GWA Board Meeting
May 8, 2019

Agenda

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

- Approval of March Meeting Minutes
- Roadmap Update and Deliverables
- Bundle 1 – Draft Chapters Overview
- Management Actions
- Sustainable Management Criteria for Six Sustainability Indicators
- Monitoring Network
- Groundwater Dependent Ecosystem Approach
- Inter-basin Coordination
- DWR Update
- June Agenda Items

Roadmap Update & Deliverables

GSP Topics & Project Schedule

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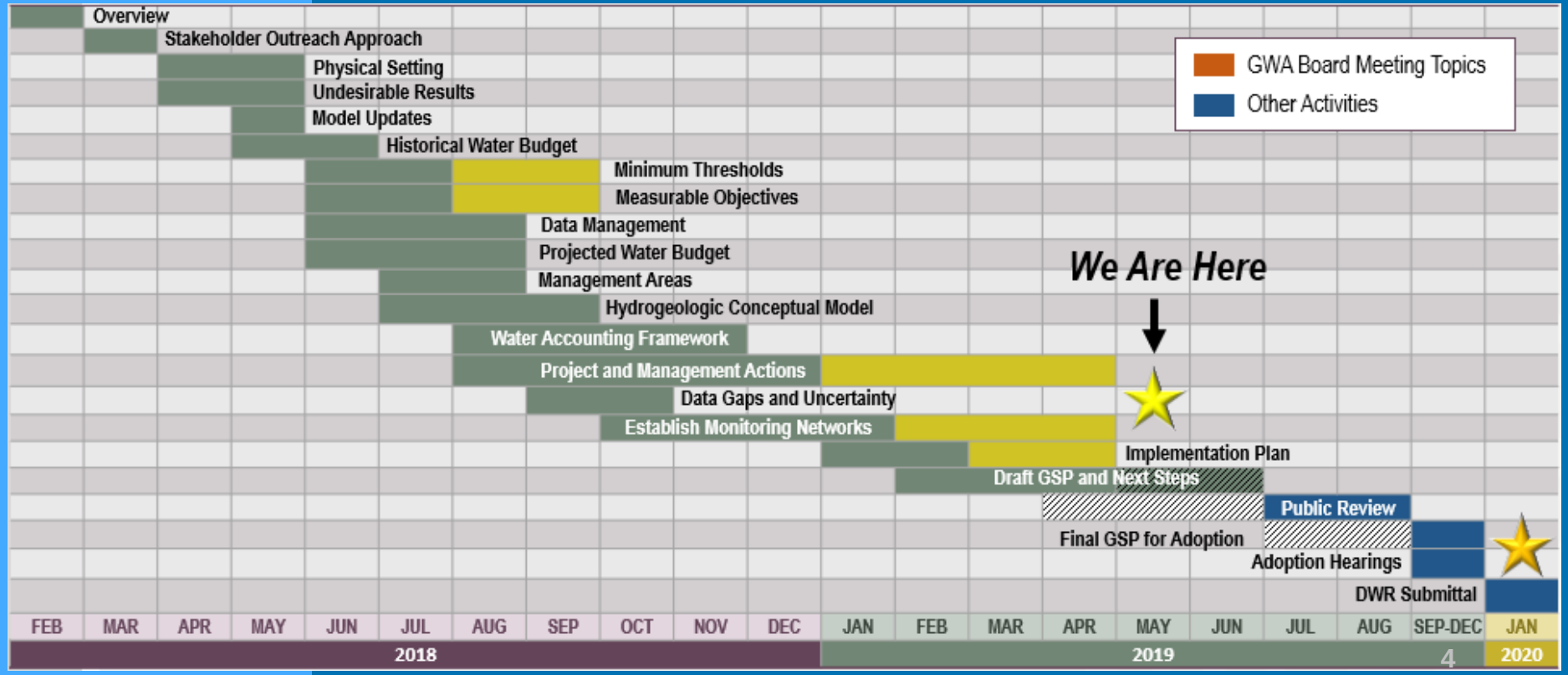

Groundwater Sustainability Workgroup Update

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- 6 Workgroup members and 3 members of the public attended the Groundwater Sustainability Workgroup meeting held on April 10th
- The next Workgroup meeting will be held on May 8th at 4:00pm at the San Joaquin County Public Works Department
- Notes from Workgroup meeting are available on the website, esjgroundwater.org (under ‘Agendas’ tab)
- Workgroup focused on review Draft Chapter overview and implementation plan discussion

Groundwater Sustainability Workgroup Update

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY

EASTERN SAN JOAQUIN GROUNDWATER AUTHORITY
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(209) 468-3089
ESJgroundwater@sjgov.org
esjgroundwater.org

Eastern San Joaquin Groundwater Authority Groundwater Sustainability Workgroup
May 8, 2019
4 – 5:30 p.m.
San Joaquin County Public Works Department
1810 E. Hazelton Ave., Stockton, CA
Conference Room A

Agenda

I. Welcome

II. Meeting Objectives

III. Bundle 1 – Draft Chapter Overview

- Presentation and Discussion: Review HCM requirements and discuss draft chapters

IV. Implementation Plan

- Presentation and Discussion: Review and discuss approach for GSP implementation

VI. Announcements

- Bundle 2 Draft Chapter is anticipated to be posted in June

VII. Other Topics
a. Non-agenda Items
b. Public Comment

Bundle 1 Draft Chapters Overview

Bundle 1 – Draft GSP Chapters

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Bundle 1 has been posted to website homepage:
www.esjgroundwater.org

- Text includes includes:
  - Administrative Information
  - Plan Area
  - Hydrogeologic Conceptual Model (HCM)
  - Data Compilation
  - Data Management System (DMS)
- Comments due June 1, 2019

Management Actions

Management Actions: Discussion

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Projects Approach: Projects that provide a net input to groundwater through supply-side, recharge, and conservation projects.

Demand-side Management Approach: Reductions in pumping through use restrictions and conservation.

Management Actions

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Action Needed: Approve a mixture of supply-side projects, demand-side management actions, and projects that provide other benefits, be used in the implementation plan to achieve sustainability consistent with the identified community values, with a predominant focus on supply-side projects.

