



CGA/GGA Joint Technical Advisory Committee

Meeting Agenda

March 8, 2024 | 1:00 p.m.
122 Old Highway 99W, Maxwell, CA 95955

Alternate Meeting Locations:
4485 Spring Meadows Circle, Flagstaff, AZ 86001

Public input is welcome in person or via Microsoft Teams

Microsoft Teams meeting

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: 295 415 668 773

Passcode: WxRE2t

[Download Teams](#) | [Join on the web](#)

Or call in (audio only)

[+1 323-676-6164,,379052001#](#) United States, Los Angeles

Phone Conference ID: 379 052 001#

[Find a local number](#) | [Reset PIN](#)

[Learn More](#) | [Meeting options](#)

* Indicates an Action Item

1. **Call to Order, Roll Call, and Introductions**
2. **Approval of Minutes (pg. 3)**
 - a. ***February 9, 2024 CGA/GGA Joint TAC Meeting Minutes (CGA TAC, GGA TAC)**
3. **Period of Public Comment**

At this time, members of the public may address the Technical Advisory Committee (TAC) Members regarding items that are not on the agenda but are of relevance. The TACs may not act on items not on the agenda.
4. **Colusa Subbasin Groundwater Sustainability Plan (GSP) (150 minutes) (pg. 4)**
 - a. ***Discussion and potential recommendation to GSAs on Groundwater Level Sustainable Management Criteria.**
 - b. ***Discussion and potential recommendation to GSAs on monitoring network and basis of Sustainable Management Criteria for land subsidence.**
5. **Member Reports and Comments**
6. **Next meeting**
7. **Adjourn**

Note: Times listed on the agenda are for estimation purposes only.

A complete agenda packet, including back-up information, is available for inspection during normal business hours at 1213 Market Street, Colusa, CA 95932 or 225 N. Tehama St., Willows, CA 95988. The full agenda packet can also be found on the CGA and GGA websites: [Agendas and Minutes 2023 | Colusa Groundwater Authority \(CGA\)](#)
<https://www.countyofglenn.net/dept/planning-community-development-services/water-resources/glenn-groundwater-authority/gga>

In compliance with the Americans with Disability Act, if you require special accommodation to participate in this meeting, please contact the Carol Thomas Keefer, CGA Program Manager, at 650-587-7300 X17 or Glenn County Water Resources Division at 530-934-6540 prior to any meeting and arrangements will be made to accommodate you.

Staff Report

To: CGA-GGA Joint TAC

Agenda Item: 2. Approval of Minutes

Date: March 8, 2024

Background

The February 9, 2024 CGA/GGA Joint TAC Meeting minutes are being prepared for review and will be distributed under separate cover.

Recommendation

CGA and GGA Action: Approve the February, 2024 CGA/GGA Joint TAC Meeting minutes.

Attachments

- February 9, 2024 CGA/GGA Joint TAC Meeting minutes (will be distributed under separate cover)

Staff Report

To: CGA-GGA Joint TAC

Agenda Item: 4. Colusa Subbasin Groundwater Sustainability Plan (GSP)

Date: March 8, 2024

On October 26, 2023, the Department of Water Resources (DWR) issued a letter informing the Groundwater Sustainability Agencies (GSAs) of its determination of the Colusa Subbasin GSP to be “incomplete”. The letter outlined specific deficiencies and recommended corrective actions which include:

- a) Re-evaluation of the overdraft conditions in the Subbasin using the most recent data, and include projects and management actions to mitigate overdraft;
- b) Providing a more detailed explanation and justification of the sustainable management criteria for groundwater levels, particularly minimum thresholds and measurable objectives, and quantify the effects of those criteria on beneficial uses; and
- c) Providing a more detailed explanation and justification of sustainable management criteria, monitoring method, and projects and management actions related to land subsidence.

The consultant team (Davids Engineering) has been retained to complete the Colusa Subbasin GSP Revisions to address the identified deficiencies. The CGA/GGA Joint TAC will receive presentations from the consultant team and engage in discussion on the identified deficiencies and provide recommendations to the GSA Boards.

The consultant team will provide information and lead a discussion relating to the Groundwater Level Sustainable Management Criteria (SMC) and the monitoring network and the basis of Land Subsidence SMC.

Recommendation

1. Discuss and potentially recommend to GSAs updates to Groundwater Level SMC.
2. Discuss and potentially recommend to GSAs a monitoring network and basis of Land Subsidence SMC.

