



Stanislaus & Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency

1231 11th Street | Modesto, CA 95354
Phone: (209) 526-7564 | Fax: (209) 526-7352
Email: John.Davids@mid.org

AGENDA

January 13, 2021 (1:30 p.m. – 2:00 p.m.)

Webinar Digital Platform or Phone Meeting

<https://us02web.zoom.us/j/87846141611>

By phone: 1-669-900-9128

Webinar ID: 878 4614 1611

This meeting is being conducted via webinar for all seven member agencies, pursuant to Executive Orders signed by Governor Gavin Newsom related to the ongoing COVID-19 pandemic, including provisions regarding the Brown Act. Members of the public and member agency staff may join the meeting utilizing Zoom's webinar feature if desired, or a phone number as provided in this Agenda. Members of the public will continue to have the opportunity to provide public input via the webinar or phone features. Members of the public may also email public comments by 3:00 p.m. on the day preceding the GSA meeting to: [strgba.org](mailto:public@strgba.org). If public comments are timely submitted by email, then those comments will be identified during the public input section of the Agenda or during a specific agenda item if the agenda item is identified in the email. The Brown Act does not require a member of the public to state her or his name; please indicate in your email if you would like your name stated or if you want to remain anonymous. _

PUBLIC PARTICIPATION

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1. Call to Order/Welcome and Introductions
(Four agencies needed for a quorum)
2. Business from the Public
Who: Public
Expected Outcome: Interested persons are welcome to introduce any topic within the Agency's jurisdiction. Matters presented under this heading may be discussed but no action will be taken by the Agency at this meeting.
3. Topic: Approve 12/9/20 Meeting Minutes [[Action Item](#)]
Who: John Davids, Committee
Expected Outcome: Approval
4. Topic: Budget and Schedule Update
Who: Gordon Enas, Committee
Expected Outcome: Discussion
5. Topic: Public Outreach Update
Who: Samantha Wookey, Committee
Expected Outcome: Discussion
6. Topic: GSP Update
Who: Todd Groundwater, Committee
Expected Outcome: Discussion
7. Topic: Monitoring Well Update
Who: Todd Groundwater, Committee
Expected Outcome: Discussion
8. Next Meeting
February 10, 2021 at 1:30 p.m. via Zoom
9. Items too late for the agenda



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MEETING MINUTES

December 9, 2020 (1:30 p.m. – 2:00 p.m.)

The meeting was called to order at 1:34 p.m.

1. Welcome and Introductions

The following members of the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) attended via Zoom:

Modesto Irrigation District (MID): John Davids
Oakdale Irrigation District (OID): Eric Thorburn
City of Modesto: Miguel Alvarez
Stanislaus County: Walt Ward
City of Oakdale: Michael Renfrow
City of Riverbank: Michael Riddell

Other Attendees:

Alexis Stevens, Somach, Simmons & Dunn	Michael Moradian
Stacy Henderson, Terpstra Henderson	Debbie Montalbano
Hilary Reinhard, Provost & Pritchard	Ronda Lucas
Gordon Enas, MID	Michael Gaffney
Samantha Wookey, MID	Parry Klassen
John Mensinger, MID	Steven Rank
Liz Elliott, Todd Groundwater	Nick Blom, MID
Phyllis Stanin, Todd Groundwater	Kim MacFarlane
Dominick Amador, Woodard & Curran, Inc.	David Orth
Ali Taghavi, Woodard & Curran, Inc.	
Angela Cartisano, MID	
Dana Ferreira, MID	
Kirsten Pringle, Stantec	
Larry Byrd, MID	



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2. Business from the Public

N/A

3. Approve 10/14/20 Minutes [Action item]

Thorburn moved, 2nd by Ward, to approve 10/14/20 meeting minutes. Motion carried.

4. GSP Budget and Schedule

Enas reported that Todd Groundwater has expended approximately 47% of the budget and 57% of the time scheduled through October 31, 2020.

5. Valley Water Collaborative

Parry Klassen gave a presentation on the Valley Water Collaborative (VWC). The VWC's desire is to collaborate with the STRGBA GSA in order to ensure adequate outreach to the community and avoid duplicating efforts. Davids suggested developing a coordination agreement to solidify the relationship between VWC and STRGBA GSA. Davids and Klassen will work together on drafting the agreement.

6. Monitoring Well Update

Elliott gave an update on the monitoring well project. She stated they have completed the bidding and awarded the project to Gregory Drilling. Todd is in the process of obtaining permits and well construction is scheduled to begin in February 2021.

7. Next meeting:

January 13, 2021 at 1:30 p.m. via Zoom webinar

8. Items too late for the agenda

N/A



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AGENDA

January 13, 2021 (2:00 p.m. – 3:00 p.m.)

Webinar Digital Platform or Phone Meeting

<https://us02web.zoom.us/j/87846141611>

By phone: 1-669-900-9128

Webinar ID: 878 4614 1611

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3. Topic: Approve 12/9/20 Meeting Minutes [[Action Items](#)]
Who: John Davids, Committee
Expected Outcome: Approval
4. Topic: Sustainable Management Criteria
Who: Todd Groundwater, Committee
Expected Outcome: Discussion
5. Next Meeting
TBD
6. Items too late for the agenda



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**TECHNICAL ADVISORY COMMITTEE
MEETING MINUTES**

December 9, 2020 (2:00 p.m. – 3:00 p.m.)

The meeting was called to order at 2:00 p.m.

1. Welcome and Introductions

The following members of the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) attended via Zoom:

Modesto Irrigation District (MID): John Davids
Oakdale Irrigation District (OID): Eric Thorburn
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Other Attendees:

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2. Business from the Public

None

3. Approve 10/27/20 Minutes [Action item]

Thorburn moved, 2nd by Renfrow, to approve 10/27/2020 meeting minutes. Motion carried.

4. Technical Workshop #9 – Projected Conditions Baseline

Historical Simulation Update: Amador began his presentation with an update to the historical simulation of the operational zone budgets. The update included separating out the non-District East (NDE) zone and non-District West (NDW) zone from the combined non-District Agriculture zone budget as requested at the October 27, 2020 TAC meeting. Amador's presentation can be accessed at the STRGBA GSA website: www.strgba.org

Meeting participants engaged in the following discussion with the GSA members and consultant team:

- Davids commented that irrigated agriculture in the NDE zone is solely dependent on groundwater. MID and OID have delivered some surface water to the NDE in the past, but only minimal amounts. Surface water deliveries are not a dependable supply and shouldn't be included in projected future budgets.
- Henderson asked if MID's Groundwater Replenishment Program (GRP) is considered as an out-of-district transfer in the historical simulation? No, the GRP was not included in the historical simulation for MID since the program began in 2017 which is outside of the historic simulation period of 1991-2015.
- Henderson asked if the GSA is considering out-of-district water transfers? That decision rests with the MID and OID Boards and was not included in the projected future baseline simulation.
- Henderson asked if any analysis on the impact of NDE pumping to the groundwater basin as a result of non-District transfers was included? No additional analysis was done.
- Ward asked that even though existing wells don't go into the Mehrten formation, can it still be considered coterminous with the upper aquifer for modeling purposes? The Eastern Principal aquifer is treated as being connected to the Mehrten formation, but we need to understand the characteristics of the principal aquifer first. Also, the change in groundwater storage in the Mehrten is included in the model even if not called out specifically.