Sustainability Indicators

Sustainability Indicators:
1. Chronic Lowering of Groundwater Levels

Analysis of Projected Conditions – Example Hydrograph

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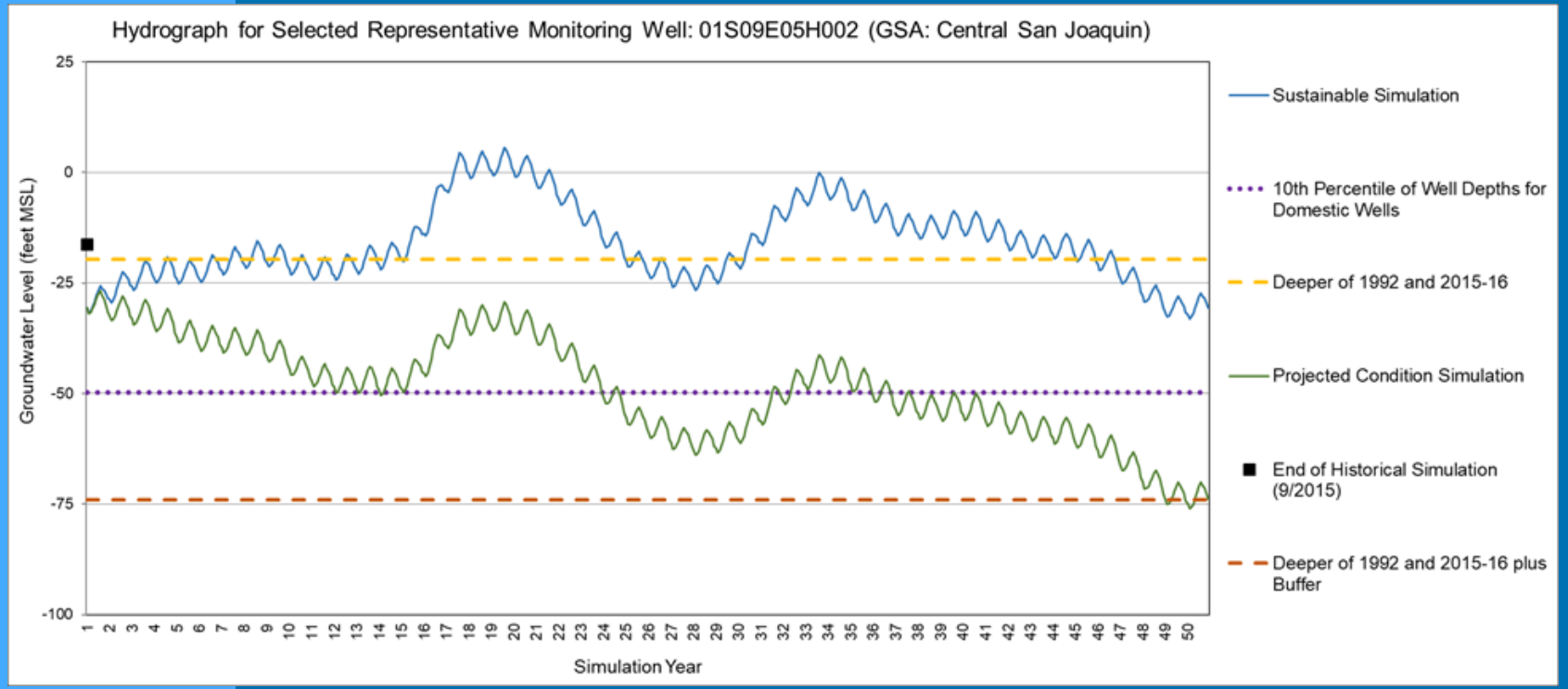

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Action – Chronic Lowering of Groundwater Levels

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Action Needed: Approve Sustainable Management Criteria for the Chronic Lowering of Groundwater Levels. Recommendation was made by the Advisory Committee on April 10, 2019.

Sustainable Management Criteria Summary – Chronic Lowering of Groundwater Levels	
Criteria	Narrative Description
Proposed Minimum Threshold	The deeper of: 1992 and 2015-16 levels with a buffer of 100% of historical range applied, or the 10th percentile domestic well depth, whichever is shallower
Proposed Measurable Objective	The deeper of 1992 and 2015-16 levels
Proposed Interim Milestones	Interim Milestones under development
Proposed Definition of Undesirable Result	An undesirable result is considered to occur during GSP implementation when at least 25 percent of representative monitoring wells used to monitor groundwater levels (5 of 19 wells in the Subbasin) fall below their minimum level thresholds for two consecutive years that are categorized as non-dry years (below-normal, above-normal, or wet), according to the San Joaquin Valley Water Year Hydrologic Classification.

