

**Special Meeting of the Delta-Mendota Subbasin Coordination Committee
and Technical Working Group
Monday June 26, 2023, 1:00 PM DRAFT
SLDMWA Boardroom, 842 6th Street, Los Banos, CA**

Coordination Committee and Technical Working Group Members and Alternates Present

John Wiersma, Member – San Luis Canal Company (SLCC)/San Joaquin River Exchange Contractors (SJREC)
Jarrett Martin, Member – Central California Irrigation District (CCID)/SJREC
Chase Hurley, Member – Pacheco Water District (PWD)/Central Delta-Mendota Region
Vince Lucchesi, Member – Patterson Irrigation District (PID)/Northern Delta-Mendota Region
Christy McKinnon, Alternate – Northern Delta-Mendota Region/Stanislaus County
Ric Ortega, Member – Grassland Water District
Augie Ramirez, Alternate – Fresno County
Jim Stilwell, Member – Farmers Water District (FWD)
Will Halligan, Alternate – Farmers Water District/Luhdorff & Scalmanini C.E. (LSCE)

San Luis & Delta-Mendota Water Authority Staff Present

John Brodie

Others Present

Anthea Hansen – Del Puerto Water District
Steve Stadler – San Luis Water District (SLWD)
Maria Encinas – City of Patterson
Cristian Gonzalez – City of Mendota
Ben Gallegos – City of Firebaugh
Ethan Andrews – Provost & Pritchard
Anona Dutton – EKI Environment & Water, Inc. (EKI)*
Amir Mani – EKI*
Sarah Gerenday – EKI*
Andrew Francis – LSCE*
Leslie Dumas – Woodard & Curran*

* Denotes telephonic/Zoom participation.

1. **Call to Order/Roll Call**

John Wiersma/SLCC called the meeting to order at 1:01 PM.

2. **Opportunity for Public Comment**

No public comments were made.

Consent Calendar

3. **Committee to Review and Take Action on the Consent Calendar**

- a) Minutes of the May 22, 2023 Meeting of the Committee and Technical Working Group
- b) Minutes of the May 31, 2023 Meeting of the Committee
- c) Minutes of the June 12, 2023 Meeting of the Committee and Groundwater Sustainability Agency (GSA) Informational Workshop
- d) Coordination Committee Budget to Actual Report (April 2023)

e) Grant Reimbursement Summary Report

John Brodie/SLDMWA expressed that the Grant Reimbursement Summary Report numbers required updating. Jarrett Martin/CCID motioned to pass items a-d. Vince Lucchesi/PID seconded. The motion was passed unanimously by those present.

Report Items

4. **Committee to Discuss June 21, 2023 State Water Resources Control Board (SWRCB) Timeline for Subbasin Probationary Hearings**

Chase Hurley/PWD reported that the Delta-Mendota Subbasin was scheduled to be the fifth out of six subbasins to begin the probationary process, which would start in September 2024, based on a SWRCB staff schedule recommendation. It was agreed that subbasin representatives should continue meeting with SWRCB staff to show progress on writing a single Groundwater Sustainability Plan. .

5. **Committee to Discuss July 5, 2023 Technical Meeting with SWRCB/Department of Water Resources (DWR) Staff**

John Brodie shared that the SWRCB/DWR staff had requested to reschedule the meeting, and a new date has yet to be selected.

a) Participants to Submit

It was agreed that the strike team consisting of Jarrett Martin, Chase Hurley, Jim Stilwell/FWD, John Brodie, Scott Peterson/SLDMWA, Lauren Layne/Baker Manock & Jensen, and Anona Dutton/EKI would attend the meeting.

b) Agenda Items to Submit

Agenda items to submit will include the approaches for groundwater levels, water budget, and water quality to be included in the single GSP.

c) Subbasin Meeting Lead

Committee members suggested Anona Dutton/EKI should take the lead in the meetings with SWRCB and DWR staff. Anona agreed, with the understanding that she will have limited authority and will be conveying the decisions made by the Committee.

d) Desired Outcome(s)

The desired outcome of the meeting will be to try to get feedback from SWRCB/DWR staff on the Subbasin's approaches to addressing DWR's identified deficiencies, recognizing that staff has already said they cannot give specific approval to particular items in the GSP.

6. **Committee to Review June 12, 2023 GSA Informational Workshop**

John Wiersma shared that the June 12th GSA Informational Workshop was well attended. Participants had the opportunity to discuss the process of responding to DWR's Inadequate Determination and review the draft Memorandum of Agreement (MOA). The Committee agreed that

regular community outreach should be conducted going forward and an outreach plan should be developed.

