

San Benito County Water District  
Groundwater Sustainability Agency  
Technical Advisory Committee

April 24, 2019



# Overview of Agenda

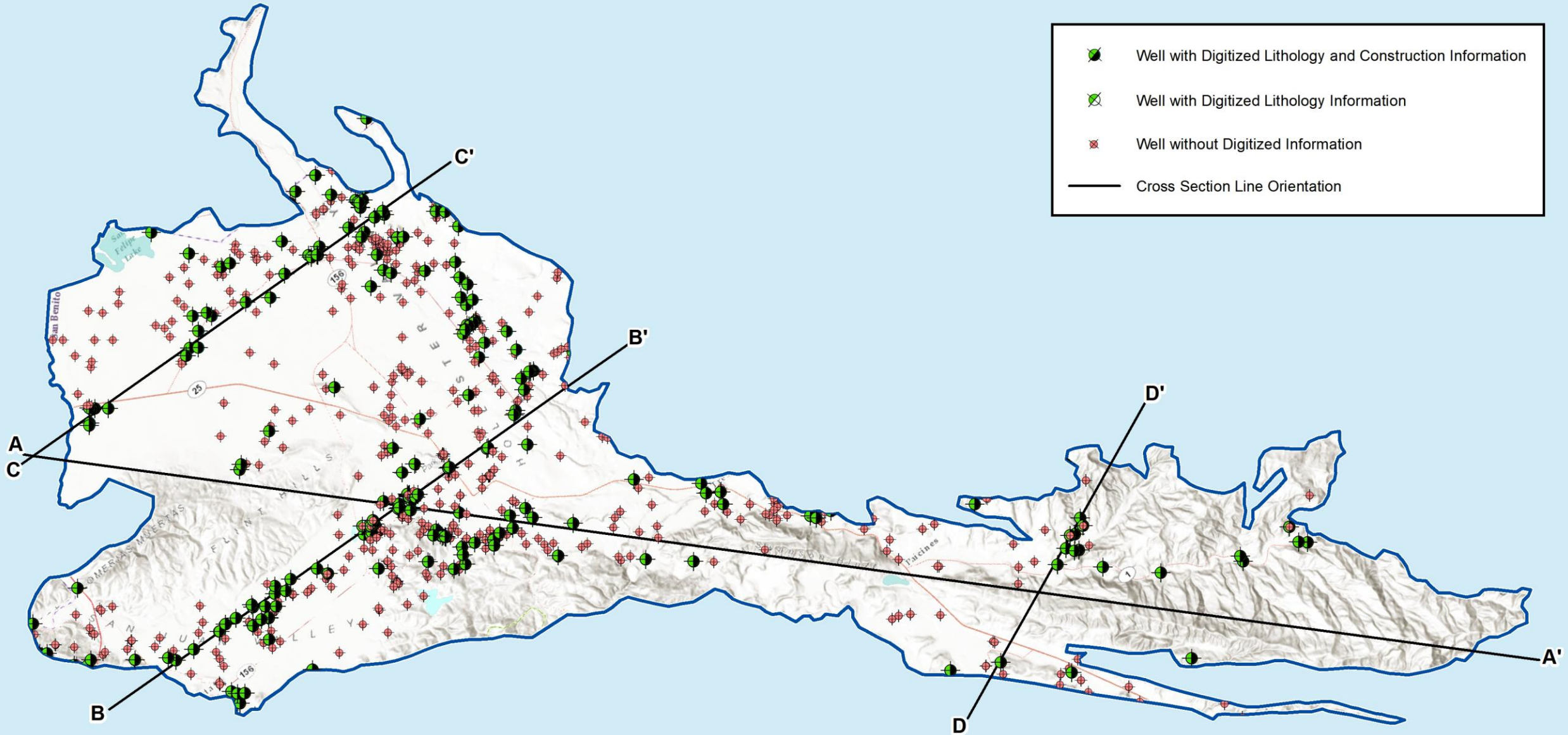
- Follow-up on last meeting
- Schedule
- HCM and GW Conditions sections
- Management areas and sustainability criteria
- Update on outreach
- TAC next steps

# Highlights

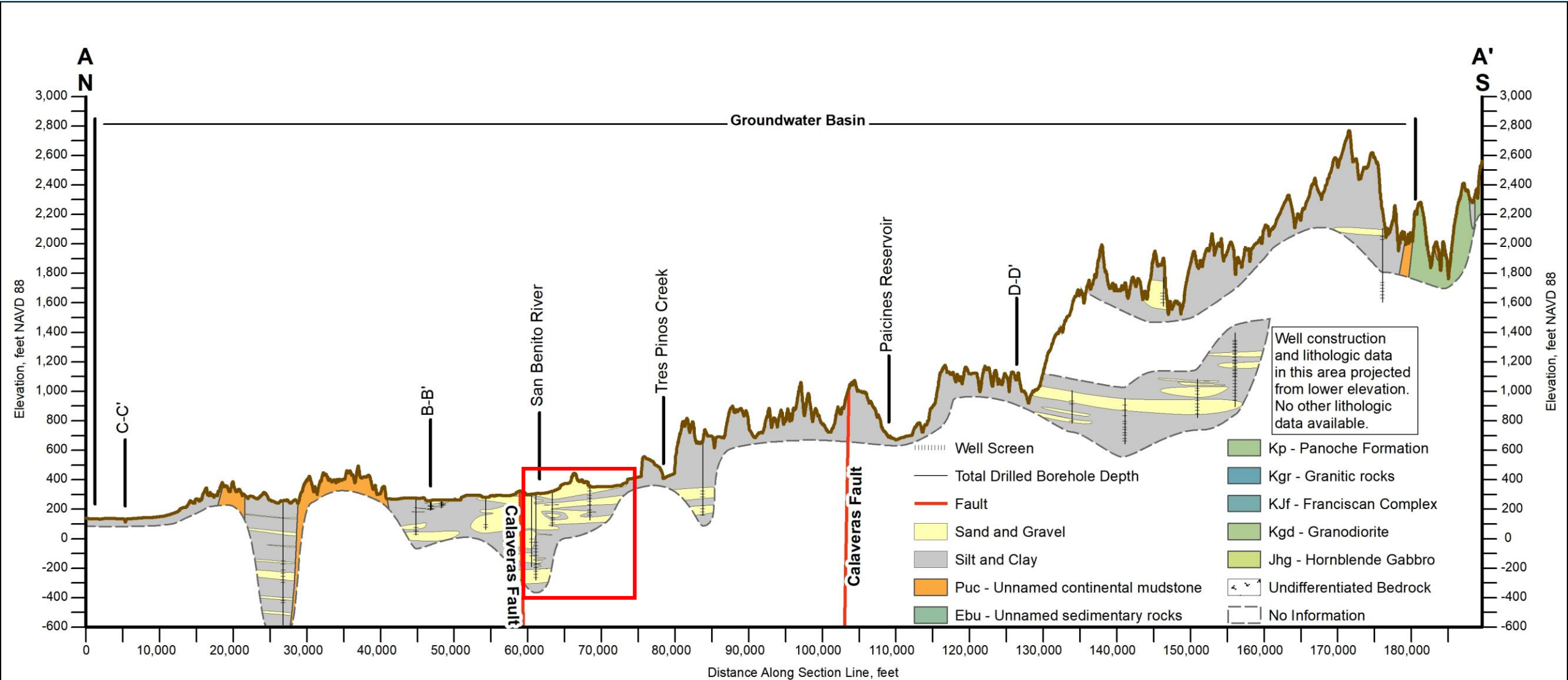
- ❖ Hydrogeologic Conceptual Model (HCM)
- ❖ Groundwater Conditions