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Projected Conditions Baseline Simulation: Amador presented results for the Baseline Water Budgets. Amador's presentation can be accessed at the STRGBA GSA website: www.strgba.org.

Meeting participants engaged in the following discussion with the GSA members and consultant team:

- Ward asked if the acreage of agricultural lands are being reduced in the model simulation? The model uses data from the latest Urban Water Management Plans to determine urban growth patterns. However, specific crop acreage reductions are based on the spatial locations of the model elements.
- Ward asked if the model distinguishes between the Mehrten Formation and the Principal Aquifer in the vertical dimension? The model takes an average across the vertical layers.
- Ward asked about the big drop in groundwater storage during years 20-25 of the Projected Baseline simulation? The drop is driven by drier hydrology, which equates to less available surface water and more groundwater pumping. Davids added that the baseline projections assume no additional actions during sequential dry years.
- Henderson asked if it was realistic for the model to fix cropping patterns at current levels particularly in the NDE zone? The cropping patterns are a function of Stanislaus County's groundwater ordinance, so you don't have much conversion of land use from rangeland to permanent crops.
- Henderson asked if the GSA will respond to her letter requesting that the eastside and westside of MID's operational zone budget be analyzed separately? The GSA has not looked into that issue. It's still too early in the process to look at imposing pumping restrictions and not much utility in doing that at this point.
- Henderson asked when will the GSA make these types of determinations? The GSA needs to develop sustainable management criteria first to determine what actions are acceptable for the subbasin. Developing a list of projects and management actions will take place next year.
- Henderson asked if the GSA has obtained additional pumping information from eastside pumpers? Outreach to and data collection from the eastside pumpers has stalled. The GSA has good information on cropping patterns and general well locations. The model uses this information to calculate groundwater pumping on the eastside. Also, the data that has been collected is adequate for this analysis, and future data collected from the new monitoring wells will provide additional information.
- Henderson mentioned that funds used to install monitoring wells could be put to better use elsewhere, and that the NDE will likely see an increase of pumping in the future. Projects and management actions shouldn't impose fees on customers who



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aren't causing the problem. Davids stated that this issue will be addressed in the near future.

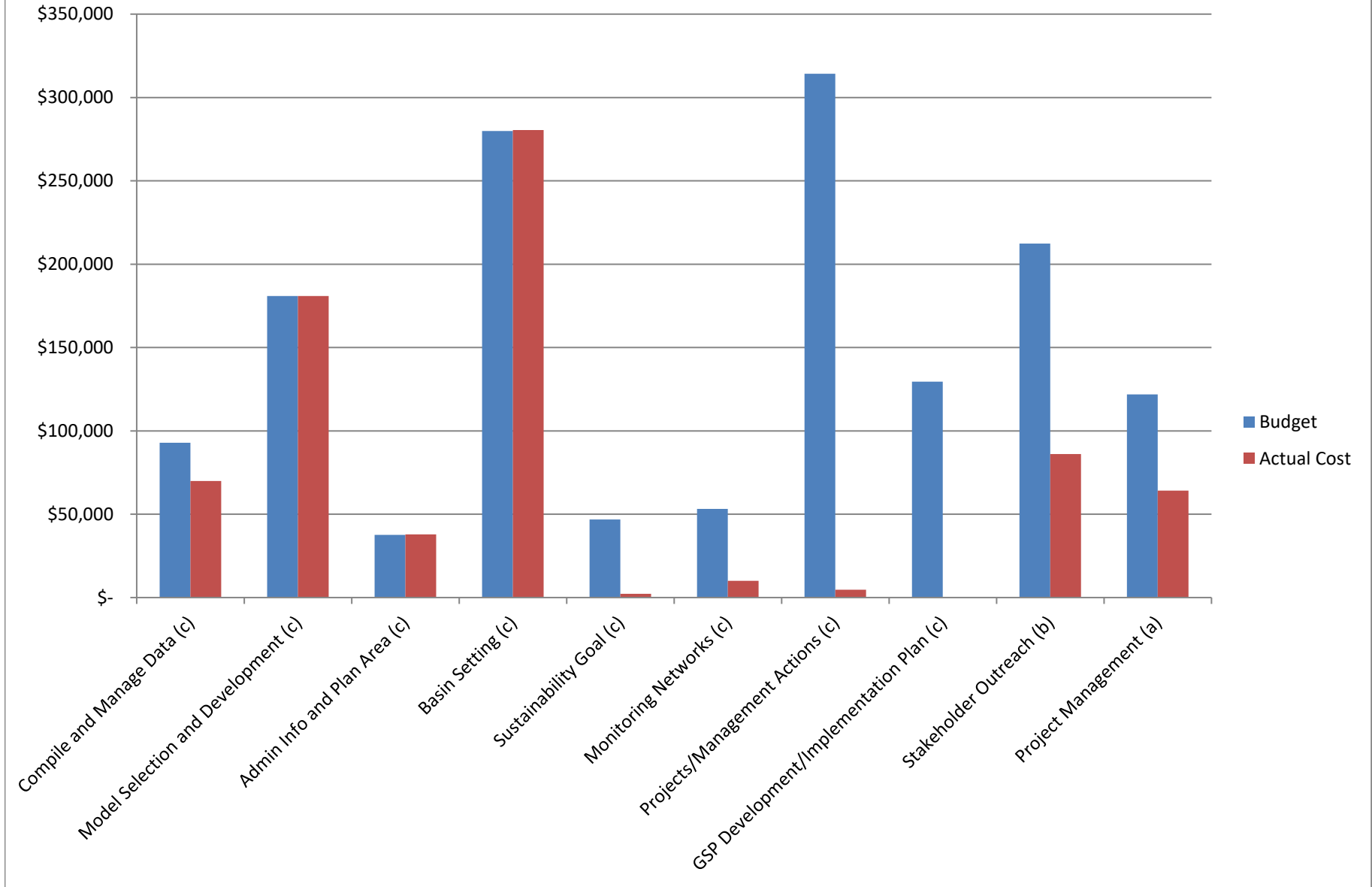
5. Next Meeting

TBD

6. Items too late for the agenda

N/A

Cost To Prepare GSP (September 2018 - November 2020)



WHAT IS THE STRGBA GSA?

The Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) was formed to coordinate groundwater management activities and develop a Groundwater Sustainability Plan for the Modesto Subbasin to comply with the Sustainable Groundwater Management Act. The seven participating members of the GSA are:

- City of Modesto
- City of Oakdale
- City of Riverbank
- City of Waterford
- Modesto Irrigation District
- Oakdale Irrigation District
- Stanislaus County

WHAT IS THE EAST AND WEST TURLOCK GSA'S?

The Turlock Subbasin is divided between the East Turlock GSA consisting of five public agencies and the West Turlock GSA consisting of 12 public agencies

East Turlock GSA - Ballico-Cortez Water District, Eastside Water District, Merced County, Merced Irrigation District and Stanislaus County.

West Turlock GSA - City of Ceres, City of Hughson, City of Modesto, City of Turlock, City of Waterford, Delhi County Water District, Denair Community Services District, Hilmar County Water District, Keyes Community Services District, Merced County, Stanislaus County and Turlock Irrigation District.