7. **Committee to Discuss Responses to Request for Proposals (RFP) for Completing the Response to the Inadequate Determination for the Delta-Mendota Subbasin**

John Brodie announced that a single response to the RFP had been received, submitted by EKI Environment & Water. The RFP team will review the proposal and bring it as an agenda item for the next meeting.

8. **Committee to Discuss a Special Projects Agreement (SPA) and Cost-Share for Completing the Subbasin's Response to DWR's Inadequate Determination**

The Committee discussed current and future cost-sharing arrangements. It was generally agreed that the existing cost-share would remain in place until a new agreement is adopted. Several members expressed the desire to implement the new cost share as soon as possible, ideally before probationary hearings start.

9. **Committee to Discuss Design of Interconnected Surface Water Monitoring Network for the Delta-Mendota Subbasin**

Andrew Francis/LSCE reported that the anticipated DWR guidance on Interconnected Surface Water monitoring will not be available until spring 2024. Francis shared that progress is being made on a revised network, including eight well sites, additional stream gages, and six planned new sites. Will Halligan explained that the Chowchilla Subbasin has San Joaquin River monitoring sites along the shared boundary and that Delta-Mendota will be coordinating with adjacent GSAs to share monitoring data.

10. **Committee to Discuss Subbasin MOA**

Lauren Layne was not present to speak about the MOA, but John Wiersma reminded the Committee that she had asked for redline comments on the draft MOA by June 20 in order to incorporate them for discussion at the July 10th meeting.

11. **Committee to Discuss Subbasin Water Quality SMCs**

Agenda items 11, 12, and 13 were combined for efficiency. Anona Dutton gave a presentation on subsidence Sustainable Management Criteria (SMC) and developments regarding the use of CVHM2-SJB for water budget and groundwater storage SMCs. Dutton explained that subsidence SMCs must include rate and extent and proposed converting the existing Minimum Threshold and Interim Milestones to rates and keeping the maximum subsidence amount of 2 feet by 2040 and zero afterwards. The Committee generally agreed with the proposals, subject to the specifications that the subsidence rates should be five-year averages and that the GSP text must make it clear that the SMCs apply only to subsidence caused by activities in the basin.

Dutton proposed that groundwater levels be used as a proxy for groundwater storage SMCs as before, with added justification provided by using CVHM2-SJB to demonstrate that the amount of water remaining in storage when groundwater levels reach their Minimum Thresholds is enough to supply the basin for several years that would cover a long drought period. Additionally, Dutton recommended that Undesirable Results be defined as insufficient storage to maintain beneficial uses or more than a 15% decrease in storage. Regarding water budgets, Dutton noted that CVHM2-SJB

assigns a significantly larger percentage of groundwater pumping to the lower aquifer than the 2020/2022 GSP water budgets do, and potential reasons for the discrepancy were discussed.

12. **Committee to Discuss Subbasin Subsidence and GW Storage SMCs**

Agenda item was combined with item 11.

13. **Committee to Discuss Subbasin Water Budget**

Agenda item was combined with item 11.

14. **Committee to Review Monitoring Exceedances**

Agenda item was postponed until the next meeting.

15. **Committee to Discuss SGMA Round 2 Grant Application Project List**

Project descriptions and a list of available grant funding were included in the meeting packet.

16. **Next Steps**

- John Brodie will work with SWRCB staff to reschedule the planned meeting, with Anona Dutton lead the discussion for the Subbasin.
- The Committee will schedule public outreach meetings for late summer and/or early fall.
- A link to Delta-Mendota's website will be sent to cities to post on their websites.
- John Brodie is to check with Stantec to see if FSS assistance is available for public outreach meetings.
- John Brodie will provide an update on public outreach funds remaining in the SGMA Round 1 Implementation grant.
- An outreach strategy and draft plan will be developed by John Brodie for the July 10th meeting.
- Interconnected Surface Water monitoring will be added to the July 10th meeting agenda.
- The deadline for comments on the draft MOA is 30 July 2023.
- Subsidence SMCs will be written as discussed, specifying that the rate is a five-year average.

Closed Session

17. **Conference with Legal Counsel – Anticipated Litigation**

No conference with legal counsel was held under this agenda item.

18. **Conference with Legal Counsel – Existing Litigation**

No conference with legal counsel was held under this agenda item.

Open Session

19. **Report out of Closed Session**

No report was necessary, as no closed session was held.

20. **Reports Pursuant to Government Code Section 54954.2(a)(3)**

No reports were made under this agenda item.