# Cross section orientations

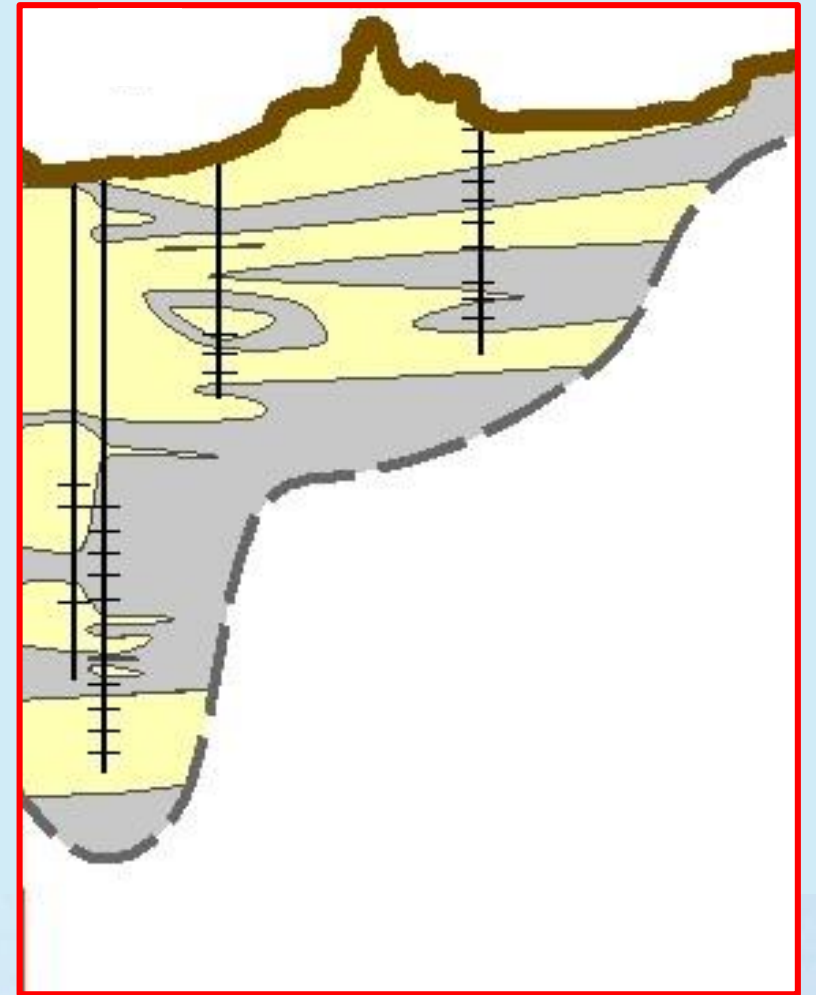


# A long, irregular but continuous basin

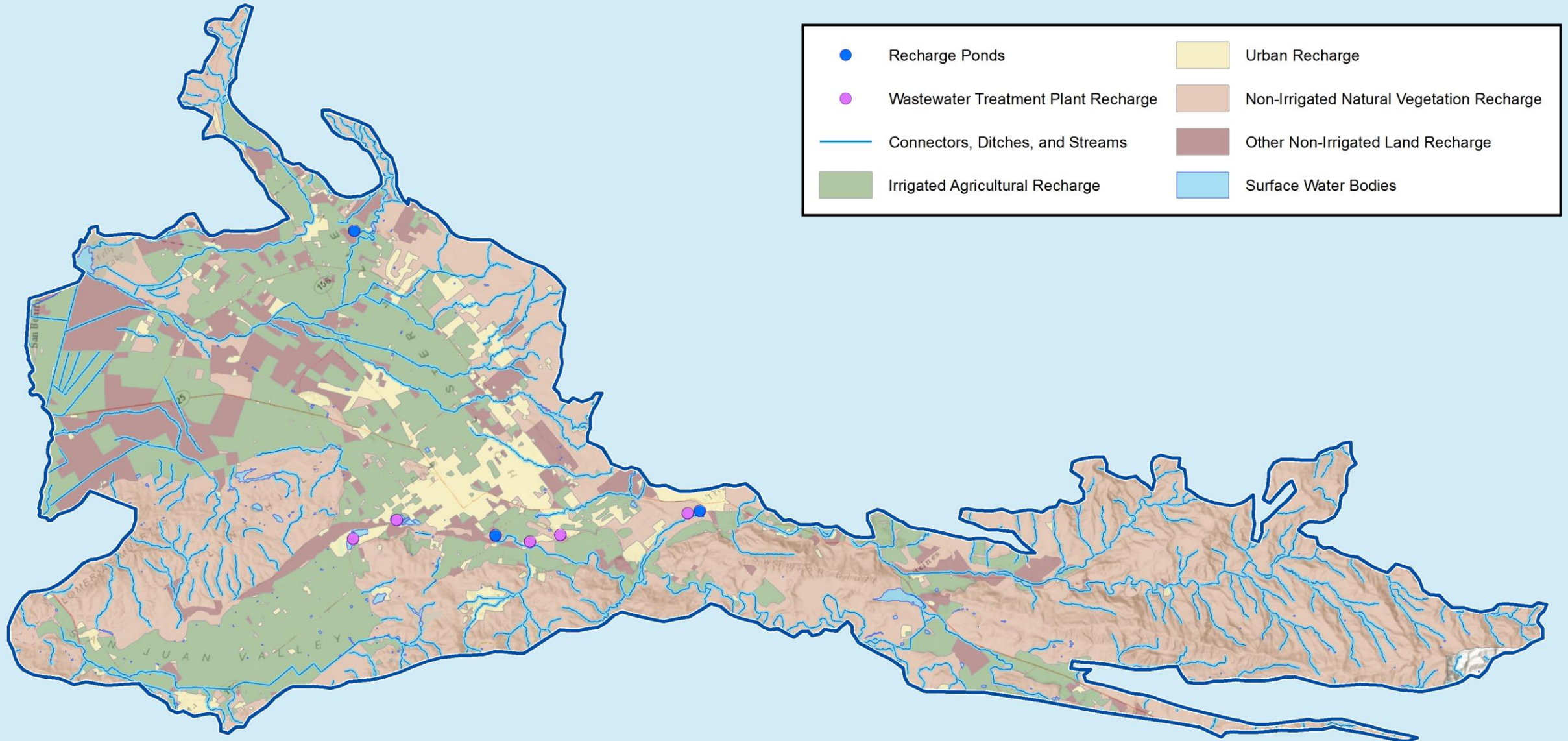


# Aquifer materials

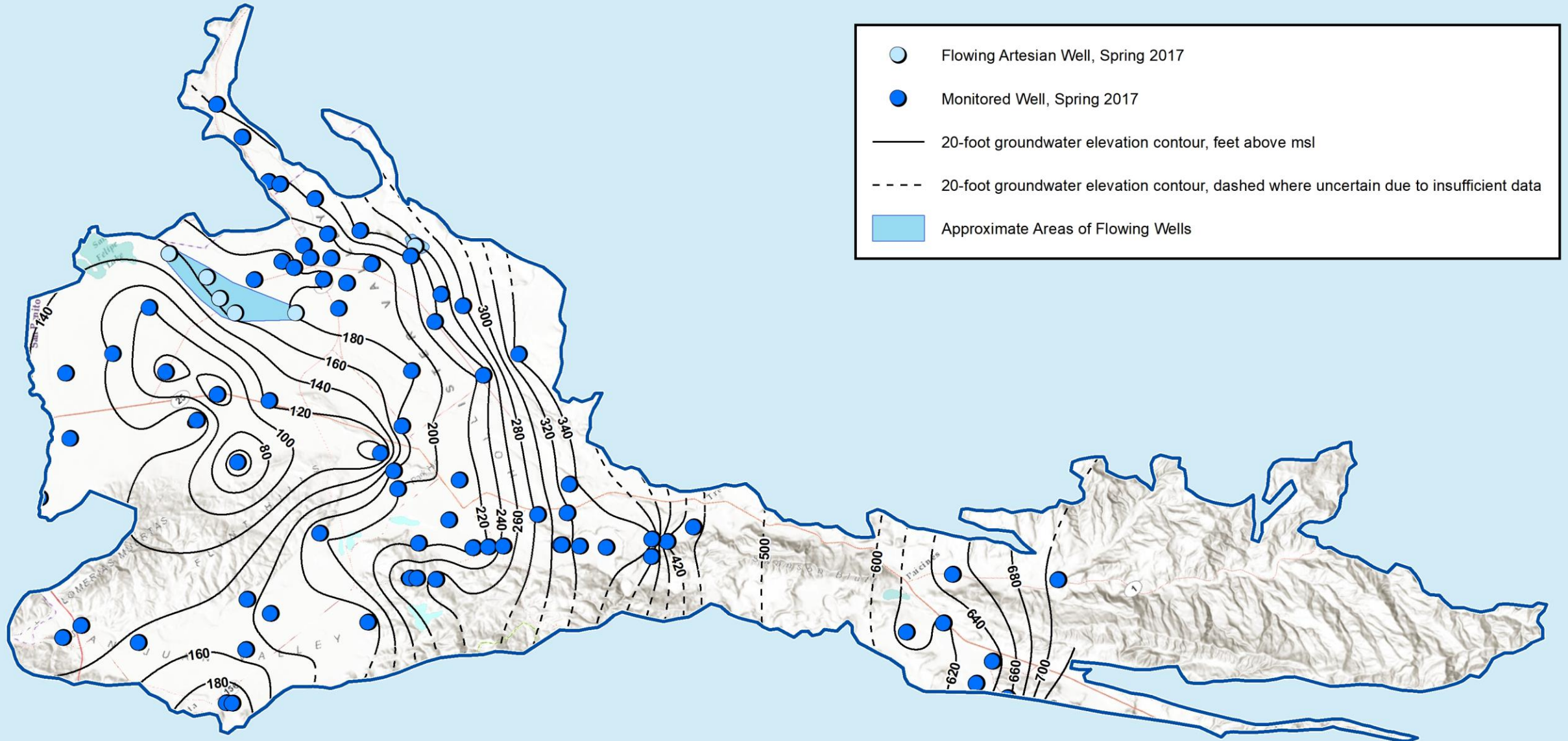
- Aquifers are lenses of coarse grained (gravel and sand) and fine grained (silt and clay) materials
- No clear distinction into major identifiable units
- Aquifers extend to variable, poorly-known depths beyond the bottom of most wells.



