouraged to participate
- Outreach flyer provided

August 29th
6:30 p.m. – 8 p.m.
Robert J. Cabral Agricultural Center, Calaveras Room

Public Meeting Outreach Efforts

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August 29
6:30 p.m. – 8 p.m.

Robert J. Cabral Agricultural Center, Calaveras Room

Mailer: We will distribute to 400+ NGOs, local businesses & water suppliers

Bilingual Flyer: A bilingual flyer be emailed to 200+ NGOs, local businesses, and water suppliers. It has also been provided to members of the ESJ Board, Advisory Committee, & Groundwater Sustainability Workgroup

Press Release: A press release will be distributed to local media outlets & organizations with newsletters

Open House Stations - Brainstorming

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August 29
6:30 p.m. – 8 p.m.

Robert J. Cabral Agricultural Center, Calaveras Room

Four stations at open house:

- Background
- Process
- Get Involved
- Technology

Discussion:
What are critical messages to convey at each station?

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