Attachments

- Presentation (draft)

DRAFT



Colusa Subbasin GSP Revisions

Joint Technical Advisory Committee Meeting

March 9, 2024

Agenda

- 1. Timeline Review**
- 2. Takeaways from DWR Meetings (through 02/16) and Joint GSA Board Direction**
- 3. Discussion of Proposed Revisions:**
 - 1. Groundwater Level SMC**
 - 2. Subsidence Monitoring and SMC**
- 4. Next Steps**

Timeline Review

Feb 2024	02/09 – Joint TAC Meeting 02/16 – DWR Meeting #3 02/23 – Joint Board Meeting
Mar 2024	03/08 – Joint TAC Meeting 03/11-03/14 – DWR Meeting #4 03/22 – Joint Board Meeting 03/27 – Draft Revised GSP for Review
Apr 2024	04/09 – Comments on Draft Revised GSP 04/12 – Joint GSA Board Meeting (Review Draft Revised GSP and Comments) 04/16 – Final Revised GSP Released 04/19 – Joint GSA Board Meeting (Adopt Revised GSP) 04/22 – Submit Revised GSP

Takeaways from DWR Meetings (through 02/16) and Joint GSA Board Direction

Deficiencies As Outlined in DWR's Review Letter

1. **Overdraft:** “The GSP does not include a reasonable assessment of overdraft conditions and reasonable means to mitigate overdraft.”
2. **Groundwater Levels (GWL):** “The GSP does not establish sustainable management criteria (SMC) for chronic lowering of groundwater levels in a manner substantially compliant with the GSP regulations.”
3. **Subsidence:** The GSP does not establish SMC for land subsidence in a manner substantially compliant with the GSP regulations.

Our discussions are focused only on these deficiencies and the efforts needed to resolve these sufficiently.

Takeaways from DWR Meetings (Through 02/16)

- DWR's main concerns, priorities:
 - Existing conditions don't indicate the subbasin is on track to reach sustainability.
 - Undesirable results (URs) must be justified (DWR senses that URs have happened).
- The revisions should focus on:
 - Developing management actions as backstops to address overdraft, GW conditions.
 - Revising the SMC for more justifiable URs, minimum thresholds (MTs).
- Proposed GSP revision approaches are on the right track:
 - Proposed management actions to mitigate overdraft, subsidence and groundwater level decline (domestic well mitigation, demand management), with a timeline and framework.
 - GWL SMC revisions to avoid significant/unreasonable conditions (dry wells, subsidence), but allowing for different GWL that lead to those conditions in different areas.

Approaches Discussed with DWR and Joint Board Direction

- **Overdraft**

- Move forward with overdraft revisions based on groundwater levels (Annual Report approach)
- Provide for recurring evaluation each year (Annual Report)

- **PMA**s

- **Projects** (*lower priority*): Update available details on timeline, benefits
- **Management Actions** (*higher priority*): “Formal Agreement” approach
 - Understand that approach is conceptually suitable, but need to provide sufficient detail
 - Prepare draft “Formal Agreement” content to review with GSAs, DWR

- **SMC Revisions:**

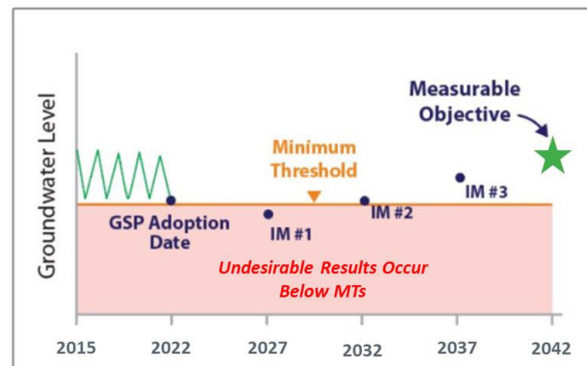
- Groundwater levels and subsidence:
 - Revise URs, MTs to represent “unreasonable” conditions, with justification
 - Clarify relationship between groundwater level SMC and subsidence
- Subsidence-specific:
 - No ongoing subsidence after 2042 (SGMA requirements)
 - More frequent subsidence monitoring vs. SMC (InSAR)
 - Evaluate subsidence impacts to critical infrastructure

Focus Today →

Proposed Revisions: Groundwater Level (GWL) SMC

Relationship Between Sustainable Management Criteria (SMC)

- **Undesirable Results (URs):** Significant and unreasonable reduction of GWL, depletion of supply (*avoid*)
- **Minimum Thresholds (MTs):** GWL at RMS wells that, when exceeded, may cause URs (*avoid*)
- **Measurable Objectives (MOs):** GWL at RMS wells that reflect desired, sustainable conditions (*goal at 2042*)
- **Interim Milestones (IMs):** GWL targets, in five-year increments, representing the trajectory toward the MOs (*goals in 2027, 2032, 2037*)



Source: DWR, 2017. Sustainable Management Criteria Best Management Practices.