# Current recharge occurs over the entire Basin

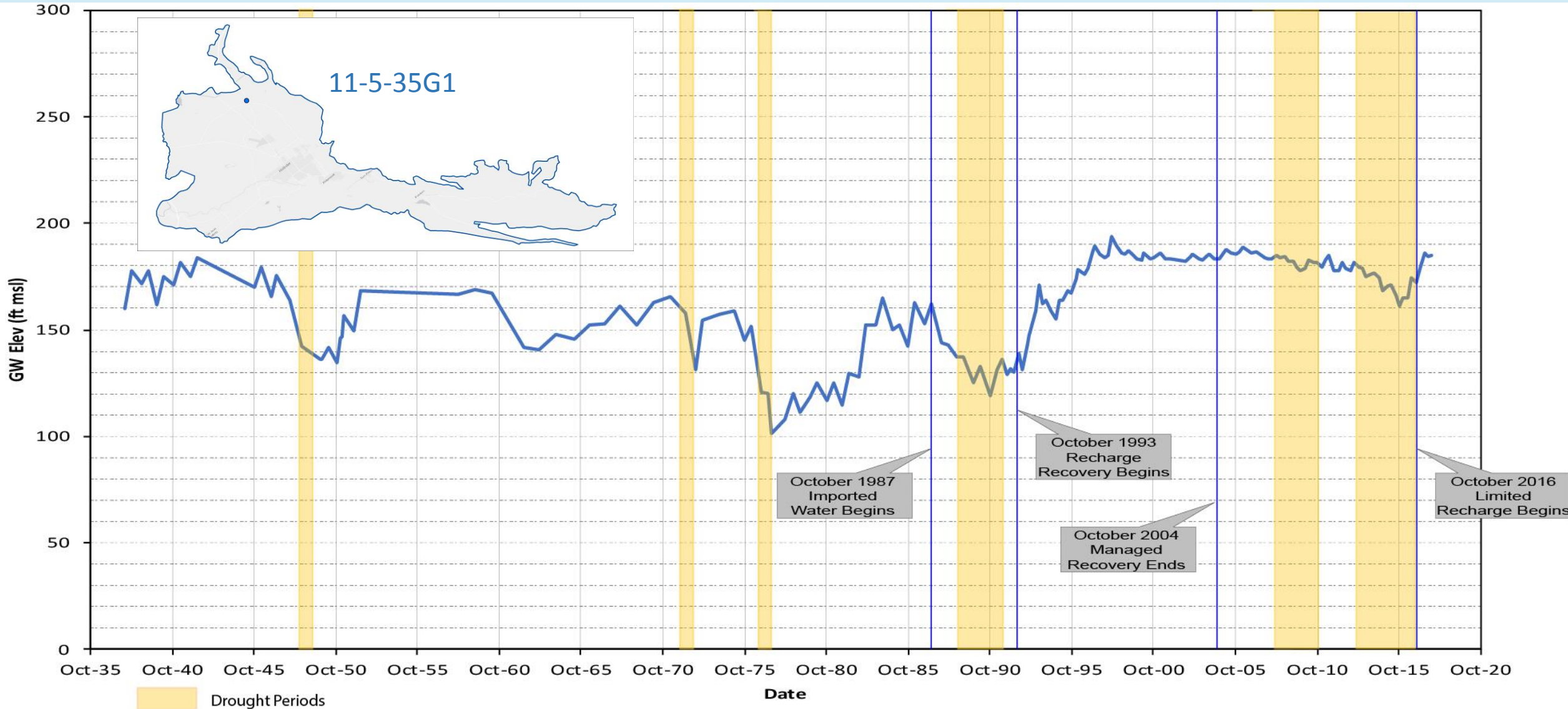


# Groundwater elevation contours

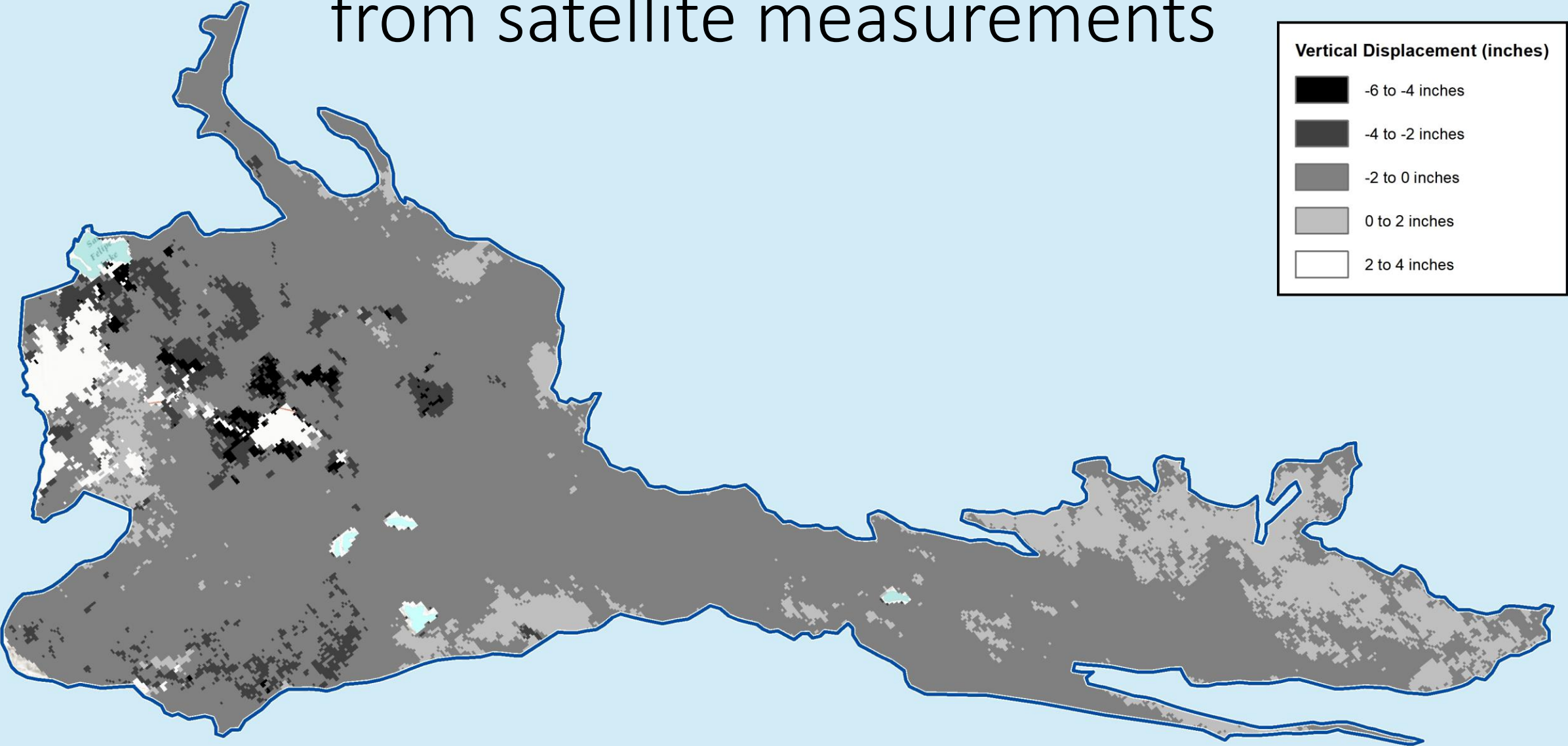




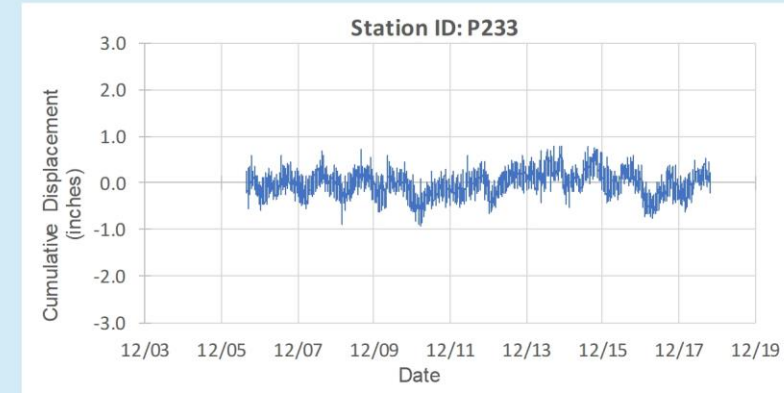
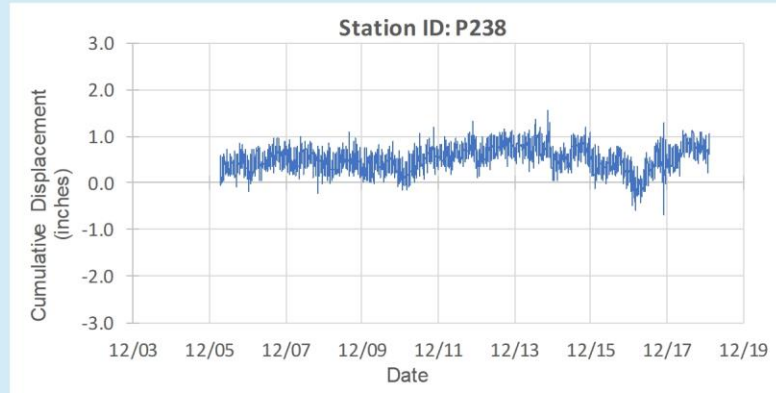
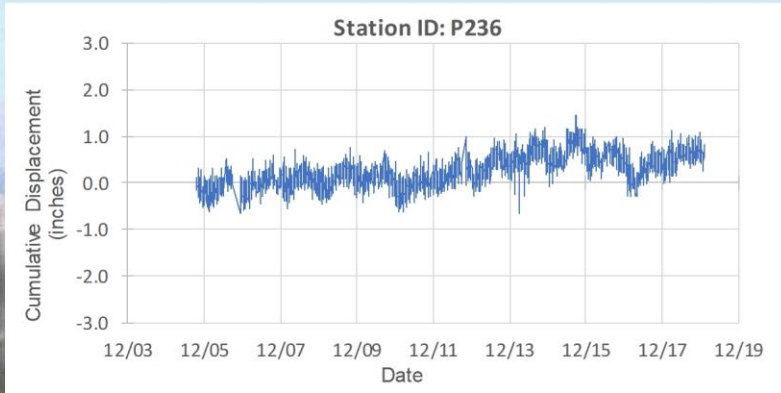