WHAT IS SGMA & THE GSP?

In September 2014, Governor Jerry Brown signed the Sustainable Groundwater Management Act (SGMA). SGMA sets the framework for statewide sustainable groundwater management by local agencies. SGMA requires, among other things, the formation of GSAs and the preparation of Groundwater Sustainability Plans (GSP). Groundwater basins subject to SGMA must achieve sustainability within 20 years of implementing their GSP.

TIMELINE FOR ACHIEVING SUSTAINABILITY IN THE MODESTO AND TURLOCK SUBBASINS



- strgba.org
- [@STRGBA_GSA](https://twitter.com/STRGBA_GSA)
- [@strgba.gsa](https://www.facebook.com/strgba.gsa)
- [STRGBA GSA](https://www.youtube.com/channel/UC...)



- turlockgroundwater.org
- [@TurlockSubbasin](https://twitter.com/TurlockSubbasin)
- [@TurlockGroundwater](https://www.facebook.com/TurlockGroundwater)
- [Turlock Groundwater](https://www.youtube.com/channel/UC...)









MODESTO SUBBASIN GSP SUSTAINABLE MANAGEMENT CRITERIA

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING

January 13, 2021







TODD
GROUNDWATER

SUSTAINABLE MANAGEMENT CRITERIA

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

- 6 Sustainability Indicators – *Are they all applicable to Modesto Subbasin?*
- Undesirable Results – *How do we define?*
- Minimum Thresholds/ Measurable Objectives – *What are the metrics?*
- Sustainability Goal – *Mission statement to guide sustainability.*

SUSTAINABILITY INDICATOR ANALYSIS

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

- Review regulatory requirements
- Apply to conditions in the Modesto Subbasin
- Consider approaches from adjacent subbasins

OVERVIEW - SUSTAINABILITY INDICATORS



Chronic Lowering of Groundwater Levels



Reduction of Groundwater in Storage



Degraded Water Quality



Seawater Intrusion



Land Subsidence



Depletion of Interconnected Surface Water

If a sustainability indicator is determined to be significant and unreasonable, then it is an Undesirable Result

OVERVIEW - SUSTAINABILITY INDICATORS



Chronic Lowering of Groundwater Levels



Reduction of Groundwater in Storage



Degraded Water Quality



Seawater Intrusion



Land Subsidence



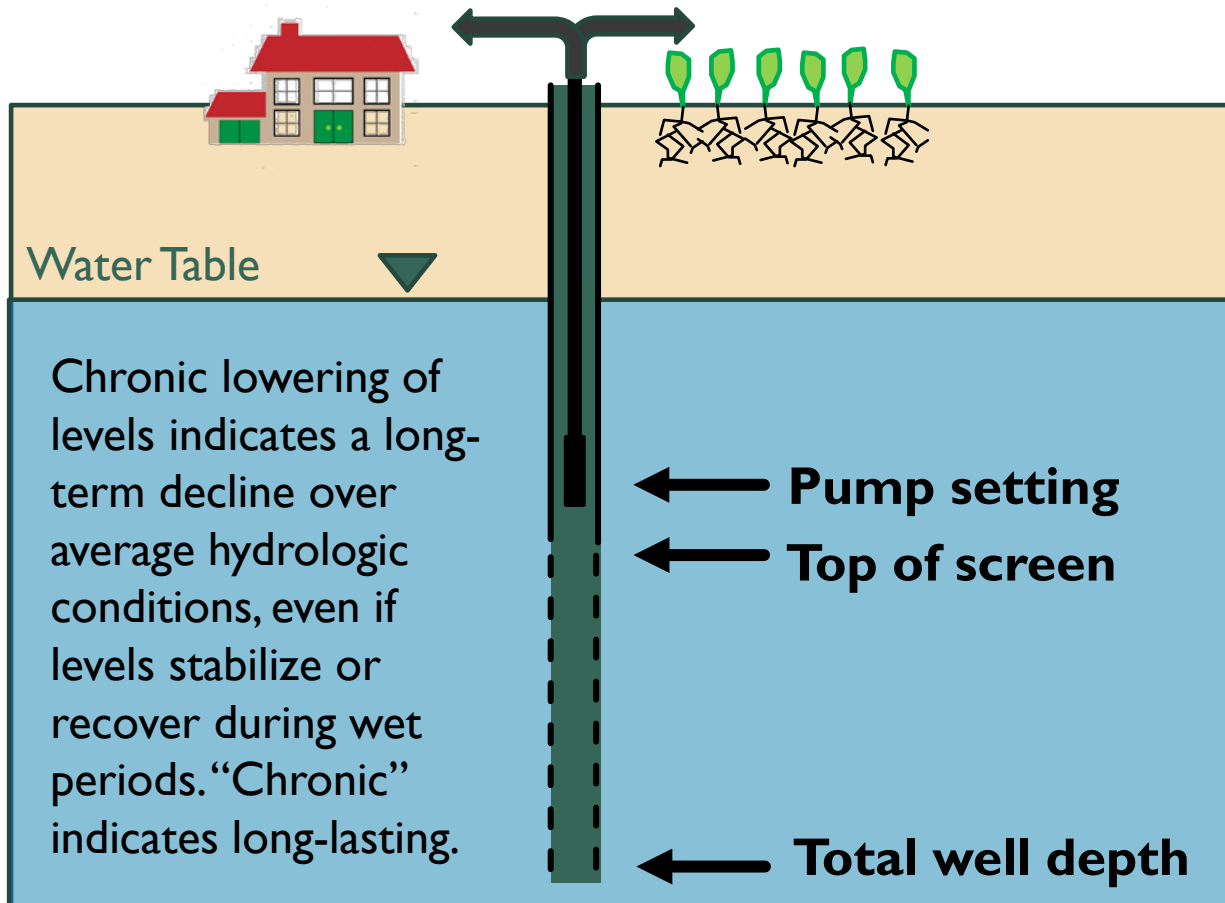
Depletion of Interconnected Surface Water

Consider the first two sustainability indicators together

If a sustainability indicator is determined to be significant and unreasonable, then it is an Undesirable Result