Groundwater Level (GWL) SMC: Deficiency Recap

- “The GSP does not establish SMC for chronic lowering of groundwater levels in a manner substantially compliant with the GSP regulations.”
- **Key Needs:**
 - Clearly justify **why URs and MTs represent significant and unreasonable conditions**, especially for domestic well users and GDEs, and **why conditions before then do not**. (*Requires rephrasing UR definitions and revising MTs.*)
 - Show clear consideration of PMAs that will supply alternate supplies of water and mitigate impacts to domestic wells (e.g., municipal connections, well mitigation).
 - Clarify **relationship between GWL SMC and subsidence**, if revised GWL SMC are lower than historical (pre-SGMA) levels.

GWL SMC: Undesirable Results (URs)

- Need to update UR definitions:
 - Describe what URs are (conditions that are significant/unreasonable) and impacts to beneficial users
 - Justify criteria for identifying (e.g., MT values and exceedance)
- Current Definition (Jan 2022) is vague, per DWR:
 - “A result that would cause *significant and unreasonable reduction in the long-term viability* of beneficial uses and users over the planning and implementation horizon of this GSP.”
 - “...Experienced if sustained *groundwater levels are too low to reasonably* satisfy beneficial uses/users”
 - Considered to occur when 25% or more of RMS wells fall below their MTs for 24 consecutive months
- **Need clarity –**
 - **What conditions are significant and unreasonable? (consider conditions in 2020-2022)**
 - **When do conditions reach the point of being significant and unreasonable? (consider localized issues)**

GWL SMC: Proposed Revisions to URs

- Revise definition to speak to conditions that occurred in 2020-2022:
 - “A result that would cause a significant and unreasonable reduction in groundwater supplies to meet beneficial uses and users’ needs over the planning and implementation horizon of this GSP.”
 - Beneficial uses and users include well users (domestic, industrial, agricultural), environmental users (including GDEs), land uses/users, property interests
 - Experienced if GWL declines result in:
 - Dry wells at rates observed in 2020-2022 (evaluated as a rate of dry wells per Thiessen polygon)
 - Adverse impacts to subsidence conditions at rates observed in 2020-2022
 - Evaluated by the subsidence monitoring network
 - Conditions that fail to meet the subsidence interim milestones (IMs) or that approach the MTs
 - Adverse impacts to the environment
 - Evaluated by the interconnected surface water (ISW) monitoring network
 - Conditions that fail to meet the ISW IMs or that approach the ISW MTs
- Provides clearer, justifiable basis for impacts to beneficial uses and users, subsidence and the GWL causing impacts.

Well Impacts Analysis

Dry Wells in Excess of Pre-SGMA Impacts

Scenario	Total Dry Wells (% Totals Wells)	Domestic (% Total)	Industrial (% Total)	Agriculture (% Total)
<i>Pre-SGMA Historical Low (< Jan 1, 2015)</i>	0	0	0	0
MTs in Initial GSP (lower of 20% domestic well impacts, 50% below historical range)	978 (15%)	811 (22%)	11 (11%)	156 (6%)
2020-2022 low for Focus Areas, 2020-2022 low - 10 ft elsewhere	288 (5%)	246 (7%)	3 (3%)	39 (1%)
2020-2022 low (all)	250 (4%)	215 (6%)	3 (3%)	32 (1%)
2020-2022 low - 10 ft (all)	371 (6%)	311 (9%)	6 (6%)	54 (2%)
2020-2022 low - 20 ft (all)	515 (8%)	425 (12%)	7 (7%)	83 (3%)
2020-2022 low - 40 ft (all)	831 (13%)	679 (19%)	10 (10%)	142 (5%)
2020-2022 low - 60 ft (all)	1142 (18%)	918 (25%)	13 (14%)	211 (8%)
2020-2022 low - 80 ft (all)	1512 (24%)	1185 (33%)	18 (19%)	309 (12%)