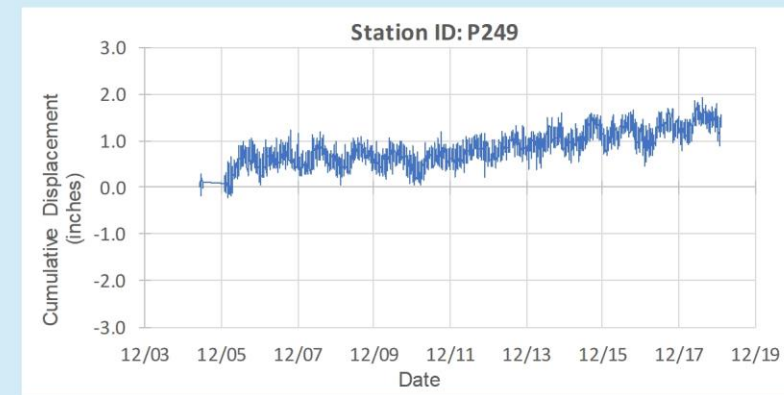
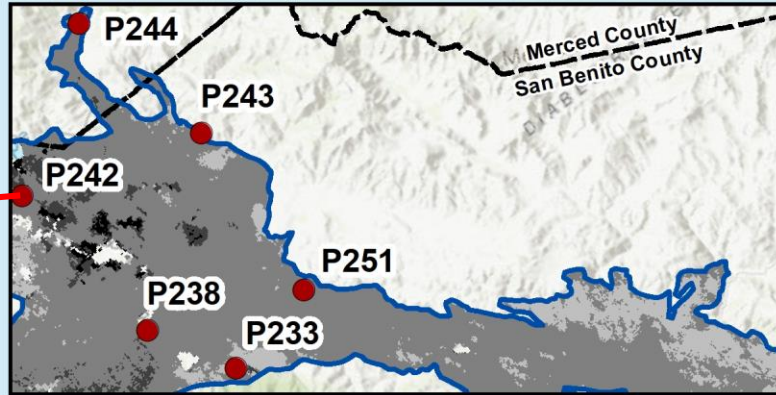
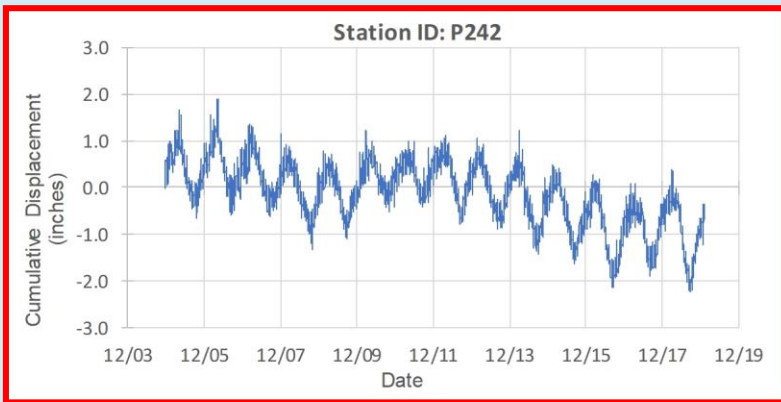
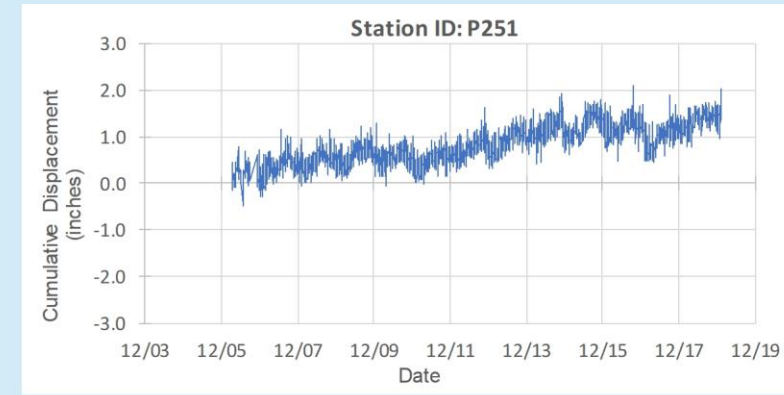
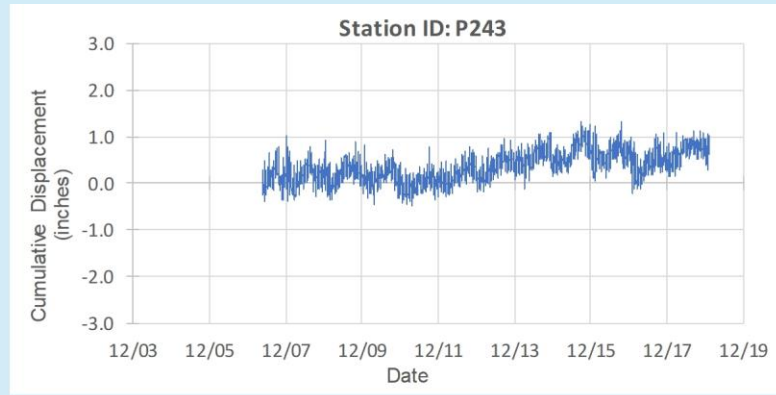
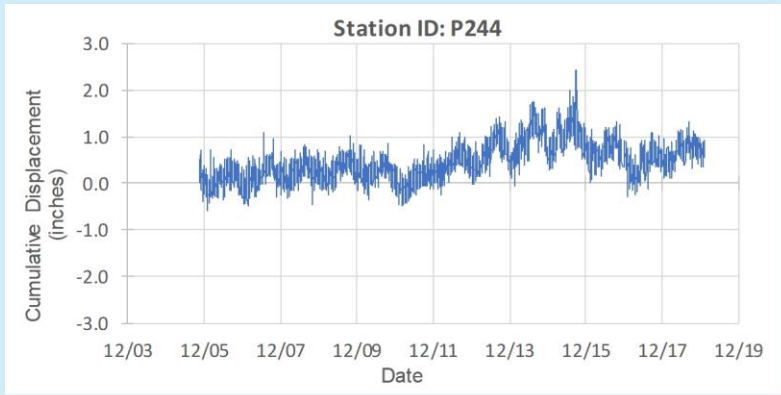
# Representative long term hydrograph