Sustainability Indicators:
2. Reduction of Groundwater Storage

Historical Modeled Change in Groundwater Storage

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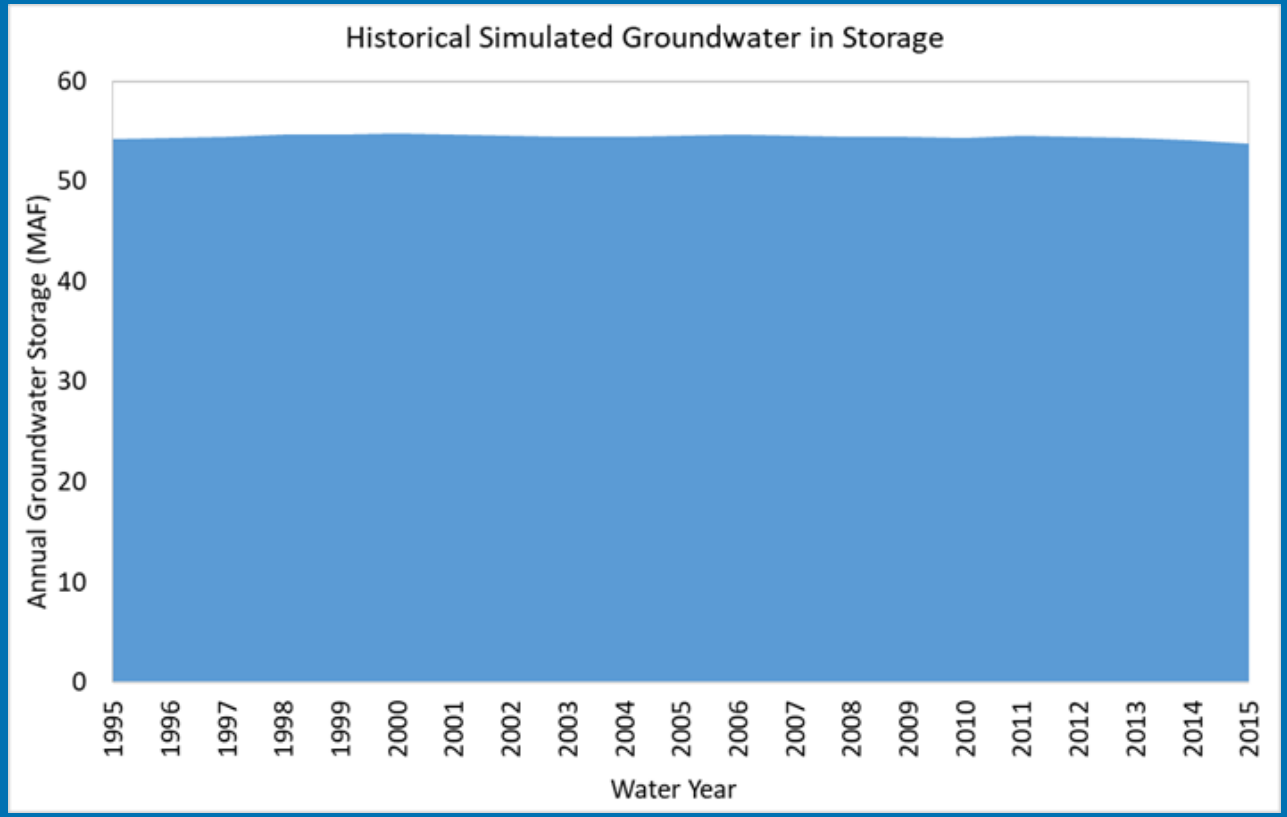
- 53.0 Million AF freshwater in storage (2015)
- Cumulative change of -0.05 MAF per year (-.09%)



Approach: Using GW levels as Proxy

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- Sustainability in the ESJ Subbasin related to groundwater volume is driven by the groundwater level indicator, which relates to the ability of infrastructure to economically access groundwater and the sustainability of groundwater dependent ecosystems, to the extent connected to the aquifer accessed for water supplies.

- Groundwater elevation levels will be protective of significant and unreasonable depletion of groundwater storage.

Action: Reduction in Groundwater Storage

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Action Needed: Approve the Sustainable Management Criteria for Reduction in Groundwater Storage. Recommendation was made by the Advisory Committee on April 10, 2019.

Sustainable Management Criteria Summary – Reduction in Groundwater Storage	
Criteria	Narrative Description – GWE as Proxy
Proposed Minimum Threshold	Consistent with groundwater levels minimum thresholds
Proposed Measurable Objective	Consistent with groundwater levels measurable objectives
Proposed Interim Milestone	Consistent with groundwater levels interim milestones
Proposed Definition of Undesirable Result	Consistent with groundwater levels definition of undesirable result

Sustainability Indicators:
3. Degraded Water Quality

Identified Concerns for Water Quality – Addressed in the GSP

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What we've heard from the Advisory Committee:

- **Salinity**
- **Arsenic**
- Nitrates
- Point-source contamination
- 1,2,3 TCP

- Historic WQ concern
- Can be feasibly managed by a GSP/GSA
- Measured using TDS as a proxy (most widely available data)

- Naturally occurring
- Doesn't result from unsustainable groundwater extraction activities
- No thresholds set

Work Completed on Salinity Threshold

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GSAs impacted by water quality issues developed an initial approach to establishing thresholds for salinity (City of Manteca, City of Stockton, City of Lodi, City of Lathrop, Cal Water, and San Joaquin County)

- Discussed Minimum Threshold for Salinity
- Established Monitoring Well Network

Outcome: Support for adding buffer to SMCL to establish minimum threshold; considered protective of drinking water and predominant crops in the Subbasin

Action – Degraded Groundwater Quality

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Action Needed: Approve the Sustainable Management Criteria for Degraded Groundwater Quality. Recommendation was made by the Advisory Committee on April 10, 2019.

Sustainable Management Criteria Summary – Degraded Water Quality	
Criteria	Narrative Description
Minimum Threshold	1,000 mg/L TDS at identified wells
Measurable Objective	600 mg/L TDS at identified wells
Interim Milestone	5-year milestones along a linear trend between current condition and the measurable objective
Definition of Undesirable Result	Undesirable results are considered to occur during GSP implementation when more than 25 percent of representative monitoring wells (3 of 10 sites) exceed the minimum thresholds for water quality for two consecutive years and where these concentrations are the result of groundwater management activities.

Sustainability Indicators:
4. Seawater Intrusion

Seawater Intrusion: Developing an Isocontour Line

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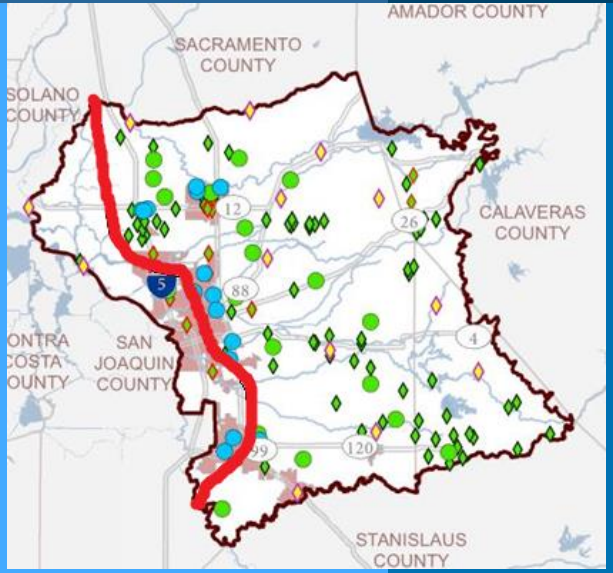

- The proposed contour would be between the westernmost monitoring points and the next most-westerly points, to serve as a sentinels.