- Scenarios describe groundwater elevations at RMS wells
- Analysis incorporates a 20 ft buffer for well impacts (i.e., wells were impacted if GWL dropped within 20 ft of the bottom perforation)
- Levels at RMS wells are applied across the area surrounding that well to identify impacts (i.e., Thiessen polygon method)

Well Impacts Analysis

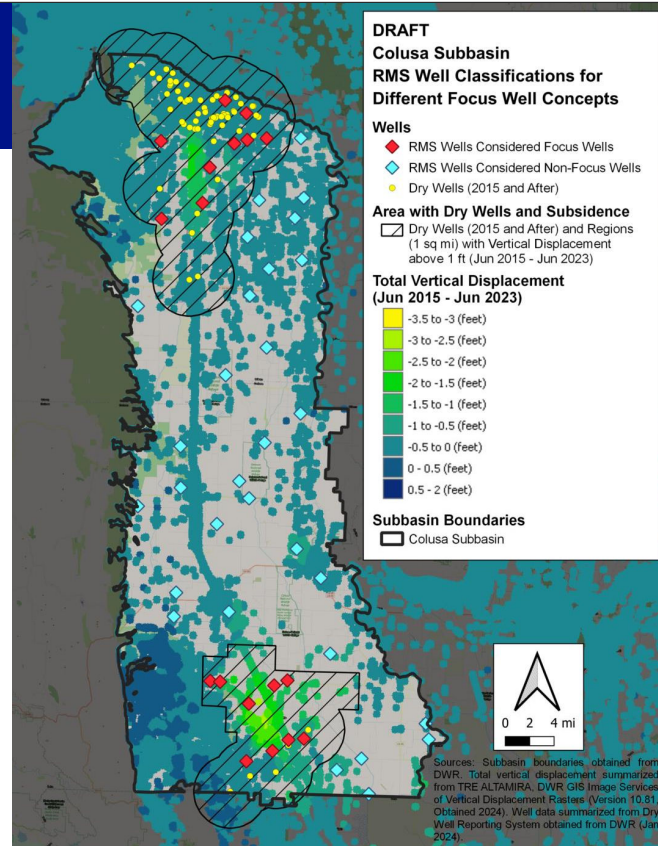
Dry Wells in Excess of 2020-2022 Impacts

Scenario	Total Dry Wells (% Totals Wells)	Domestic (% Total)	Industrial (% Total)	Agriculture (% Total)
<i>Pre-SGMA Historical Low (< Jan 1, 2015)</i>	0	0	0	0
MTs in Initial GSP (lower of 20% domestic well impacts, 50% below historical range)	728 (11%)	596 (16%)	8 (8%)	124 (5%)
2020-2022 low for Focus Areas, 2020-2022 low - 10 ft elsewhere	38 (1%)	31 (1%)	0 (0%)	7 (0%)
2020-2022 low (all)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
2020-2022 low - 10 ft (all)	121 (2%)	96 (3%)	3 (3%)	22 (1%)
2020-2022 low - 20 ft (all)	265 (4%)	210 (6%)	4 (4%)	51 (2%)
2020-2022 low - 40 ft (all)	581 (9%)	464 (13%)	7 (7%)	110 (4%)
2020-2022 low - 60 ft (all)	892 (14%)	703 (19%)	10 (10%)	179 (7%)
2020-2022 low - 80 ft (all)	1262 (20%)	970 (27%)	15 (16%)	277 (11%)

- Scenarios describe groundwater elevations at RMS wells
- Analysis incorporates a 20 ft buffer for well impacts (i.e., wells were impacted if GWL dropped within 20 ft of the bottom perforation)
- Levels at RMS wells are applied across the area surrounding that well to identify impacts (i.e., Thiessen polygon method)

GWL SMC: Proposed Revisions to MTs

- Minimum Thresholds (MTs): Based on 2020-2022 groundwater elevation data
 - “Focus RMS Wells”: MT is the 2020-2022 low (in areas with dry wells and/or subsidence since 2015)
 - “Non-Focus RMS Wells”: MT is the 2020-2022 low – margin (0-25 feet depending on conditions) (in areas without dry wells and/or subsidence since 2015)
 - Margin of operational flexibility selected to be protective of well impacts and subsidence (whichever is more limiting)
 - Analysis conducted for each RMS well, analyzing:
 - Risk of well impacts in surrounding area (i.e., Thiessen polygon)
 - Risk to subsidence (based on GWL-subsidence relationship)
 - Considerations:
 - Known conditions in 2020-2022 (undesirable, challenging)
 - Some wells do not have 2020-2022 data, use earlier period as needed