# Basin-wide vertical displacement estimates from satellite measurements

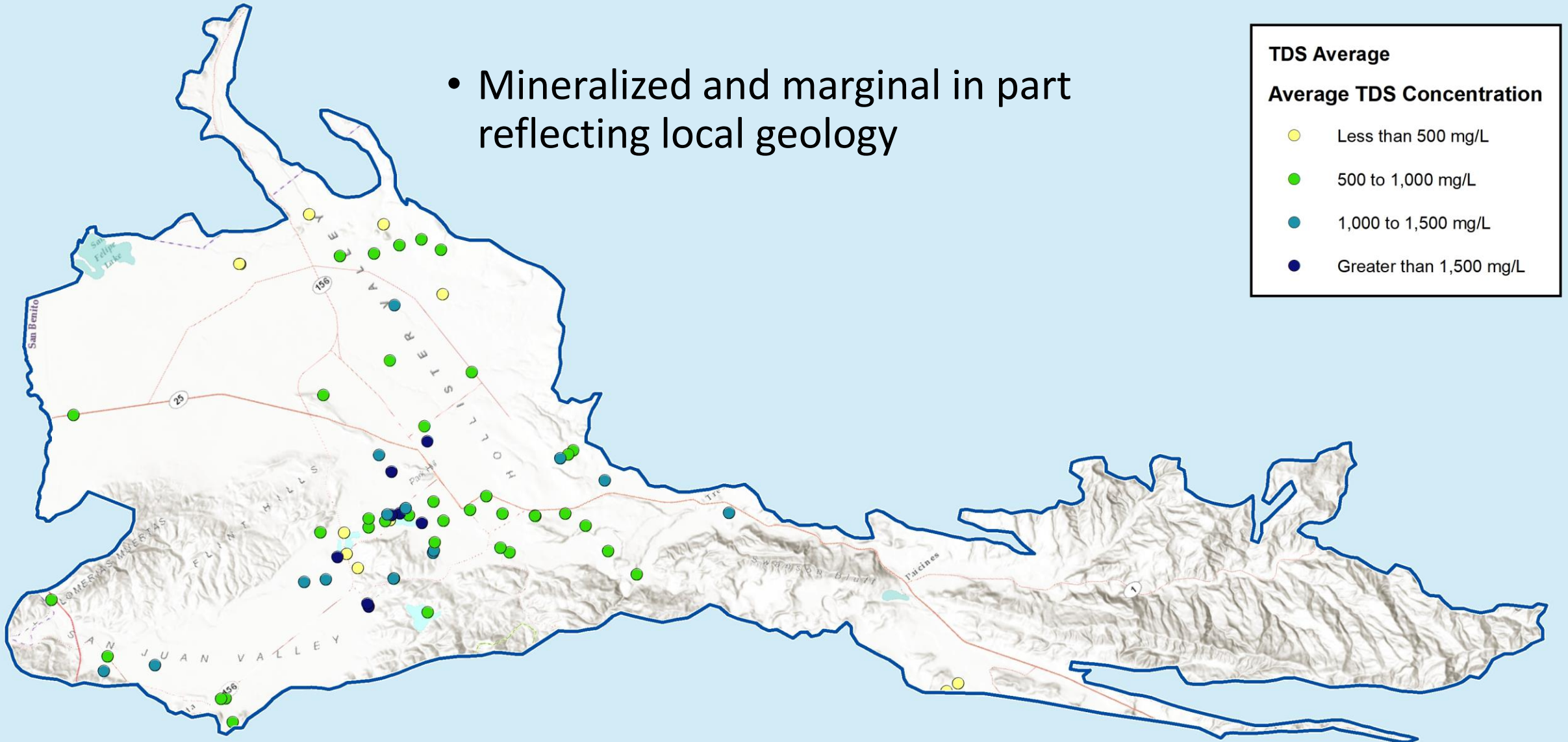


# Historical ground surface elevation from GPS monitoring

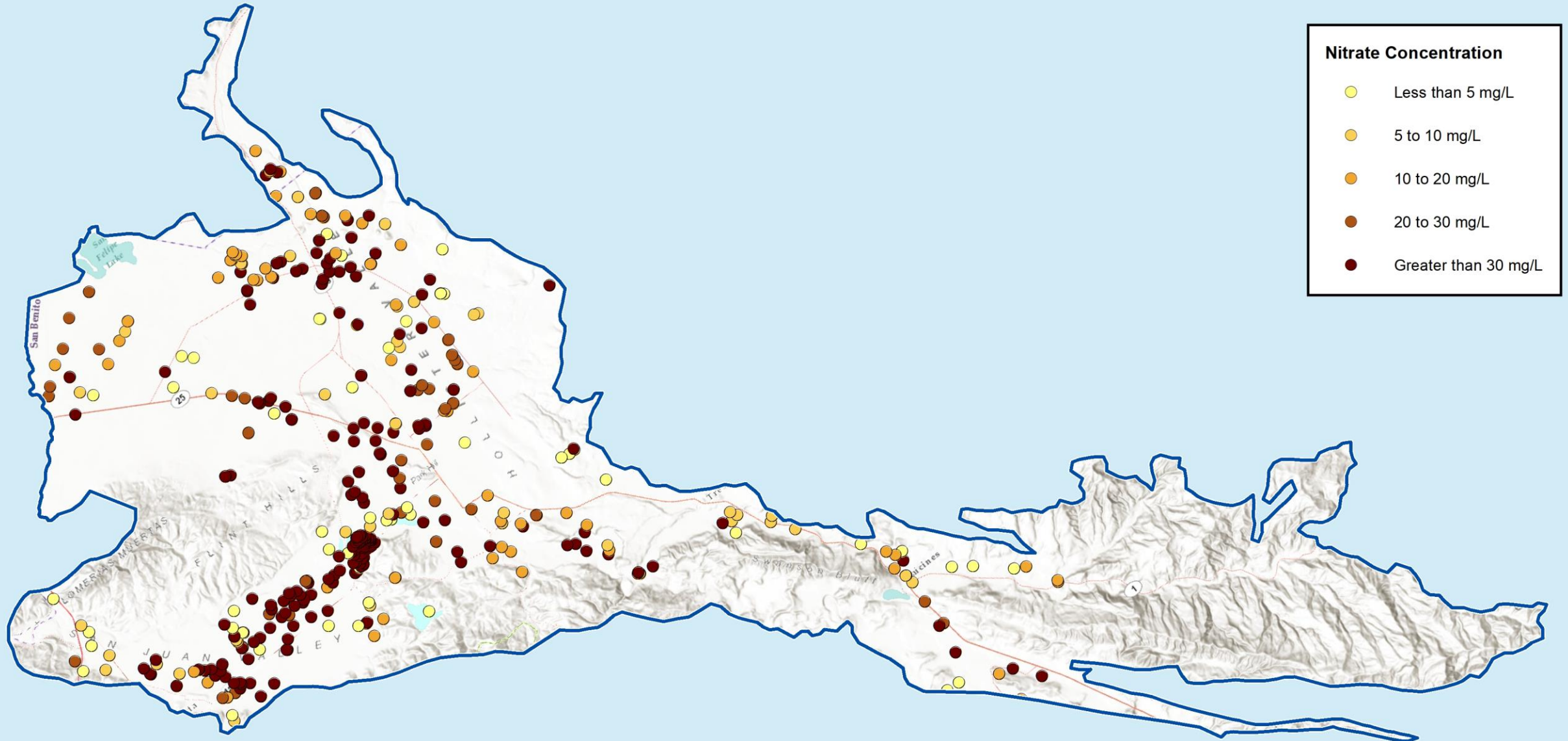


# Groundwater quality: TDS

- Mineralized and marginal in part reflecting local geology

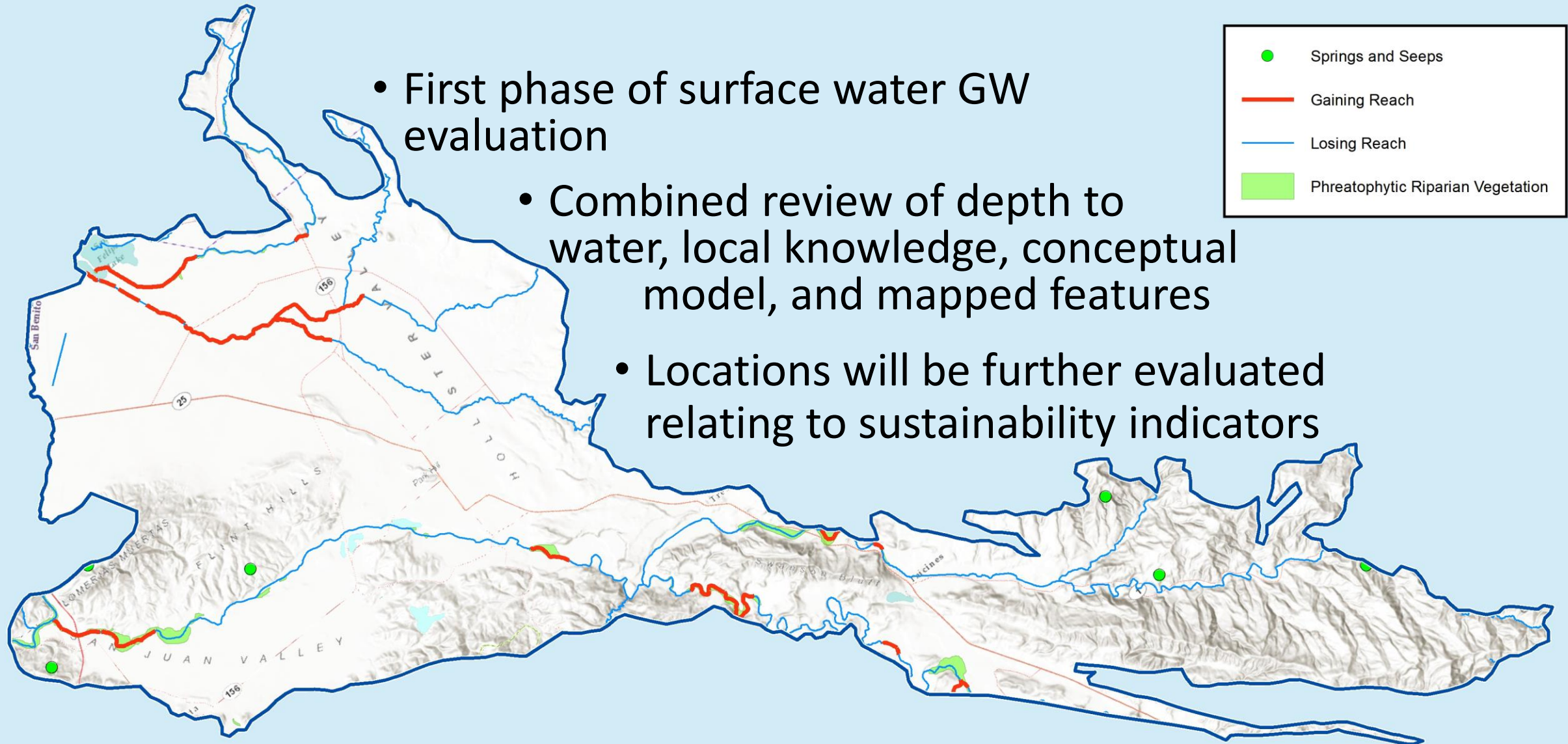


# Groundwater quality: nitrate



# Surface water is locally connected to groundwater

- First phase of surface water GW evaluation
- Combined review of depth to water, local knowledge, conceptual model, and mapped features
- Locations will be further evaluated relating to sustainability indicators



# Where are we now in GSP process?

- ✓ HCM establishes physical framework of the groundwater basin