CHRONIC LOWERING OF WATER LEVELS

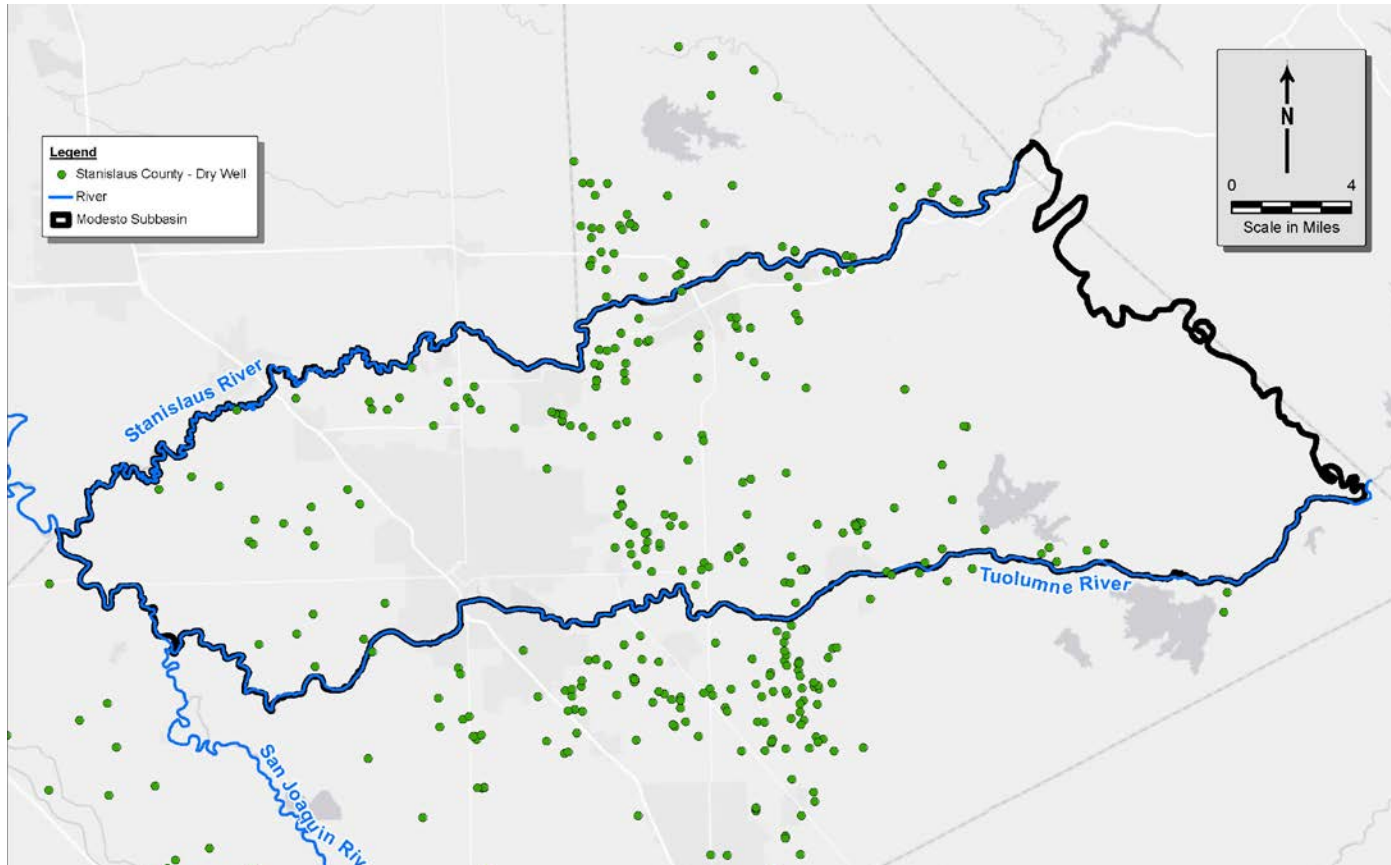


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- Have water level declines affected beneficial uses of wells?
- During the recent drought of record, did we have:
 - Dry wells?
 - Operational issues?
 - Water quality concerns?
- Are these undesirable results?
- Can these impacts be managed or mitigated?



FAILED DOMESTIC WELLS IN RECENT DROUGHT



- Failed domestic wells reported by Stanislaus County 2014-2017
- Assisted with new wells or water tank installations
- Some wells have likely been deepened or replaced
- Additional failed wells if water levels are lowered?

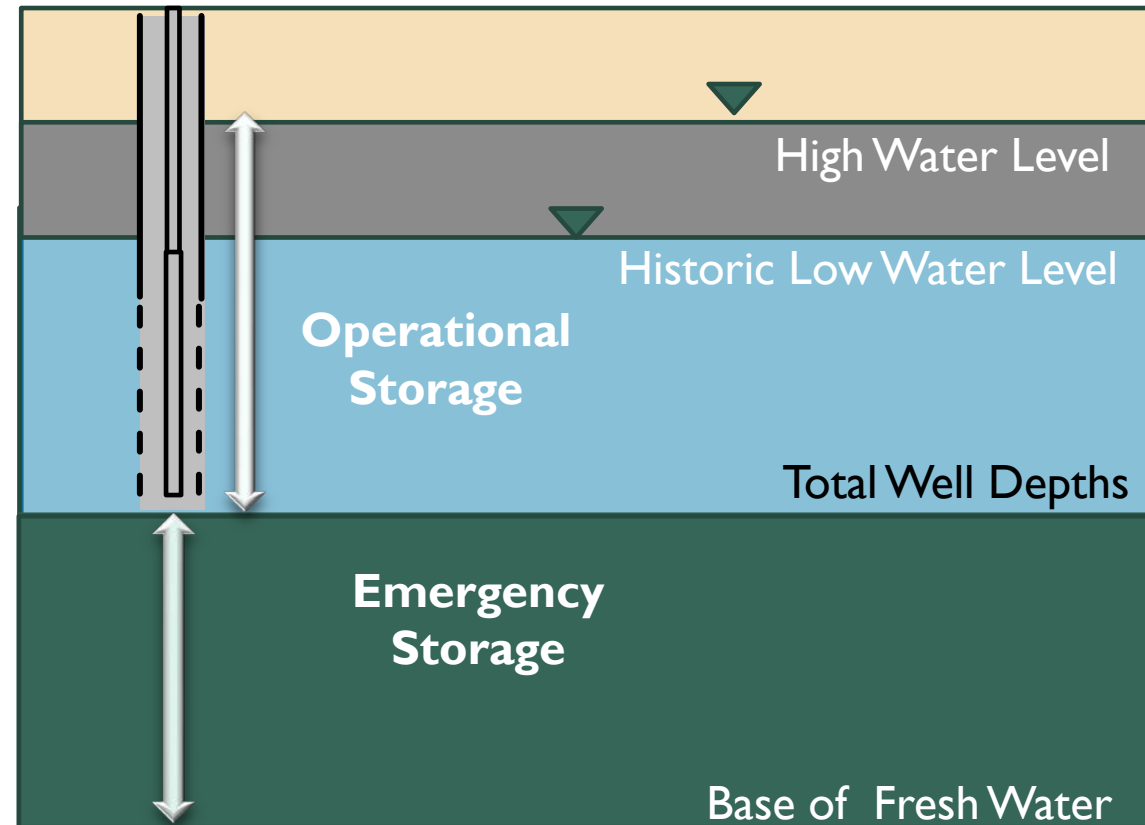
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REDUCTION OF GROUNDWATER IN STORAGE

Considerations:

- Depletion of Supply
 - *Will we “run out of water”?*
- Overdraft Conditions
 - *Is the basin being managed within its sustainable yield?*