Action – Seawater Intrusion

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Action Needed: Approve the Sustainable Management Criteria for Seawater Intrusion. Recommendation was made by the Advisory Committee on April 10, 2019.

Sustainable Management Criteria Summary – Seawater Intrusion	
Criteria	Narrative Description
Proposed Minimum Threshold	2,000 mg/L chloride isocontour line
Proposed Measurable Objective	The current condition (2015-2018 average)
Proposed Interim Milestone	5-year milestones along a linear trend between current condition and the measurable objective
Definition of Undesirable Result	Undesirable results are considered to occur during GSP implementation when 2,000 mg/L chloride reaches the established isocontour line and where these concentrations are caused by intrusion of a seawater source as a result of groundwater management activity.
Trigger and Action Plan	Put action plan in place at to trigger additional monitoring and analysis to confirm seawater source at lower concentrations (1,000 mg/L chloride)

Sustainability Indicators: 5. Land Subsidence

Subsidence has not been Observed Historically in the Subbasin

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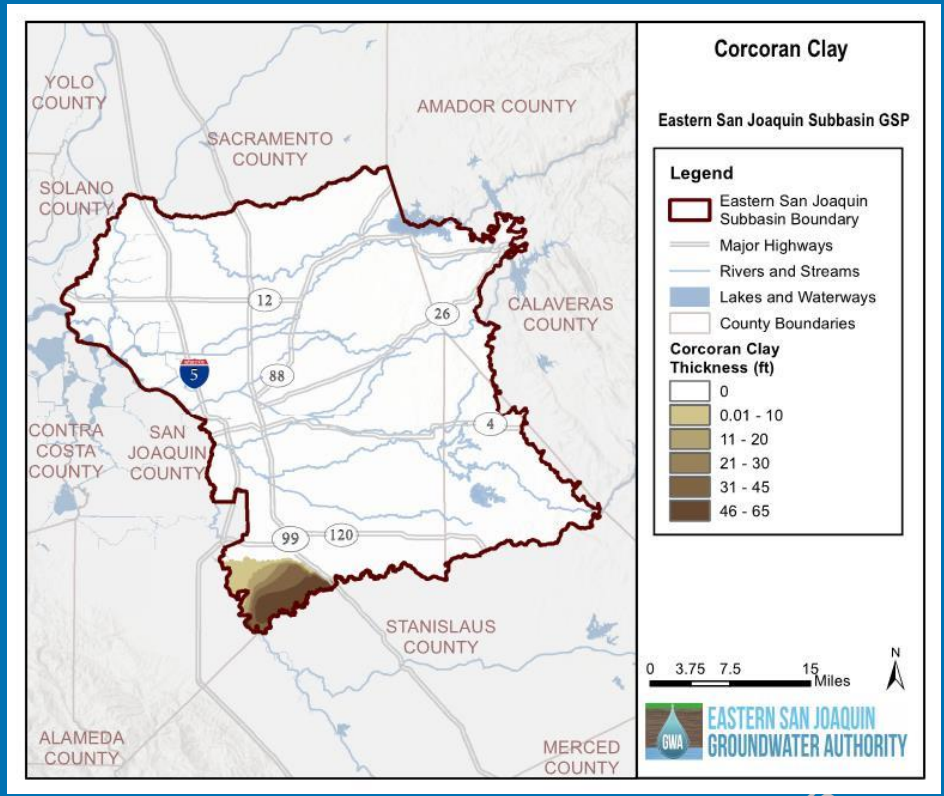
Monitoring Stations (USGS)



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Using GW Levels as a Proxy

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- The use of groundwater levels as a proxy metric for this sustainability indicator is justified by the significant correlation between groundwater levels and land subsidence and is necessary given the lack of extensive monitoring for land subsidence.

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Action – Land Subsidence

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Action Needed: Approve the Sustainable Management Criteria for Land Subsidence. Recommendation was made by the Advisory Committee on April 24, 2019.

Sustainable Management Criteria Summary – Land Subsidence	
Criteria	Narrative Description
Minimum Threshold	Consistent with groundwater levels minimum thresholds
Measurable Objective	Consistent with groundwater levels measurable objectives
Interim Milestone	Consistent with groundwater levels interim milestones
Definition of Undesirable Result	Consistent with groundwater levels definition of undesirable result

Sustainability Indicators:
6. Depletion of Interconnected Surface Waters

Justification GWE Proxy is Protective

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- Historical depletion of interconnected surface water is not known to be significant or unreasonable.
- Proposed groundwater level minimum thresholds and undesirable results have an associated level of additional depletions.
- Depletion above that volume is not likely, as groundwater levels below undesirable results would be required
- The current groundwater level minimum thresholds (draft, pending final confirmation and calls) were evaluated to check for groundwater level undesirable results (non-dry year pairings where 25% or more of wells fall below their minimum thresholds) based on existing future simulations.

Results in Context with Streamflows

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- The sustainable simulation does not result in groundwater level undesirable results.
- The projected conditions simulation does result in undesirable results.
- The additional stream losses that occurred in the projected simulation compared to the historical simulation are estimates of depletions - they can be linked to increased groundwater pumping.
- Projected conditions simulation additional depletions over the historical simulation are 50,000 AFY - approximately 1% of total stream outflows.
- An additional 50,000 AFY of stream depletion is proposed to not be considered significant and unreasonable.
- Depletions greater than an additional 50,000 AFY require groundwater levels that would be classified as undesirable results under the GWL indicator. Therefore, groundwater level thresholds are protective of the depletion of interconnected surface water.