21. **Future Delta-Mendota Subbasin Coordination Committee Meetings**

- a. Monday July 10, 2023: 1:00 PM (with Technical Working Group, Grassland Water District office)
- b. Monday July 24, 2023: 1:00 PM (with Technical Working Group)
- c. Future Policy-only Meetings Will Be Scheduled at the Request of the Committee

22. **ADJOURNMENT**

John Wiersma adjourned the meeting at 4:09 PM.

DRAFT

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY
MARCH 1, 2023 - FEBRUARY 29, 2024
SGMA ACTIVITIES - COORDINATED COST-SHARE AGREEMENT
ACTIVITY AGREEMENTS BUDGET TO ACTUAL
COORDINATED (FUND 63)

Report Period 3/1/23 - 5/31/23

Coordination Meeting 7/10/23

EXPENDITURES	Annual Budget	Paid/ Expense	Amount Remaining	% of Amt Remaining	Expenses Through
<u>Legal:</u>					
Baker Manock & Jensen	\$ 30,960	\$ 9,525	\$ 21,436	69%	
<u>Other Professional Services:</u>					
GSP Implementation Contracts					
Coordinated Annual Reports Activities (Common Chapter, Water Level Contouring)	\$ 146,093		\$ 146,093	100%	
DMS Hosting, Augmentation and Support	\$ 11,367		\$ 11,367	100%	
Staff Augmentation Support (EKI)	\$ 65,000		\$ 65,000	100%	
DAC Outreach and Coordination	\$ 30,000		\$ 30,000	100%	
SGMA Implementation Grant Round 1 SPA (A9)	\$ 75,560		\$ 75,560	100%	
SGMA Implementation Grant Round 2 SPA (B0)	\$ 75,560		\$ 75,560	100%	
<u>Other:</u>					
Executive Director	\$ 2,364	\$ -	\$ 2,364	100%	
General Counsel	\$ 4,082	\$ -	\$ 4,082	100%	
Water Policy Director	\$ 7,100	\$ 5,135	\$ 1,965	28%	5/31/23
Water Resources Program Manager	\$ 62,400	\$ 15,551	\$ 46,849	75%	5/31/23
Accounting	\$ 2,916	\$ 250	\$ 2,666	91%	5/31/23
License & Continuing Education	\$ 500		\$ 500	100%	
Conferences & Training	\$ 1,000		\$ 1,000	100%	
Travel/Mileage	\$ 2,500		\$ 2,500	100%	
Group Meetings	\$ 1,000		\$ 1,000	100%	
Telephone	\$ 500		\$ 500	100%	
Software	\$ 780		\$ 780	100%	
Equipment and Tools	\$ 5,650		\$ 5,650	100%	
Total Expenditures	\$ 525,332	\$ 30,460	\$ 494,872	94%	



MEMORANDUM

TO: Delta-Mendota Subbasin Coordination Committee Members and Alternates

FROM: John Brodie, Water Resources Programs Manager

DATE: July 10, 2023

RE: Whether to approve a consultant to prepare a single GSP for the Delta-Mendota Subbasin and \$1.5 million budget augmentation to compensate the consultant for GSP work.

BACKGROUND

On March 2, 2023, the California Department of Water Resources (DWR) issued a Determination Letter stating that the six Delta-Mendota Subbasin Groundwater Sustainability Plans (GSPs) were ‘inadequate.’ DWR referred the GSPs to the State Water Resources Control Board (SWRCB) for further review. SWRCB has the option of placing the Subbasin on probation until the GSPs address the deficiencies identified by DWR in the Determination Letter.

To address those deficiencies, the Delta-Mendota Subbasin Coordination Committee, with the support of the 23 Groundwater Sustainability Agencies (GSAs) in the Subbasin, began the process of consolidating the six GSPs into a single GSP. On May 26, 2023, a request for proposals (RFP) was issued for a consultant or team to prepare a single GSP for the Subbasin.

As of the June 23, 2023 deadline to submit responses, one consultant responded to the RFP.

ISSUES FOR DECISION

To continue the timely response to the inadequate determination and possible state intervention in the subbasin, the Delta-Mendota Subbasin Coordination Committee must decide whether to select the submitted response to the RFP and approve a \$1.5 million budget augmentation to the Coordinated budget (Fund 63) to pay for the consultant’s work.

RECOMMENDATION

Staff recommends the following:

That the Coordination Committee approve selection of a consultant to prepare a single GSP for the Delta-Mendota Subbasin and approve a \$1.5 million budget augmentation to the

Coordinated Budget (Fund 63) to pay for the consultant's work. Staff further recommends the Coordination Committee assign a subcommittee to work with SLDMWA staff to negotiate the final tasks, timeline, and budget for an amended task order to complete the work.