OVERVIEW - SUSTAINABILITY INDICATORS



Chronic Lowering of Groundwater Levels



Reduction of Groundwater in Storage



Degraded Water Quality



Seawater Intrusion



Land Subsidence



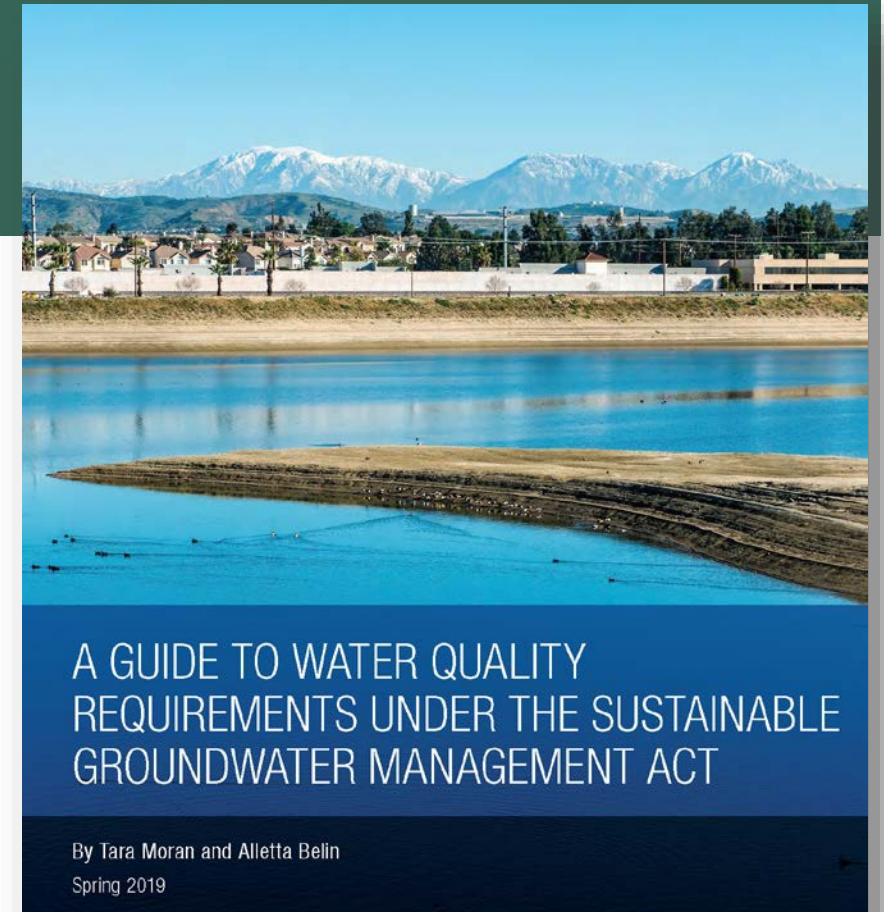
Depletion of Interconnected Surface Water

If a sustainability indicator is determined to be significant and unreasonable, then it is an Undesirable Result



SGMA GUIDANCE DOCUMENT (MORAN AND BELIN, 2019)

- CA Legislature designated SWRCB/RWQCB as principal state agencies with primary responsibility for groundwater quality.
- GSAs are not responsible for fixing undesirable results for water quality that were already present before January 1, 2015.
- GSAs are not required to take over regulatory roles for water quality assigned to other regulatory agencies.
- Confer with other regulatory agencies on any water quality undesirable results.
- Assess potential impacts on water quality from GSP projects or management actions.
- If adverse impacts could occur from GSA actions, GSAs should consider options to avoid or mitigate water quality problems.



Stanford | Water in the West

TODD
GROUNDWATER



RECOMMENDATIONS FROM MORAN AND BELIN, 2019

(A GUIDE TO WATER QUALITY REQUIREMENTS UNDER SGMA, STANFORD, WATER IN THE WEST)

1. Understand the existing regulatory regime for gw quality.
2. Consider federal, state, and local standards for MTs.
3. Work with CVRWQCB and Valley Water Collaborative to coordinate issues including salts and nutrients. Align with other groundwater monitoring programs (e.g., ILRP).
4. Use existing groundwater quality data as basis for MTs.
5. Confer with responsible agency for water quality problems that arose or were exacerbated AFTER January 1, 2015.
6. Consider groundwater quality impacts from projects/MAs.
7. Develop supplemental groundwater monitoring networks, as necessary.



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OVERVIEW - SUSTAINABILITY INDICATORS



Chronic Lowering of Groundwater Levels



Reduction of Groundwater in Storage



Degraded Water Quality



Seawater Intrusion



Land Subsidence

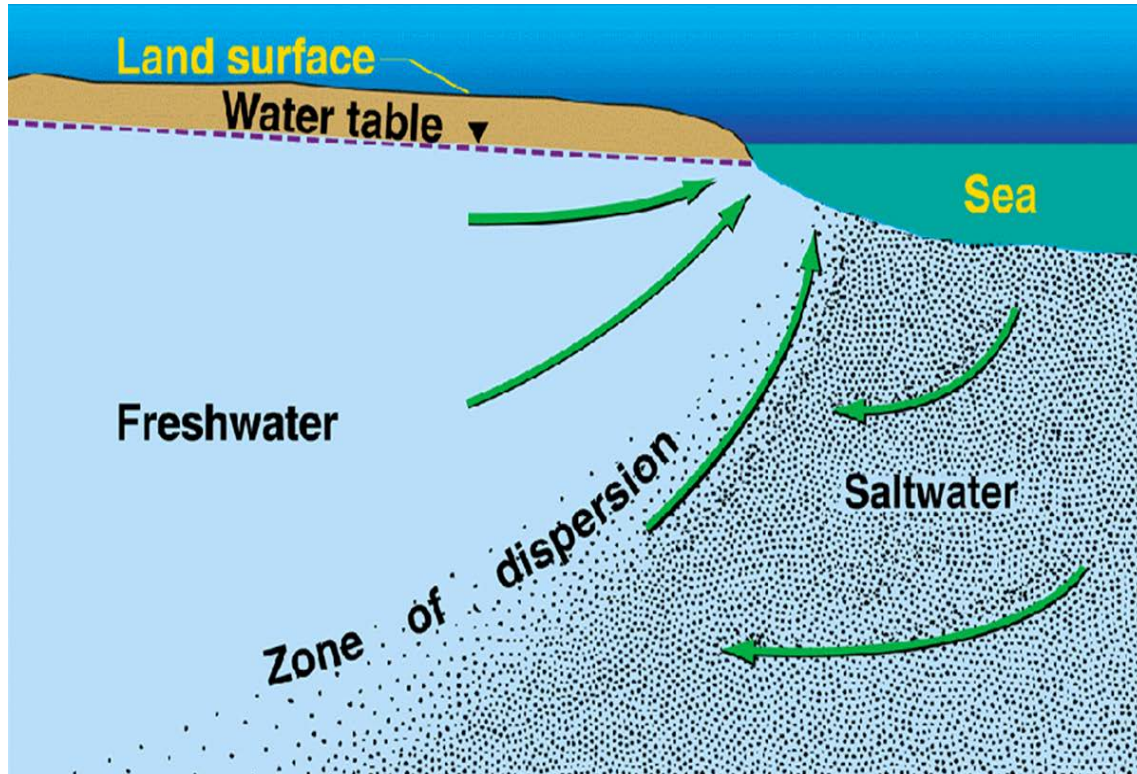


Depletion of Interconnected Surface Water

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SEAWATER INTRUSION



**Conceptual Saltwater/freshwater interface
in a coastal groundwater basin**

DRAFT

- GSP definition: “the advancement of seawater into a groundwater supply...”
- MT “shall be defined by a chloride concentration isocontour...”
- MT has to consider the effects of “current and projected sea levels” (354.28(c)(3)).
- Requirements suggest a coastal basin connected to the ocean
- May not be applicable to the Modesto Subbasin