Action – Depletion of Interconnected Surface Water

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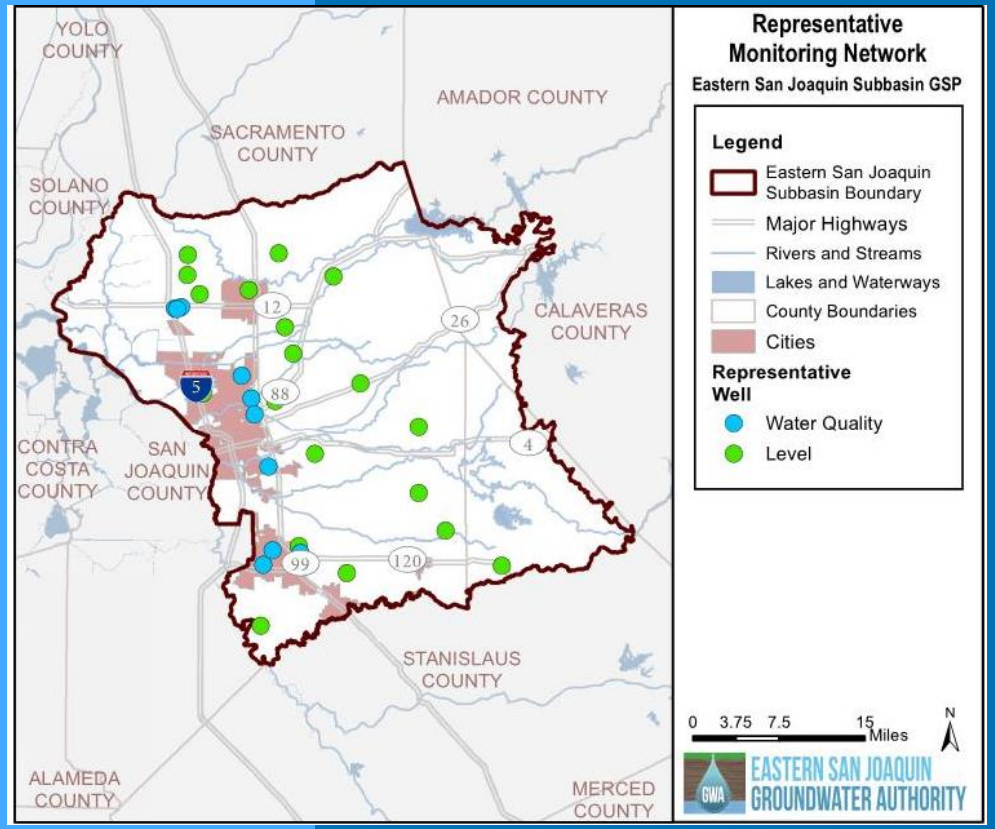
Action Needed: Approve the Sustainable Management Criteria for Depletion of Interconnected Surface Water. Recommendation was made by the Advisory Committee on April 24, 2019.

Sustainable Management Criteria Summary – Interconnected Surface Water	
Criteria	Consultant Recommendation –GWE as Proxy Narrative Description
Proposed Minimum Threshold	Consistent with groundwater levels minimum thresholds
Proposed Measurable Objective	Consistent with groundwater levels measurable objectives
Proposed Interim Milestone	Consistent with groundwater levels interim milestones
Proposed Definition of Undesirable Result	Consistent with groundwater levels definition of undesirable result

Monitoring Network

Representative Monitoring Network Wells

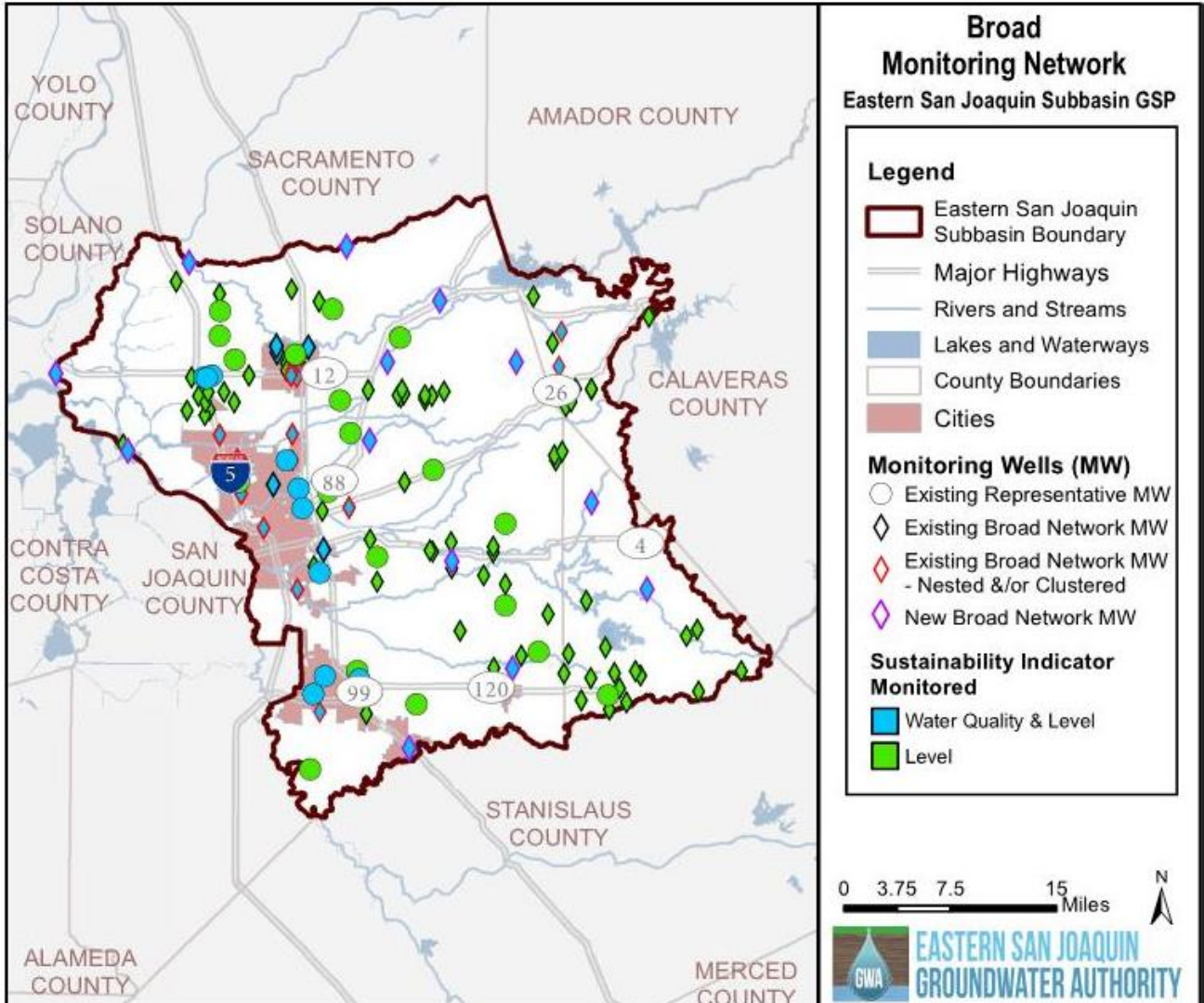


Includes:

Dedicated Threshold Wells for GW Levels (19)
Dedicated Threshold Wells for GW Quality (10)

Broad Monitoring Network

- Representative monitoring and additional broader network



Action – Monitoring Network

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Action Needed: Approve monitoring locations, constituents sample, and frequency of sampling in the GSP monitoring network. Recommendation made by Advisory Committee on April 24, 2019.

Well Type	#	Monitoring Network	Constituent Monitored		Proposed Frequency
			Elevation	Water Quality	
Dedicated Level Threshold	19	Representative Monitoring	X		Quarterly
Dedicated Groundwater Quality Threshold	10	Representative Monitoring	X	X	Semi-Annually
CASGEM Wells (Official)	76	Broad	X		Semi-Annually
Nested &/or Clustered Wells	21	Broad	X	X	Semi-Annually
TSS Wells + 10 New Wells (Planned)	12	Broad	X	X	Semi-Annually
Additional local wells in water quality network	5	Broad	X	X	Semi-Annually

Groundwater Dependent Ecosystems

Methodology and Results

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- Today we are presenting the methodology for identifying GDEs in the Subbasin
- GSA Staff and GW Sustainability Workgroup has seen draft GDE areas, methodology and feedback has been requested (Workgroup did an exercise to mark up maps)

Preliminary Methodology for Assessing GDEs

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- DWR's Natural Communities Commonly Associated with Groundwater (NCCAG) dataset was used, developed with The Nature Conservancy
- Areas with access to supplemental water supplies were removed, including
  - Managed wetlands and areas without shallow groundwater
  - Areas adjacent to canals and ditches, irrigated ag fields, losing streams, perennial rivers, and managed wetlands.

Full NCCAG Dataset

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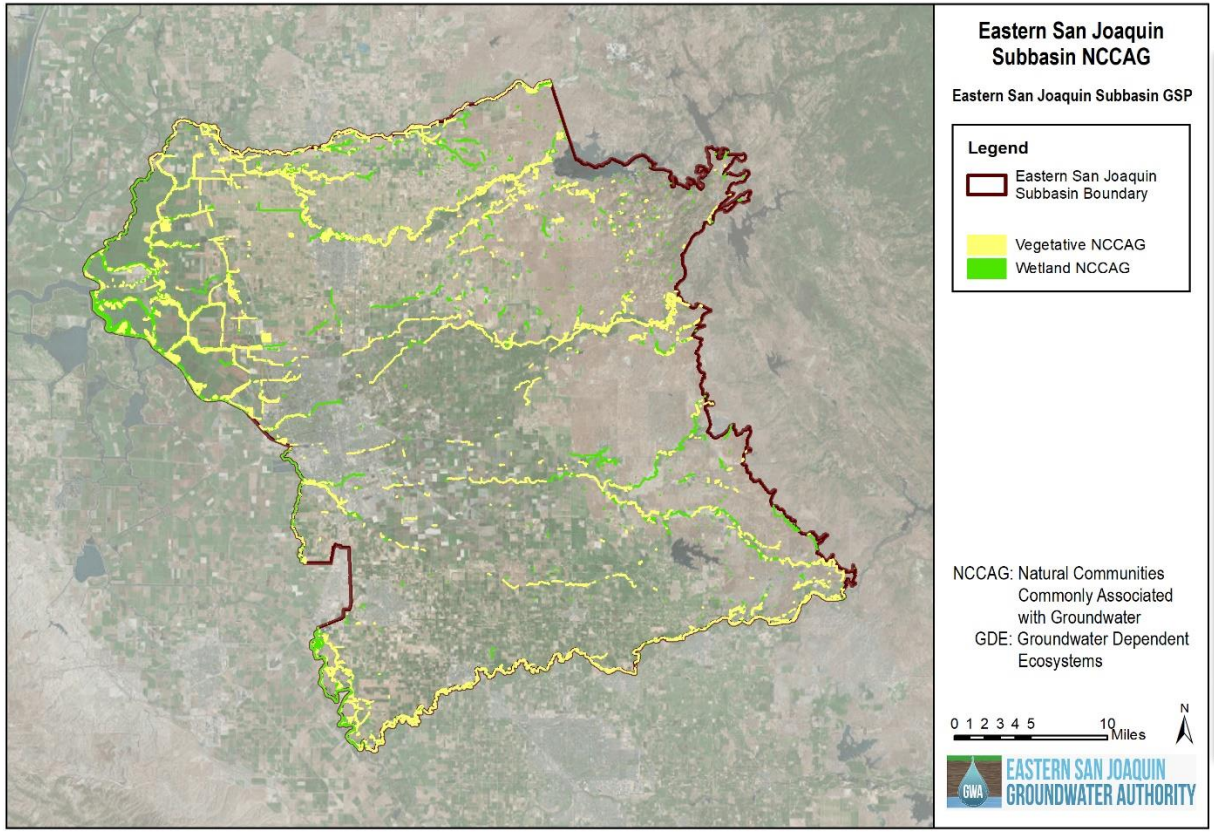