ANALYSIS

Based on the June 21, 2023 meeting of the SWRCB, the Delta-Mendota Subbasin faces a possible probationary hearing by the SWRCB in September 2024. Without approval, time and momentum will be lost and work to have the single GSP ready and possibly adopted in advance of the proposed September 2024 probationary hearing will be at least delayed. The respondent is currently working on the initial parts of the Subbasin's response to the inadequate determination, and approval of both the consultant and budget augmentation will provide a seamless transition to completing the necessary tasks.

The SLDMWA will consider approval of a task order amendment and budget augmentation at its July 13, 2023 meeting.

BUDGET

The total proposed budget augmentation to the Coordinated budget (fund 63) is \$1,500,000.

Memo Appendix A: EKI Single GSP Preparation Budget Proposal

PROJECT BUDGET FOR COMPLETING THE RESPONSE TO THE INADEQUATE DETERMINATION ISSUED BY CA DWR FOR THE DELTA - MENDOTA SUBBASIN GROUNDWATER SUSTAINABILITY PLANS

TASKS	EKI Labor											Expenses			TOTAL	
	CAD/ GIS	Offona and Chief	Engineer-Scientist	Christopher Heppner	Supervising I,	Engineer-Scientist	Amir Mani - Senior I,	Engineer-Scientist	Meredith Durant - Senior I, Engineer-Scientist	Grade 1 Engineer-Scientist,	Grade 2 Engineer-Scientist,	Grade 4 Engineer-Scientist,	TOTAL EKI Labor, including 4% Comm. Charge (1)	CAD/GIS Charge (per hour)		OTHER DIRECT COSTS
Task 1 - Data Compilation, Review, and Analysis	144	332	30	309	30	286	286	286	231	218	178	178	(\$)	\$20	10%	(\$)
Subtotal	0	30	30	30	30	30	30	30	10	60	75	65	\$75,348	\$0	\$0	\$75,348
Task 2 - Describe Current Groundwater Conditions for Each Applicable SI	40	25	40	8	8	50	80	80	50	80	80	80	\$74,816	\$800	\$1,000	\$1,900
Subtask 2.1 - Develop Current Groundwater Conditions	15	30	30			30	75	75					\$40,747	\$0	\$0	\$40,747
Subtask 2.2 - Prepare Qualitative Description of PM/A Impacts	25	10	150			250	300	300					\$172,058	\$0	\$1,000	\$1,100
Subtask 2.3 - Quantitative Projection of PM/A Impacts	40	65	80	188	0	300	380	380					\$287,620	\$800	\$2,000	\$3,000
Subtotal	80	80	100	100	0	120	150	150	120	150	80	80	\$149,386	\$1,600	\$1,000	\$2,700
Subtotal	80	80	100	100	0	120	150	150	120	150	80	80	\$149,386	\$1,600	\$1,000	\$2,700
Task 4 - Analysis of New Information	24	50	80			100	100	100					\$115,477	\$480	\$1,000	\$1,580
Subtask 4.1 - Further Analysis and Potential Revisions to SMCs	30	40	80			80	80	80					\$75,587	\$0	\$1,000	\$1,100
Subtask 4.2 - Further Analysis and Update to the Basin-wide Water Budget	40	20	150			250	250	250					\$171,194	\$0	\$2,000	\$2,200
Subtask 4.3 - (Optional) CVHM2-DM Development and Calibration	24	120	100			230	0	430		100	490		\$362,259	\$480	\$4,000	\$4,900
Subtotal	24	120	100			230	0	430		100	490		\$362,259	\$480	\$4,000	\$4,900
Task 5 - Revision of Plan Elements	40	32	40										\$74,780	\$800	\$500	\$1,350
Subtask 5.1 - Revision of Plan Area and Basin Setting Chapters	2	32	40			40	40	40		100	120		\$46,740	\$40	\$500	\$590
Subtask 5.2 - Revision of Water Budget and Sustainable Yield Sections	2	40	72			72	80	80		80	100		\$73,898	\$40	\$500	\$590
Subtask 5.3 - Revision of Sustainable Management Criteria Chapter	2	32	32			32	32	32		60	60		\$55,860	\$40	\$500	\$590
Subtask 5.4 - Revision of P/W/A and Plan Implementation Chapters	32									60	60		\$35,759	\$0	\$500	\$36,309
Subtask 5.5 - Revision of Executive Summary and Introduction Chapter	46	168	144	72	0	40	300	415		300	415		\$287,100	\$920	\$2,500	\$3,700
Subtotal	60	40	40	16	16	120	120	120	0	120	120		\$99,649	\$0	\$500	\$550
Task 6 - A Description of Other Information	0	60	40	40	16	40	16	0	16	0	120		\$99,700	\$0	\$500	\$600
Subtotal	0	60	40	40	16	40	16	0	16	0	120		\$99,700	\$0	\$500	\$600
Task 7 - Project Management and Coordination	156	52	26										\$95,992	\$0	\$4,000	\$4,400
Subbasin CC/TWG meetings (13 in-person, 13 remote)	52									78			\$17,955	\$0	\$500	\$550
Bi-weekly one-hour planning meetings (remote 26)	16					16							\$10,284	\$0	\$0	\$10,284
Coordination with hydrologically connected basins (8, 1-hr each)	36	16	16			16	16	16		16	16		\$25,958	\$0	\$1,000	\$1,100
Meetings with DWR/ SWRCB (8 1-hr remote, 4 2-hr in-person)	24	40				24	24	24		0	0		\$15,425	\$0	\$0	\$15,425
Project Schedule	40	40				32							\$23,329	\$0	\$500	\$550
Project communications and project management tasks	0	324	68	42	72	0	94	0					\$189,000	\$0	\$6,000	\$6,600
Subtotal	190	847	562	602	98	950	994	1,550	994	1,300	1,300		\$1,450,300	\$7,600	\$16,000	\$21,400
TOTAL With Optional Task(s):	190	807	542	452	98	700	994	1,300	994	1,300	1,300		\$1,279,100	\$3,800	\$14,000	\$19,200
TOTAL Without Optional Task(s):	200	810	580	490	90	770	1,170	1,430	1,170	1,430	1,430		\$1,383,502	\$3,800	\$12,500	\$17,550
Contingency-July 31, 2024 Completion Date (Without Optional Task)	210	770	620	500	80	810	1,250	1,560	1,250	1,560	1,560		\$1,435,855	\$1,900	\$7,750	\$10,425
Contingency- March 29, 2024 Completion Date (Without Optional Task)																