OVERVIEW - SUSTAINABILITY INDICATORS



Chronic Lowering of Groundwater Levels



Reduction of Groundwater in Storage



Degraded Water Quality



Seawater Intrusion



Land Subsidence

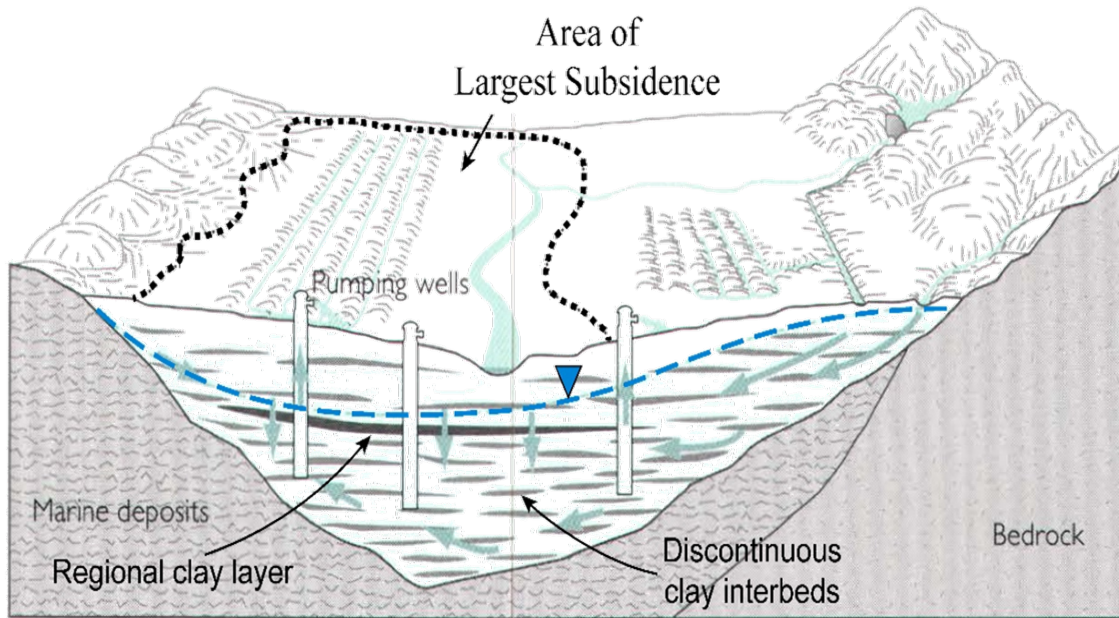


Depletion of Interconnected Surface Water

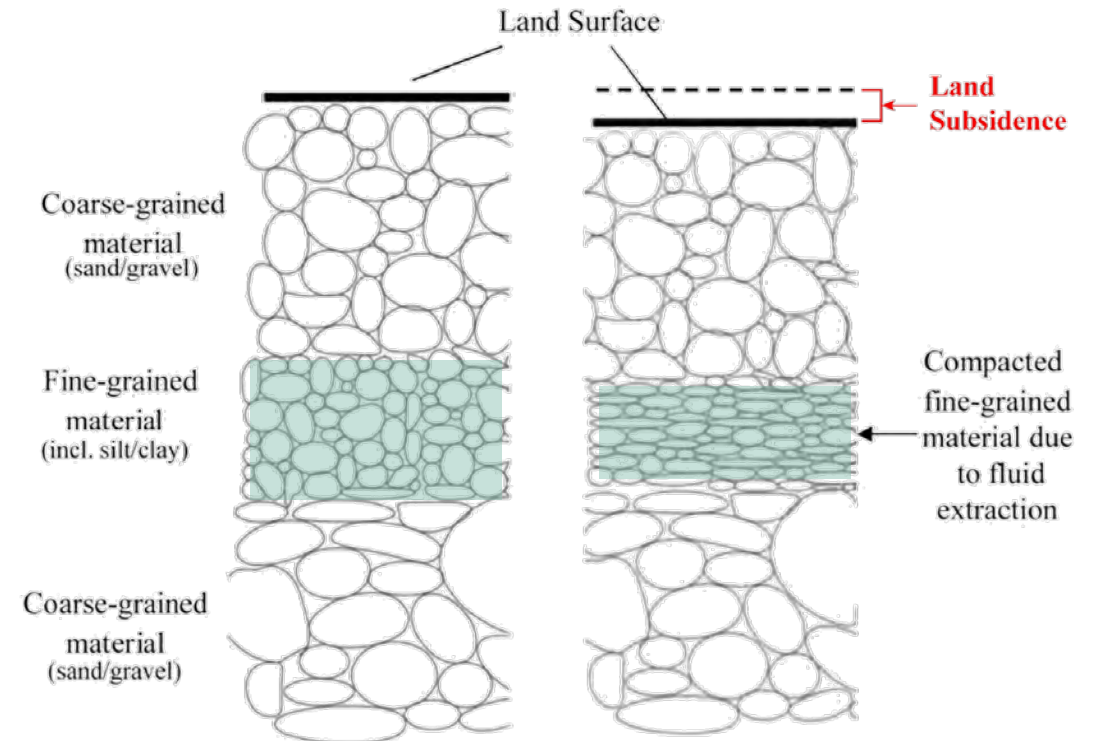
If a sustainability indicator is determined to be significant and unreasonable, then it is an Undesirable Result



LAND SUBSIDENCE CONCEPTS



Source: Galloway et al., 1999.