- ✓ GW Conditions Section documents historical and current status
- Water Budget will quantify inflows, outflows and storage change
- Numerical Model will support understanding of how the groundwater system works and provide the key analytical tool to evaluate:
  - Sustainability criteria
  - Monitoring
  - Projects and management actions



# Ten-minute break

- ✓ Follow-up on last meeting
- ✓ Schedule
- ✓ HCM and GW Conditions Section
- Management areas and sustainability criteria
  - Groundwater levels
  - Subsidence
- Update on outreach
- TAC next steps



# Management Areas

What are they?

Areas for which GSP *may* identify different minimum thresholds, measurable objectives, monitoring, projects, management actions

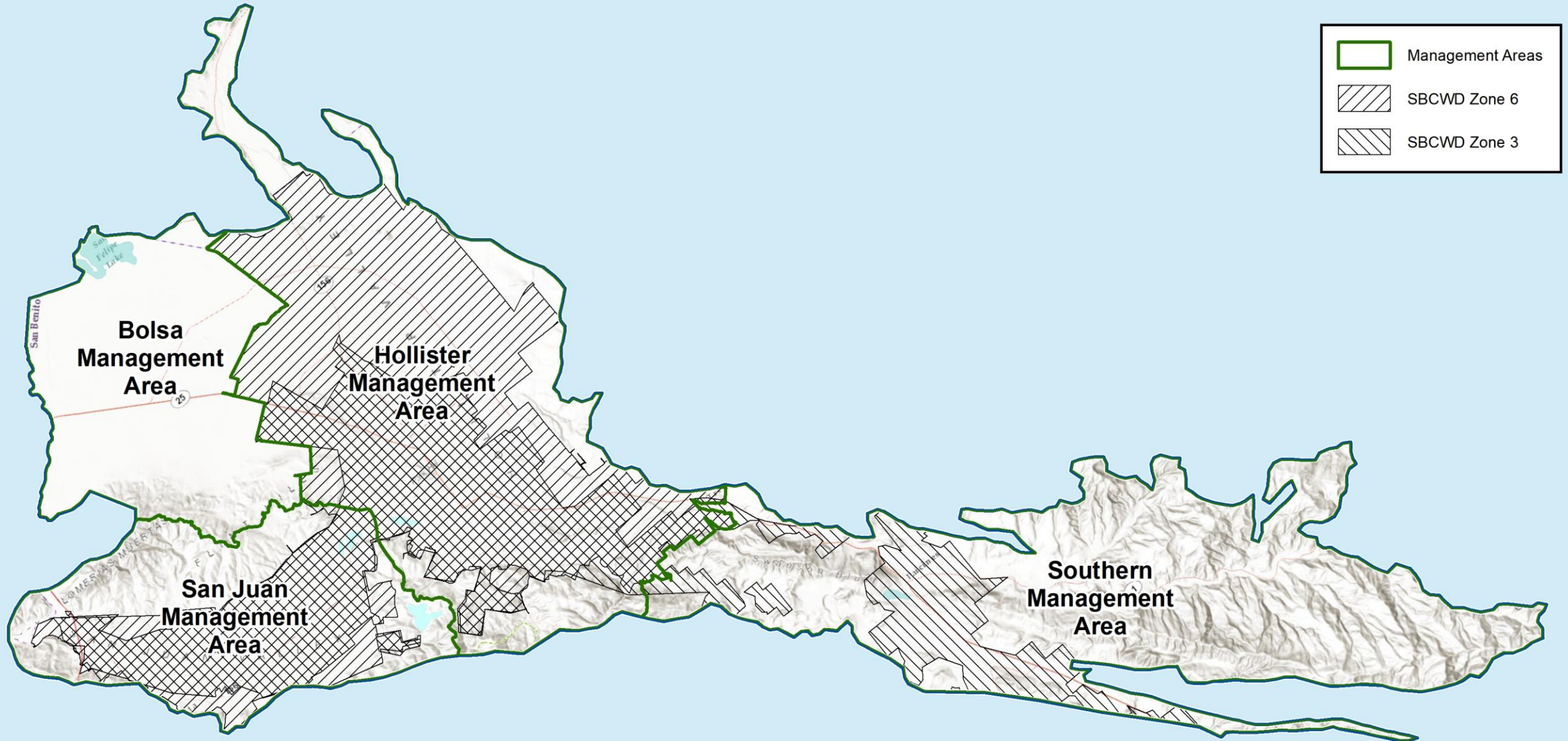
How defined?