Notes:

- 1) A communications charge of 4% of labor costs covers e-mail access, web conferencing, cellphone calls, messaging and data access, file sharing, local and long distance telephone calls and conferences, facsimile transmittals, standard delivery U.S. postage, and incidental in-house copying.
- 2) ""Other Direct Costs"" includes direct expenses, as listed below, incurred in connection with the work and will be reimbursed at cost plus ten percent (10%) for items such as:
 - a. Maps, photographs, reproductions, printing, equipment rental, and special supplies related to the work.
 - b. Consultants, soils engineers, surveyors, drillers, laboratories, and contractors.
 - c. Rented vehicles, local public transportation and taxis, travel and subsistence.
 - d. Special fees, insurance, permits, and licenses applicable to the work.
 - e. Outside computer processing, computation, and proprietary programs purchased for the work."

BUDGET ASSUMPTIONS

March 2023 and July 2023 Accelerated Timelines:

EKI will not undertake optional Subtask 4.3 under accelerated timelines. Meetings will be scheduled more frequently as necessary, but there will be a proportional reduction in their number. EKI anticipates maintaining the same level of deliverables by expanding the team to handle the required tasks. The contingency budget accounts for increased coordination and effort (Tasks 1-6), as well as reduced expenses due to fewer meetings (Task 7) and the removal of Subtask 4.3.