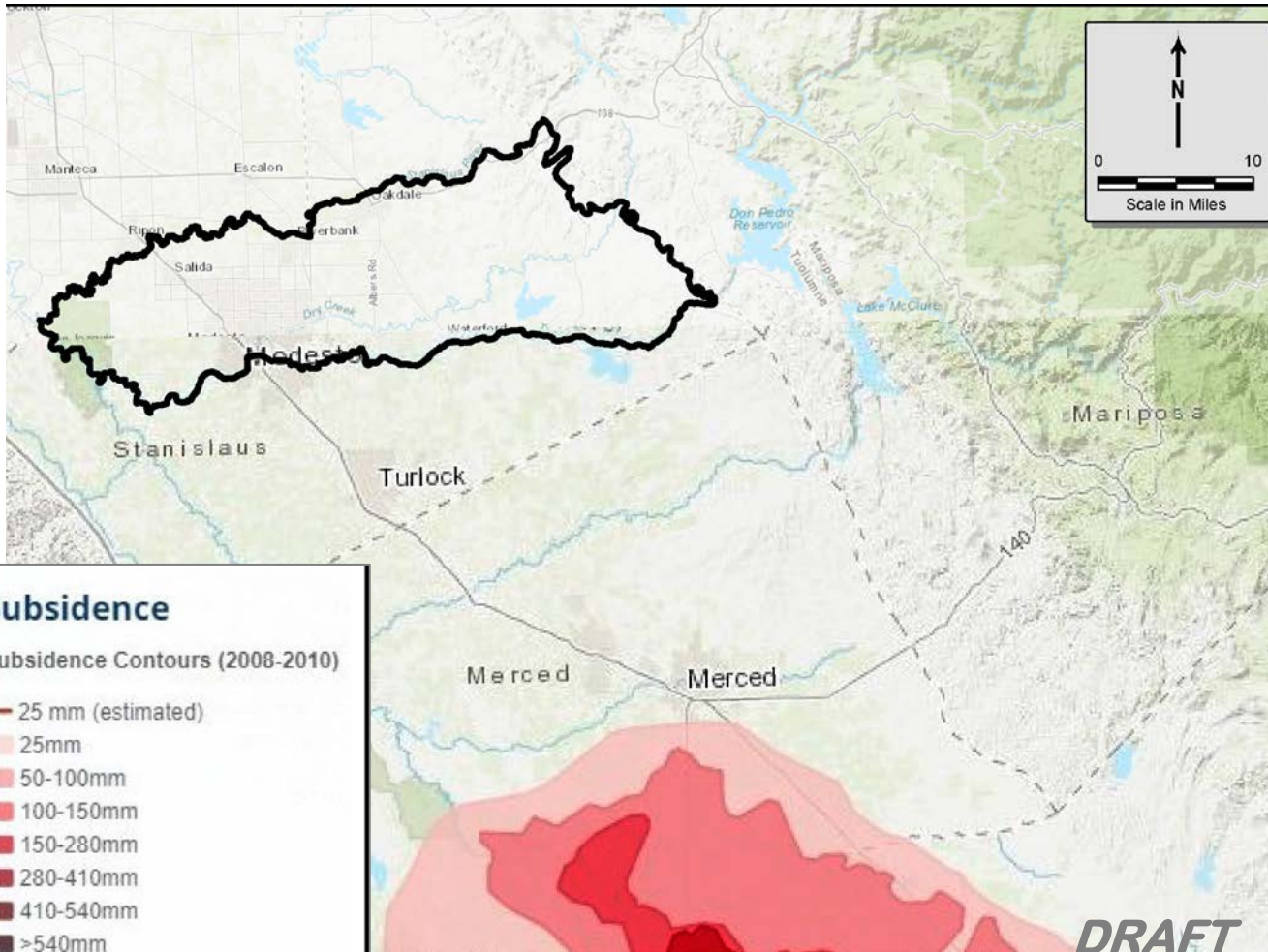
After LSCE et al., 2014.

In the Central Valley, the Corcoran Clay has been associated with inelastic land subsidence issues.

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LAND SUBSIDENCE AFFECTING LAND USE

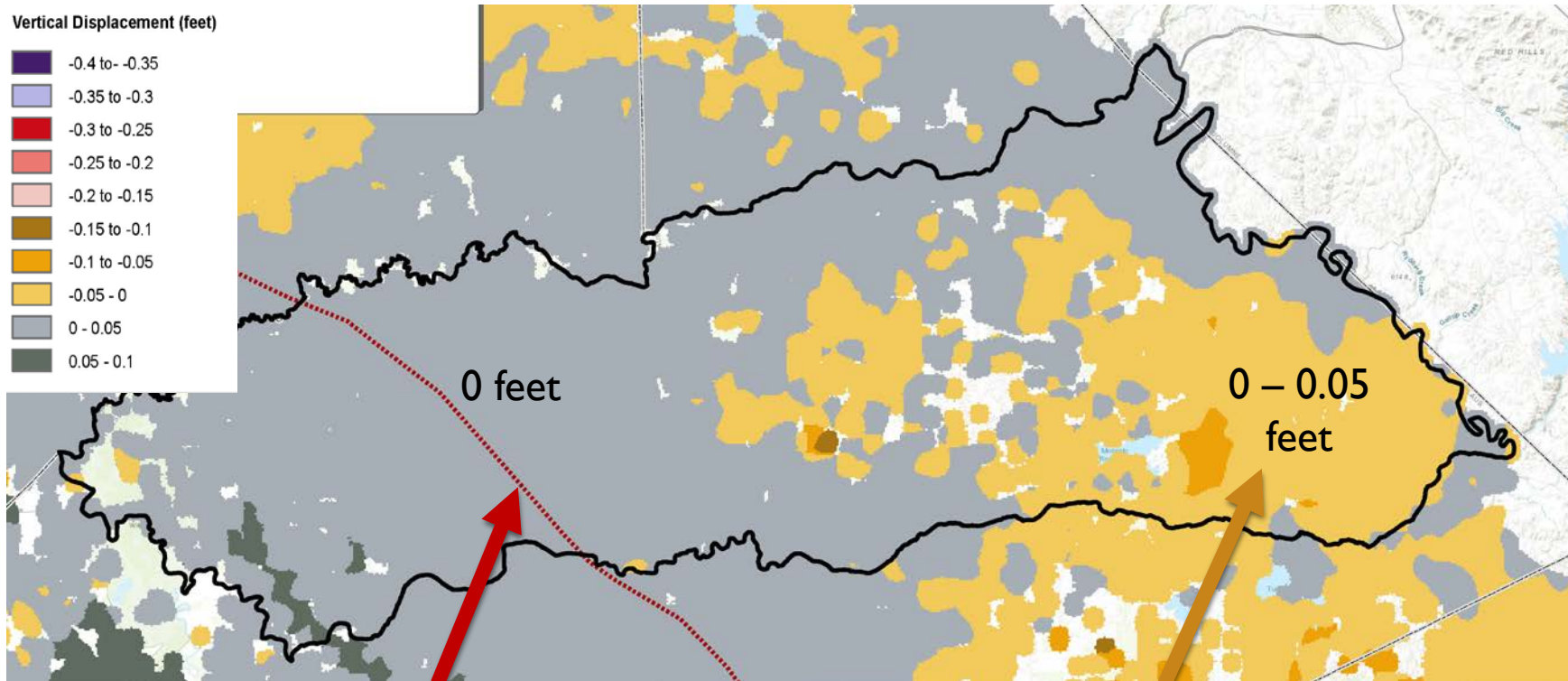
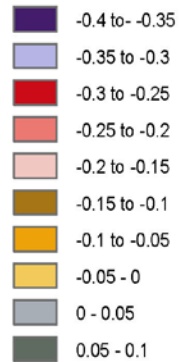


- Historical subsidence not documented in the Modesto Subbasin
- Central Valley subsidence located primarily south of the Subbasin
- Most subsidence occurs in areas where the Corcoran Clay has been dewatered



RECENT DWR INSAR DATA FOR LAND SUBSIDENCE

Vertical Displacement (feet)



Corcoran Clay is present west of this line

Small elevation changes outside of Corcoran Clay unlikely to be related to inelastic land subsidence.