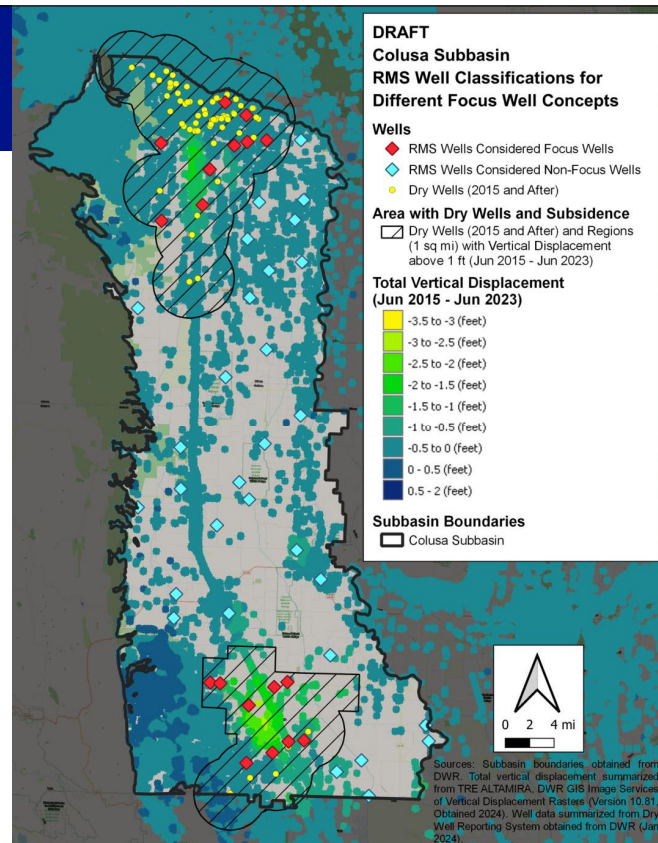
03/08/2024

Colusa Subbasin GSP Revisions – Joint TAC Meeting

15

GWL SMC: Proposed Revisions to MOs, IMs

- Measurable Objectives (MOs): Avg. pre-SGMA GWL (2011-2015)
- Interim Milestones (IMs): spanning range from MTs → MOs
 - “Focus RMS Wells”:
 - 2027: IM is at a level below the 2020-2022 low determined by the last 20-year rate of GW elevation change
 - 2032: IM is at the MT
 - 2037: IM is 50% between the MT → MO
 - “Non-Focus RMS Wells”:
 - 2027: IM is at the MT
 - 2032: IM is 33% between MT → MO
 - 2037: IM is 67% between MT → MO