Different water uses, water sources, geology, aquifer characteristics, etc.

Why have them? To facilitate implementation of the GSP



# Why divide the basin? How were MAs defined?



# Management Areas

Upcoming TM will describe

- Basin setting (hydrogeology, water budget, etc.)
- Reasons for each management area

GSP sustainability chapter also will document

- Monitoring sites and program as appropriate
- Minimum thresholds and measurable objectives
- How management areas can operate together



# Sustainability criteria: groundwater levels

Recap:

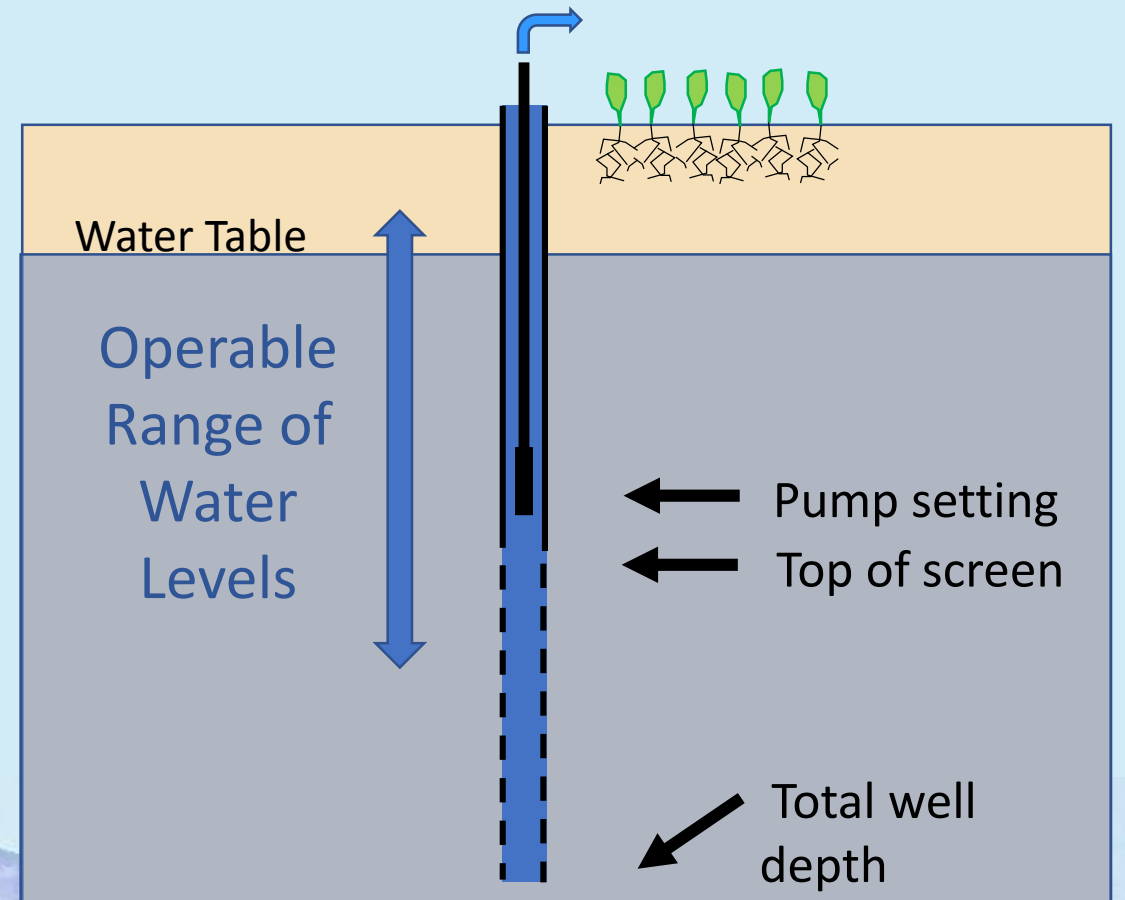
What are potential undesirable results?

- loss of yield in wells
- impacts on flow to other areas

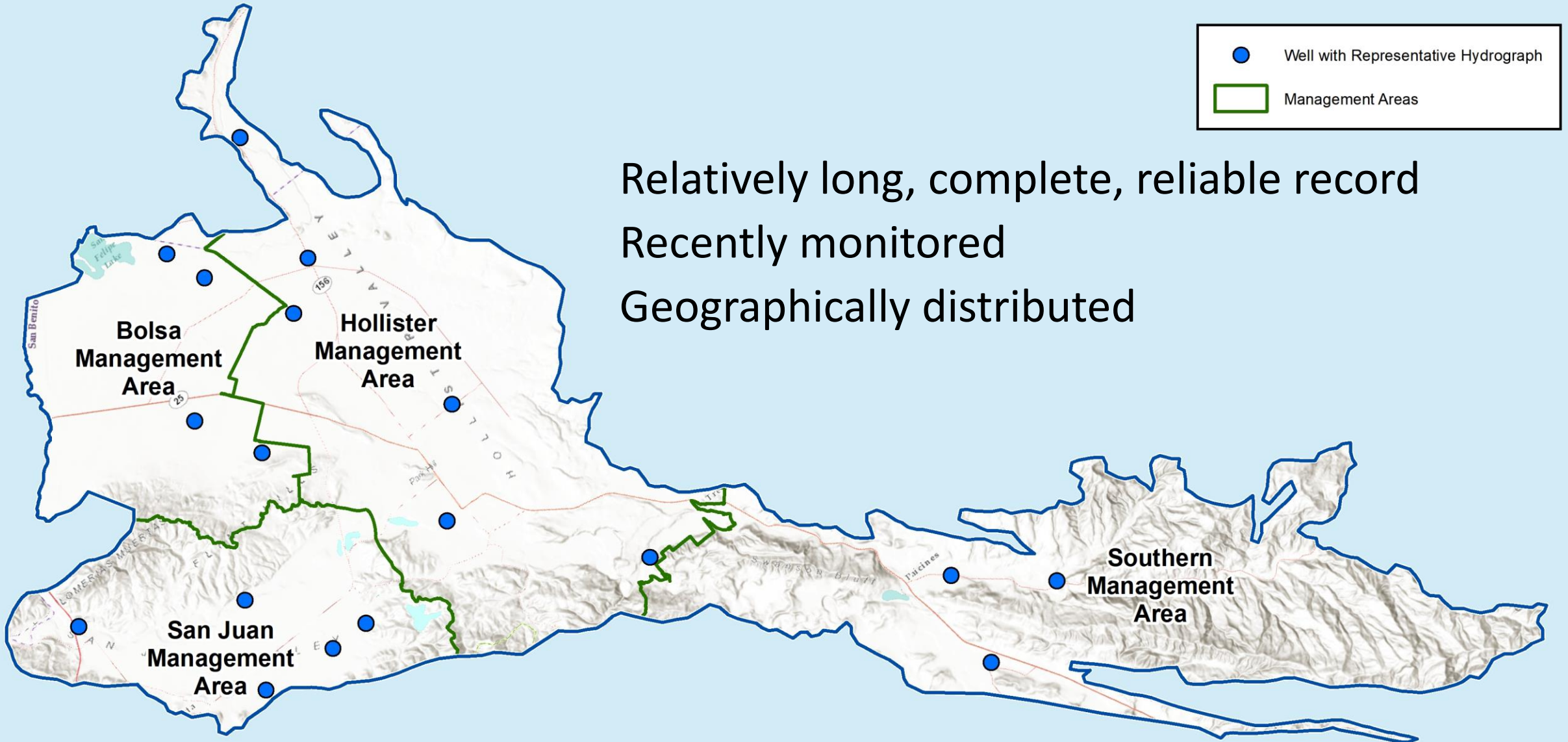
How do we identify undesirable results?