- 3 years of InSAR data (2015 – 2018)
- No significant recent land subsidence
- Potential if Corcoran Clay is dewatered

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OVERVIEW - SUSTAINABILITY INDICATORS



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Land Subsidence

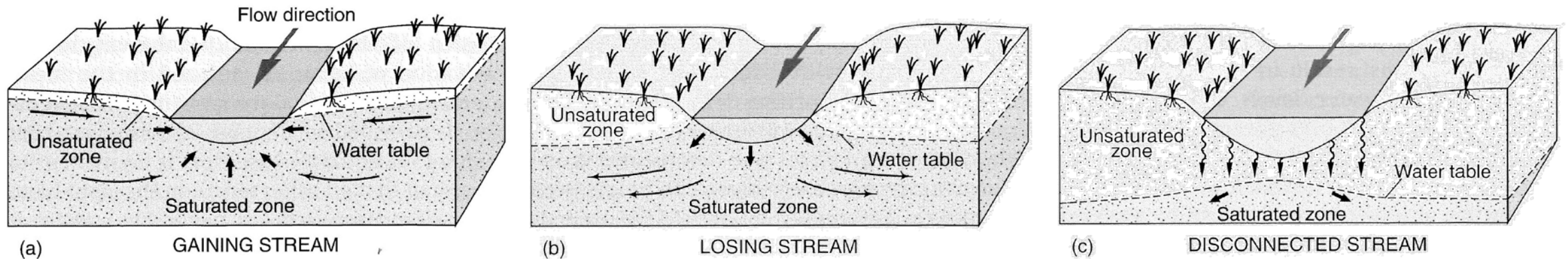


Depletion of Interconnected Surface Water

If a sustainability indicator is determined to be significant and unreasonable, then it is an Undesirable Result



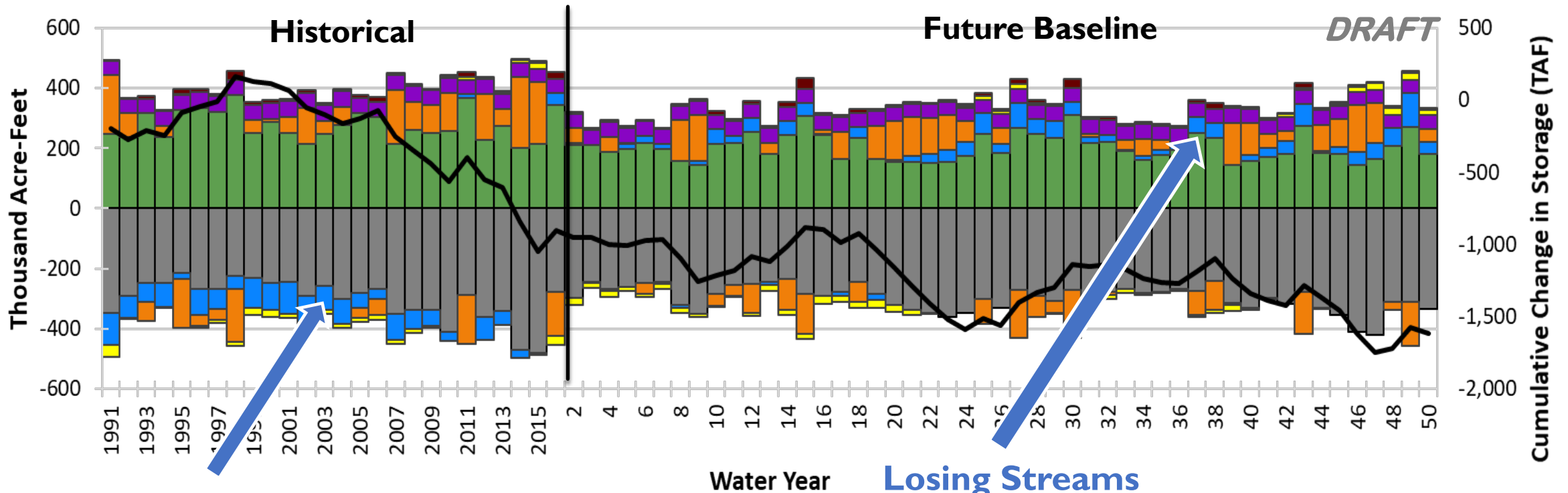
INTERCONNECTED SURFACE WATER



- Historical water budget – groundwater discharges to 3 river boundaries (gaining streams).
- Projected future baseline suggests Tuolumne and Stanislaus rivers will transition from mostly gaining to mostly losing streams without management actions.



MODESTO SUBBASIN GROUNDWATER BUDGET

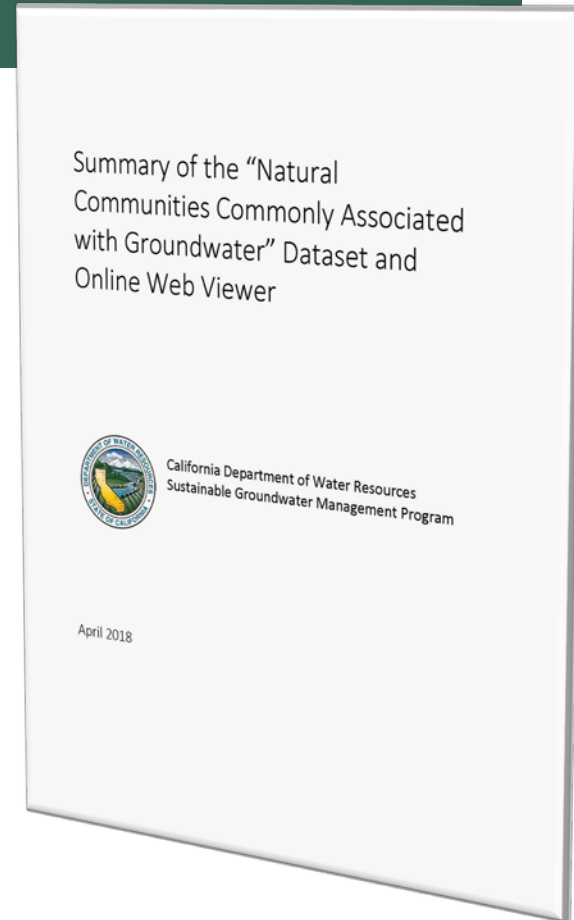


Consider volume of stream depletion in sustainable management criteria



GROUNDWATER DEPENDENT ECOSYSTEMS (GDEs) GSP REQUIREMENTS

- A **Groundwater Dependent Ecosystem (GDE)** “refers to ecological communities or species that depend on groundwater emerging from aquifers or groundwater occurring near the ground surface.”
- Regulations require **identification of GDEs** within the basin “utilizing data available from the Department ...”
- DWR provided maps of potential GDEs in the Subbasin – most along the river boundaries.
- GDEs are often related to interconnected surface water (gaining streams).



SUSTAINABLE MANAGEMENT CRITERIA PROCESS FOR ANALYSIS

1. Analyze the **Sustainability Indicators** for the Modesto Subbasin (applying conditions from the Basin Setting).
2. Define **Undesirable Results** (conditions we want to avoid).
3. Select a **Minimum Threshold (MT)** for each indicator – i.e., a *metric* that can be used to define undesirable results.
4. Select a **Measurable Objective** for each indicator – i.e., a target metric to avoid MTs and undesirable results.
5. Select **Interim Milestones** that show progress toward each **Measurable Objective** over the 20-year planning horizon.

SUSTAINABLE MANAGEMENT CRITERIA

NEXT STEPS

- Analyze each **Sustainability Indicator**
- Define **Undesirable Results**
- Develop a **Sustainability Goal** – *mission statement for sustainable management in the Modesto Subbasin*

QUESTIONS?