03/08/2024

Colusa Subbasin GSP Revisions – Joint TAC Meeting

16

Proposed Approach: Subsidence Monitoring and SMC Basis

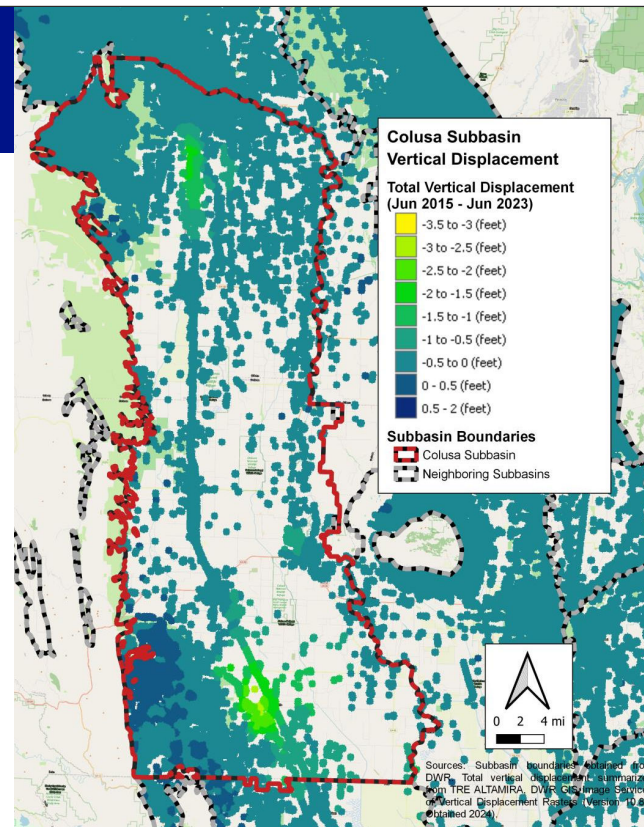
Land Subsidence: Deficiency Recap

- “The GSP does not establish SMC for land subsidence in a manner substantially compliant with the GSP regulations.”
- **Key Needs:**
 - Quantify subsidence that would negatively impact functionality of identified critical infrastructure and sensitive land uses (clearly tie to URs).
 - Clearly justify how URs and MTs represent significant and unreasonable conditions.
 - Revise subsidence monitoring program (benchmark survey v. INSAR).
 - Identify PMAs that would minimize or eliminate subsidence.

Subsidence Monitoring

- **Currently based on Sacramento Valley Benchmark Network**
 - Last resurveyed in 2017
 - Twelve (12) new benchmarks installed and surveyed in 2022
 - No future resurveys planned by DWR
- **Revise monitoring based on InSAR***
 - Propose periodic spot-measurements at benchmarks to check against InSAR (e.g., biannually)
 - Consider localized subbasin-wide INSAR survey

* InSAR = Interferometric Synthetic Aperture Radar



03/08/2024

Colusa Subbasin GSP Revisions – Joint TAC Meeting

19

Subsidence SMC: Undesirable Results (URs)

- **Current Definition (Jan 2022):**
 - “...A result that would cause *significant and unreasonable impacts* to critical infrastructure over the planning and implementation horizon of this GSP.”
 - “...Experienced if groundwater withdrawal causes inelastic land subsidence that substantially interferes with the condition or functionality of critical infrastructure within the Subbasin...”
- **Need to update UR definitions:**
 - Describe URs (what conditions are significant/unreasonable) and impacts to beneficial users
 - Justify criteria for identifying (e.g., MT values and exceedance)
- **Need clarity –**
 - **What impacts to critical infrastructure or land use are considered unreasonable?**