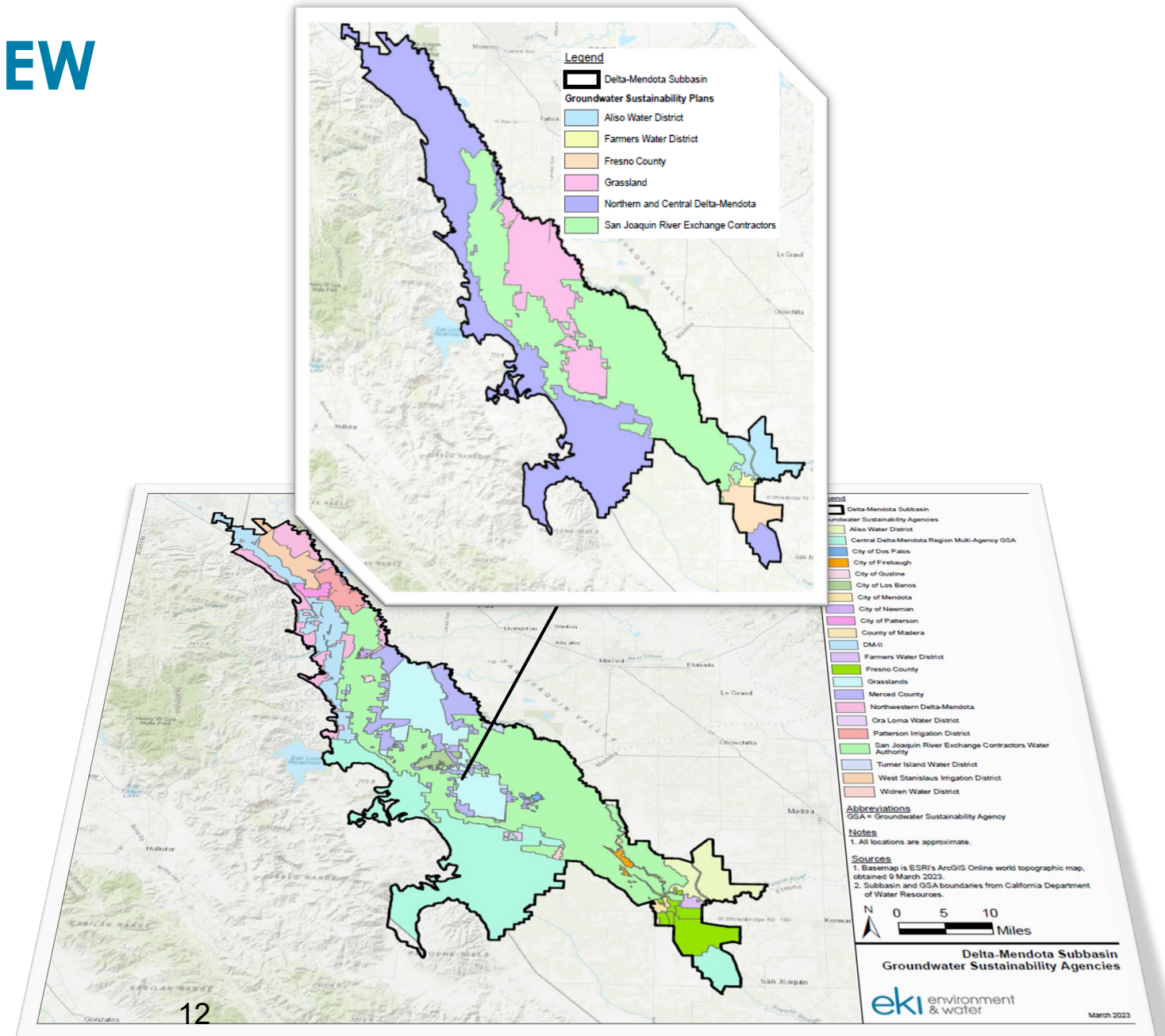
DELTA-MENDOTA SUBBASIN RESPONSE TO INADEQUATE DETERMINATION

10 JULY 2023

TECHNICAL MEETING #10

PRESENTATION OVERVIEW

- Introduction to EKI Team
- Overview of Major Tasks and Proposed Approach
- Project Timeline
- Anticipated Needs and Collaboration Opportunities





Anona Dutton, PG, CHg
Principal-in-Charge/Project Manager
(Meetings & Coordination Lead)



Chris Heppner, PhD, PG
Supervising Hydrogeologist
(SMC Lead)



Amir Mani, PhD, PE
Senior Engineer
(Water Budget Lead)



Meredith Durant, PE
Senior Environmental Engineer
(Deputy PM, Meetings & Coordination)



John Fio
Principal Hydrogeologist
(Technical Advisor)



Aaron Lewis
Water Resources Engineer
(Technical Advisor)



Sarah Hodson, PE
(SMC and GSP Update)



Sarah Gerenday, PhD
(SMC, GSP Update, Meetings
& Coordination)



Susan Xie, PE
(SMC and GSP Update)



Nigel Chen, PhD, PE
(Water Budget)



Karthik Ramesh
(Water Budget)