- historical lows
- shallow well construction

How do we identify key wells?




# Wells with representative hydrographs



Relatively long, complete, reliable record  
Recently monitored  
Geographically distributed

# Next steps with groundwater levels

- Currently reviewing recent domestic well construction
  - Top of screens
  - Total well depth
- Relating domestic well characteristics to potential key wells
- Identifying preliminary thresholds and undesirable results (how long, how often, rate of decline)

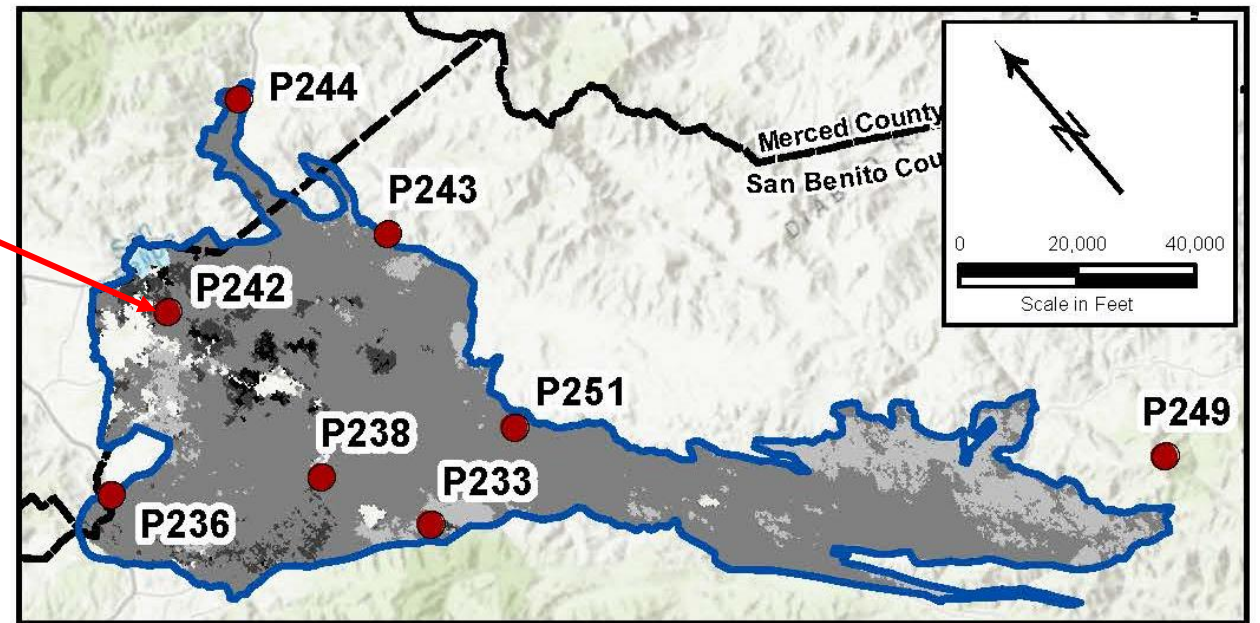
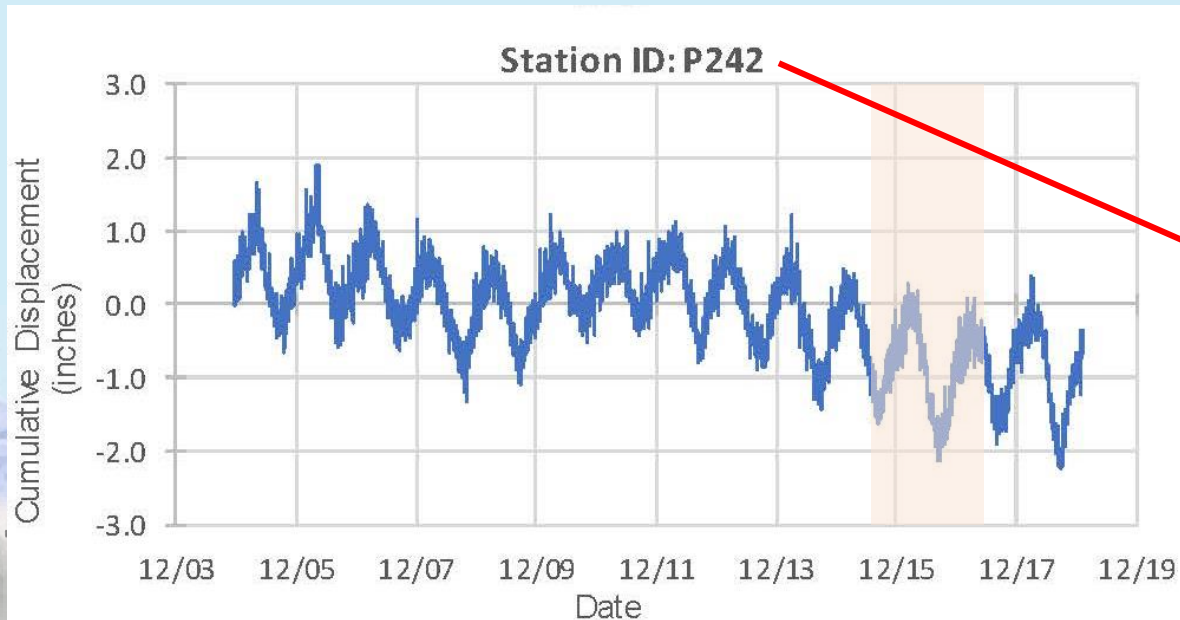


	Top of Screens (ft)	Total Well Depth (ft)
	60	200
	100	225
	85	500
	150	400
	120	200
	75	150
	60	100
	170	250
	115	170
	95	160
<b>Minimum</b>	<b>60</b>	<b>100</b>
<b>Median</b>	<b>98</b>	<b>200</b>
<b>Average</b>	<b>103</b>	<b>236</b>

# Sustainability criteria: subsidence

Do we have enough data

- to evaluate factors affecting subsidence?
- to establish a minimum threshold?
- to conduct a monitoring program?
- to define responsive management actions?



# What are the potential undesirable results?

- Well casings protruding from the ground
- Well casing collapse
- Un-leveling of agricultural fields
- Reduced (or even reversed!) flow in ditches, canals, and drains
- Damage to structures





# How to establish criteria?

Minimum Threshold is a *rate* and *extent* of subsidence

- Consider potential undesirable results: wells, drainage channels, floodways, transportation facilities
- Evaluate sustainability criteria *commensurate* with understanding of the basin setting, uncertainty, and data gaps
- Gather more subsidence data (InSAR? UNAVCO? Other?) over next 5 years?
- *Then* analyze groundwater pumping and levels as factors
- *Then* plan monitoring of subsidence and groundwater levels

# What are potential management actions?

## Manage groundwater levels

- In-lieu recharge
- Managed aquifer recharge (MAR)
- Water demand management
- Management of well distribution and/or pumping



# Update on Outreach

## Website

- Improved website and uploaded Introduction and Plan Area
- HCM and GW conditions available soon online
- Briefing to Assemblyman Rivas
- School presentations

2021

# GSP Overview, Workshops, and TAC Meetings ★

Plan Development

Adoption hearing

Draft GSP workshop

Implementation workshop

Management Actions /  
Monitoring

Actions workshop

Sustainability Criteria

Criteria workshop

2020

Management Areas /  
Water Budgets

Water budget workshop

Hydrogeologic  
Conceptual Model /  
Groundwater

HCM-GW Conditions  
Public Workshop #2  
June 19 2019

2019

Data Compilation /  
Data  
Management System

Kickoff workshop Nov 7 2018

2018

Plan Area /  
Institutional Setting



# Next Steps

SBCWD Board of Director's Meeting	Today! April 24, 2019
Workshop No. 2	June 19, 2019
TAC Meeting No. 5	July 31, 2019