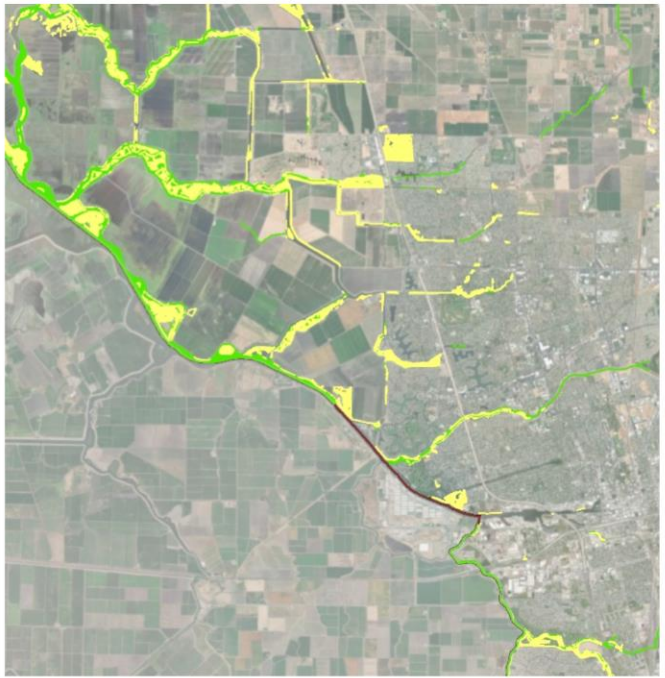

Identifying NCCAGs Likely to Access Non-groundwater Water Supplies

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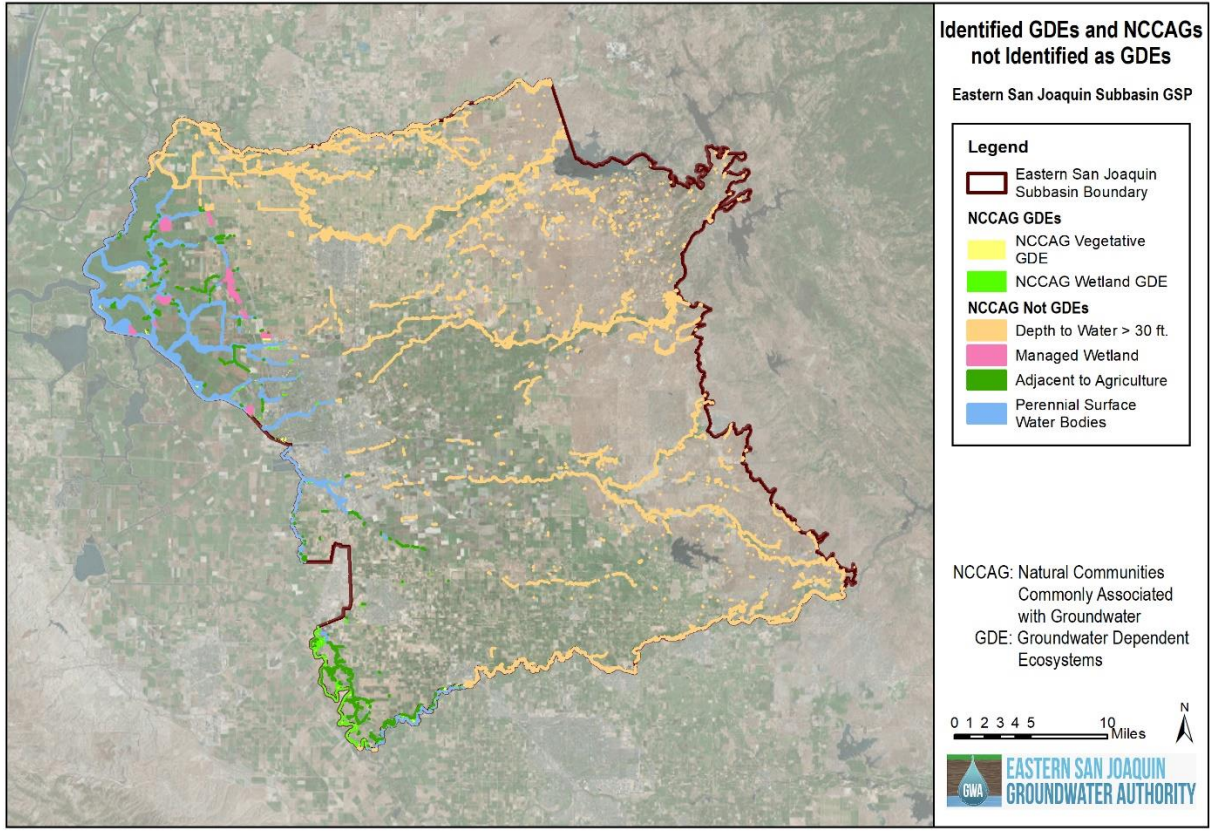
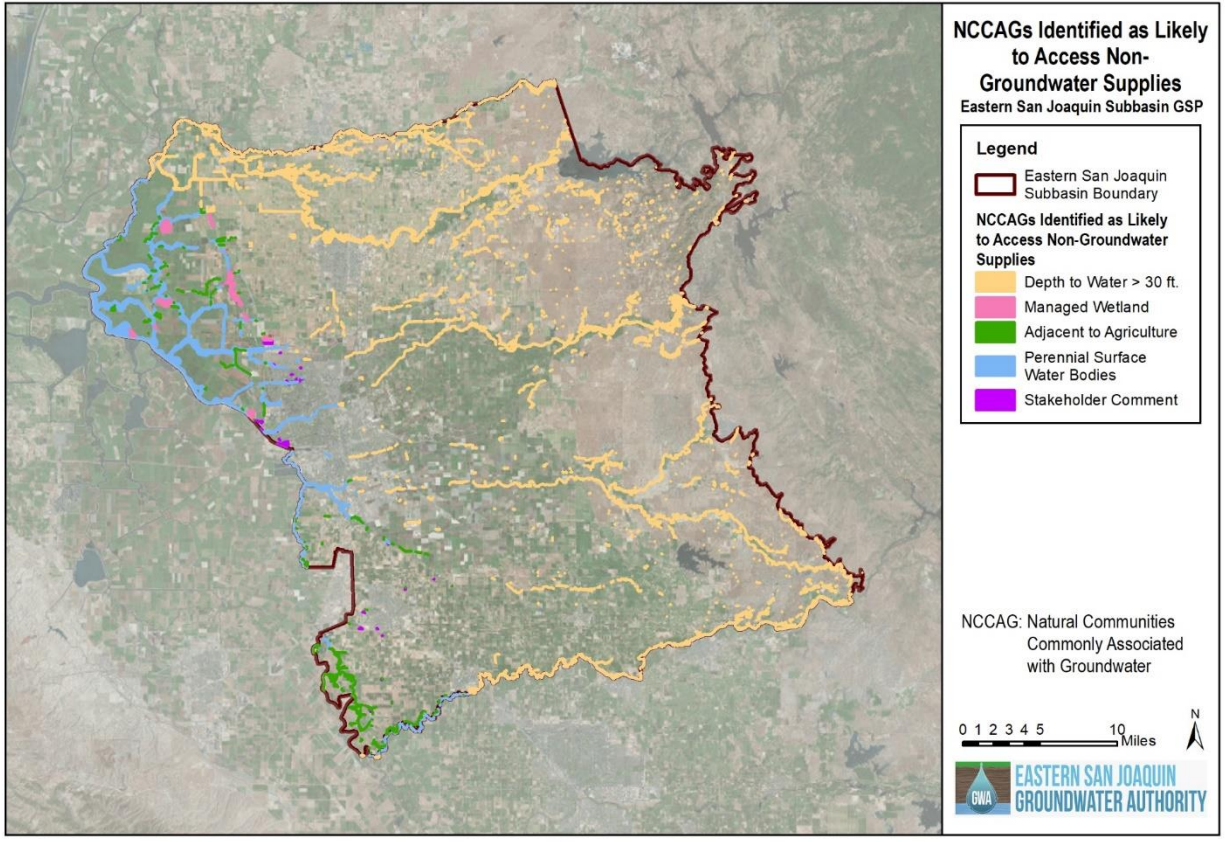