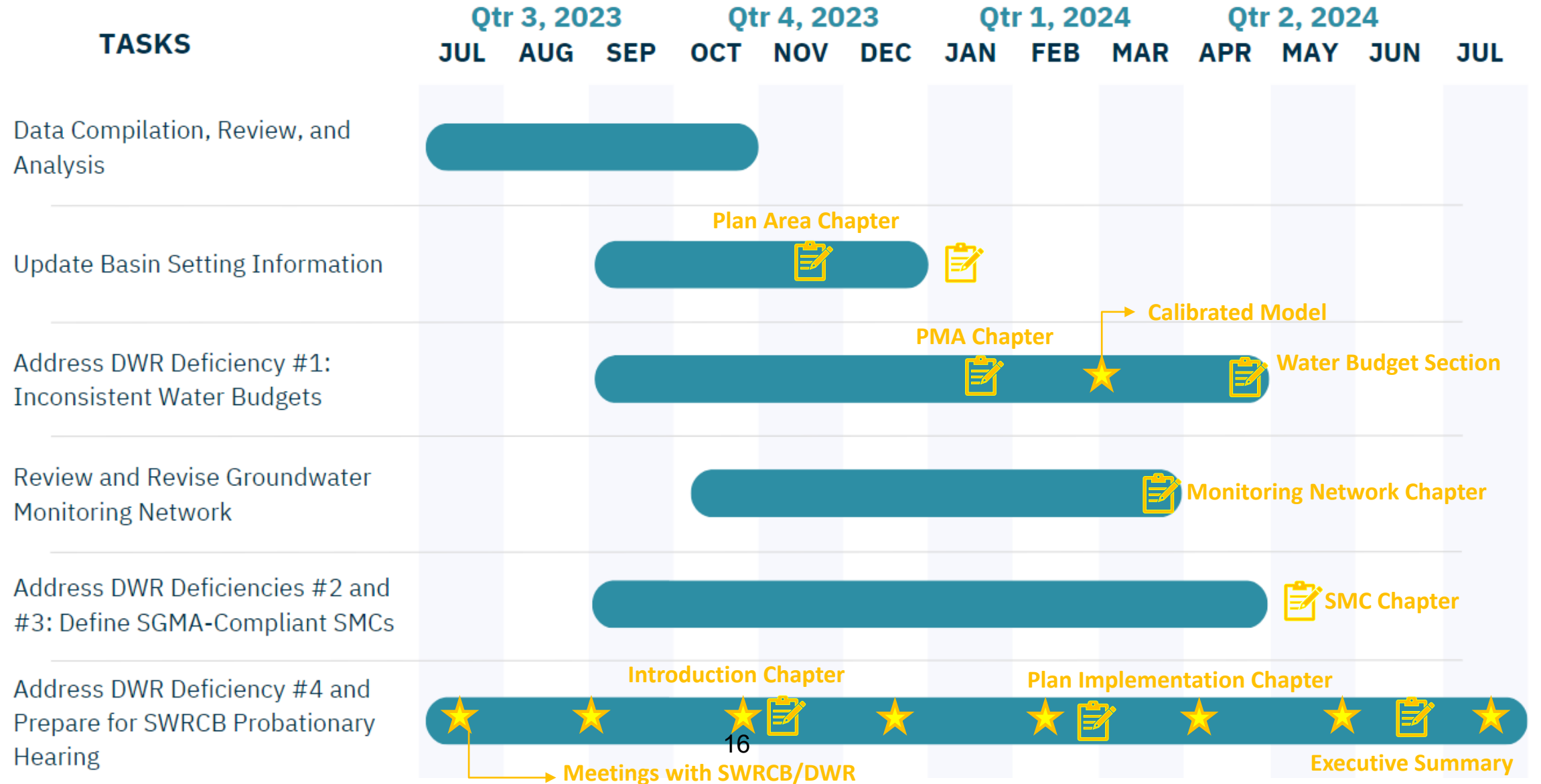
TECHNICAL COORDINATION WITH CC/TWG

- All steps of the GSP revision will be closely coordinated with the Coordination Committee (CC) / Technical Working Group (TWG) / GSA Groups
 - Publish a Request for Information (RFI) to obtain underlying data.
 - Assess new data and update SMC discussions conducted since March as needed. Define revised SMCs for Depletion of ISWs.
 - Draft chapters of the GSP will be delivered for GSA review as they are prepared to expedite review.
 - Extract a sub-grid of the CVHM2-SJB to develop a subbasin-wide model (CVHM2-DM):
 - Surface water delivery and GW pumping data will be revised based on local information.
 - Model will be extended to 2022 and recalibrated.
 - Project scenarios that include climate change central tendencies and important P/MAs (demand management and top-tiered supply augmentation projects) will be simulated.
- TWG and CC will be regularly updated on technical progress through presentations at bi-monthly meetings.