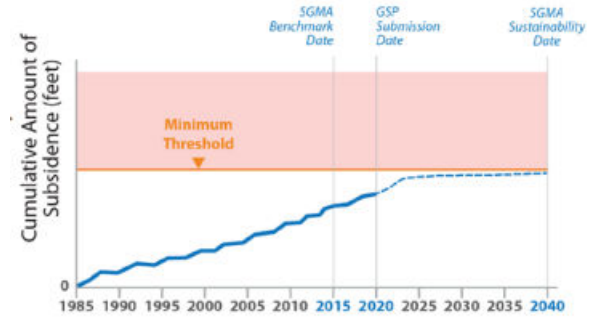
03/08/2024

Colusa Subbasin GSP Revisions – Joint TAC Meeting

20

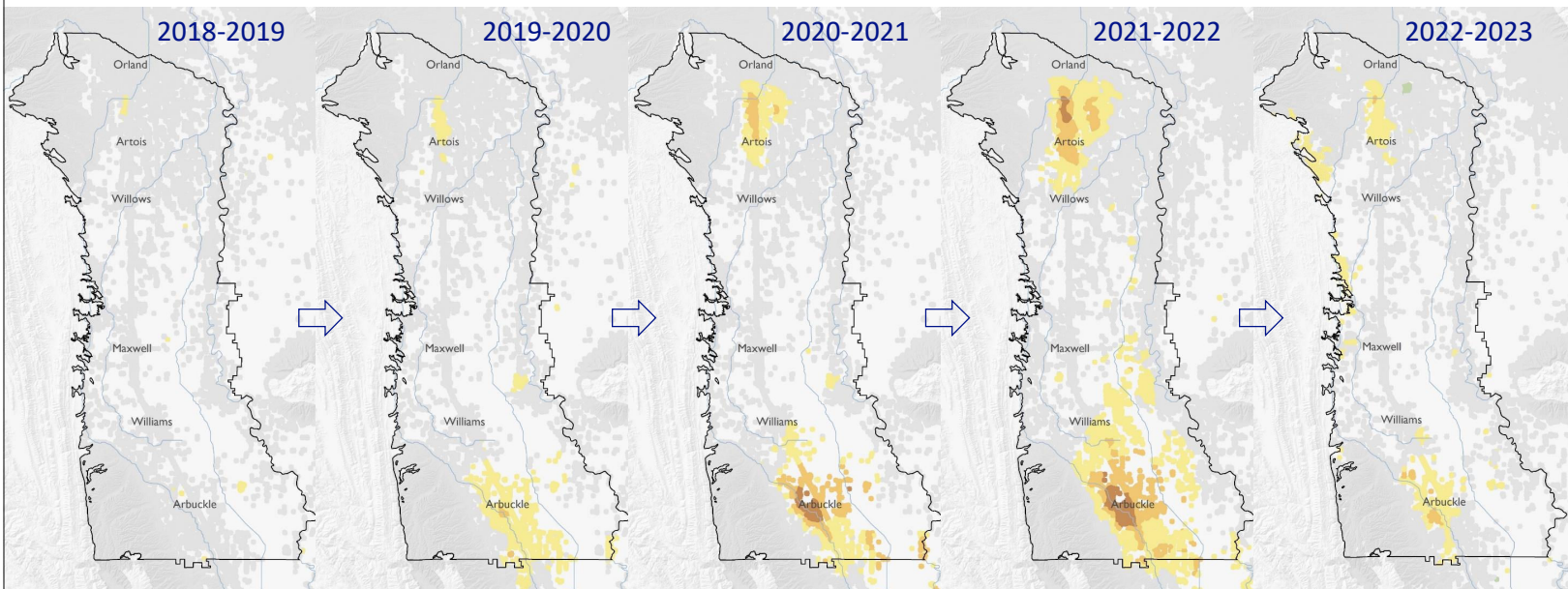
Subsidence SMC Revisions

- Current Definitions (Jan 2022):
 - Minimum Threshold (MT): 0.5 feet per 5 years (6 in/5yr)
 - Measurable Objective (MO): 0.25 feet per 5 years (3 in/5yr)
- Revision Considerations:
 - Clarify SGMA requirement of no subsidence past 2042 (+/- uncertainty each year, but no long-term subsidence over a multi-year averaging period)
 - Impacts to critical infrastructure and surface land uses. Have any impacts been reported or observed?



Source: DWR, 2017. Sustainable Management Criteria Best Management Practices.

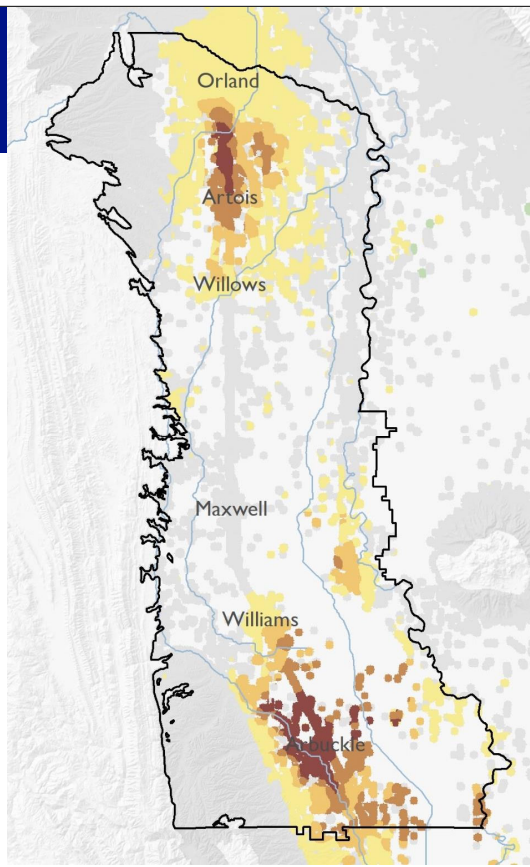
Annual Subsidence: October 2018 – October 2023



5-Year Subsidence

OCT 2018 to OCT 2023

- > 12 in/5yr
- 6 - 12 in/5yr
- 3 - 6 in/5yr (MT = 6 in/5yr)
- 1 - 3 in/5yr (MO = 3 in/5yr)
- No Change



Next Steps and Timeline

Next Steps and Timeline

- DWR Consultation Meeting #4 during week of 03/11
 - Discuss PMA details, proposed SMC revisions
 - Receive feedback from DWR on acceptability
 - *Anticipated to be the last DWR meeting*
- CGA/GGA Joint Board Meeting on 03/22
 - Propose PMA agreements, SMC revisions based on Joint TAC discussions and DWR feedback
 - Receive approval for approach
- DRAFT Revised GSP to be released at end of March