Buffers Used

DTW 30+ ft.	Drawn from area of shallow DTW measurements
Managed Wetland	150 ft.
Adjacent to Ag.	50 ft.
Losing or Perennial Streams	150 ft.
Canals and Ditches	150 ft.

Incorporating Stakeholder Comments



- Areas shown in purple were removed as potential GDEs from stakeholder feedback (groundtruthing)

Identified Potential GDEs

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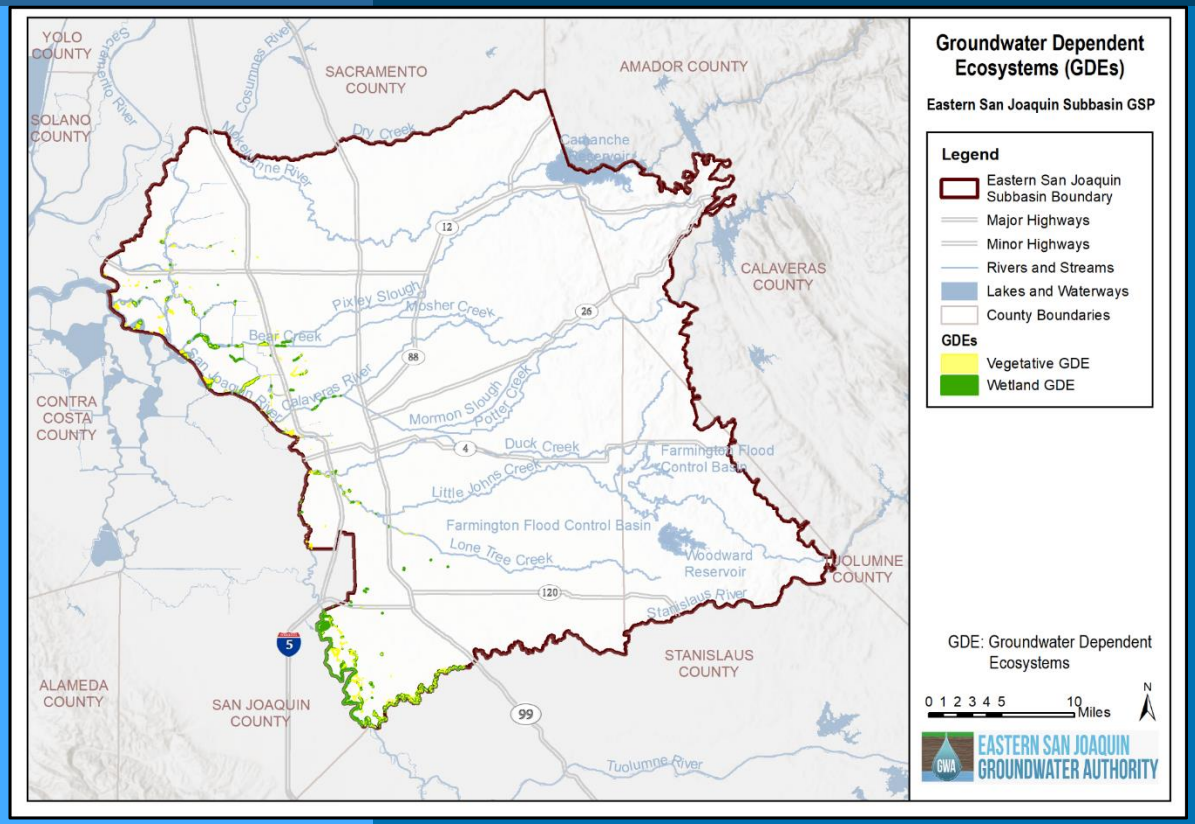

- Areas identified as potential GDEs

Inter-basin Coordination

Inter-Basin Coordination

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Next Step: Reach out to neighboring subbasins

- Cosumnes (2022 timeline)
- South American (Alternative plan)
- Solano (2022 timeline)
- Tracy (2022 timeline)
- Modesto (2022 timeline)
- East Contra Costa (2022 timeline)

DWR Update

June Agenda Items

June Agenda Items

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- Bundle Review and GSP Draft Release Process
- Additional GSP Elements
- Implementation Phase and Funding Next Steps

GWA Board Meeting
May 8, 2019