COORDINATION WITH SWRCB / DWR

- Technical work conducted on GSP revisions will be communicated to the SWRCB staff during regularly scheduled meetings.
- GSP revisions will directly follow SWRCB feedback.
 - July meeting with SWRCB will provide initial input.
 - Focus will be to present the single GSP approach, and the significant effort undertaken since March 2023.
 - Frequent updates and ongoing engagement of Board staff will minimize efforts needed if/when SWRCB deficiencies are announced.
 - Single GSP will be a concise document to highlight responses to the deficiencies and facilitate speedy review by the SWRCB staff.
- Final single-GSP draft is scheduled to be delivered to SWRCB in July 2024.
 - This timeline may need to be adjusted based on the timing of the hearing notice and additional deficiencies identified by the SWRCB.
 - Presenting a GSP in July is expected to provide enough time for SWRCB to review prior to the hearing.

PROJECT TIMELINE

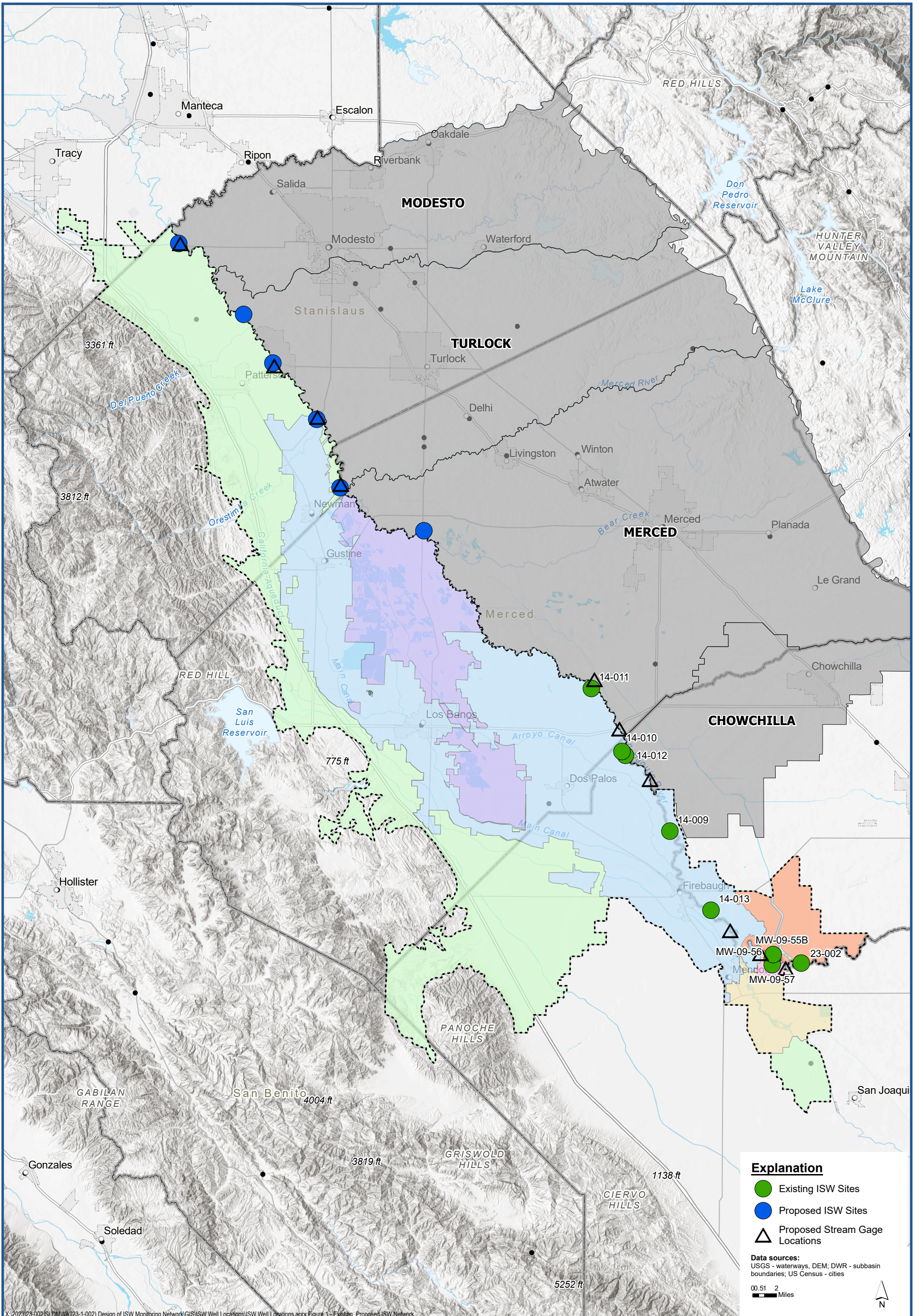


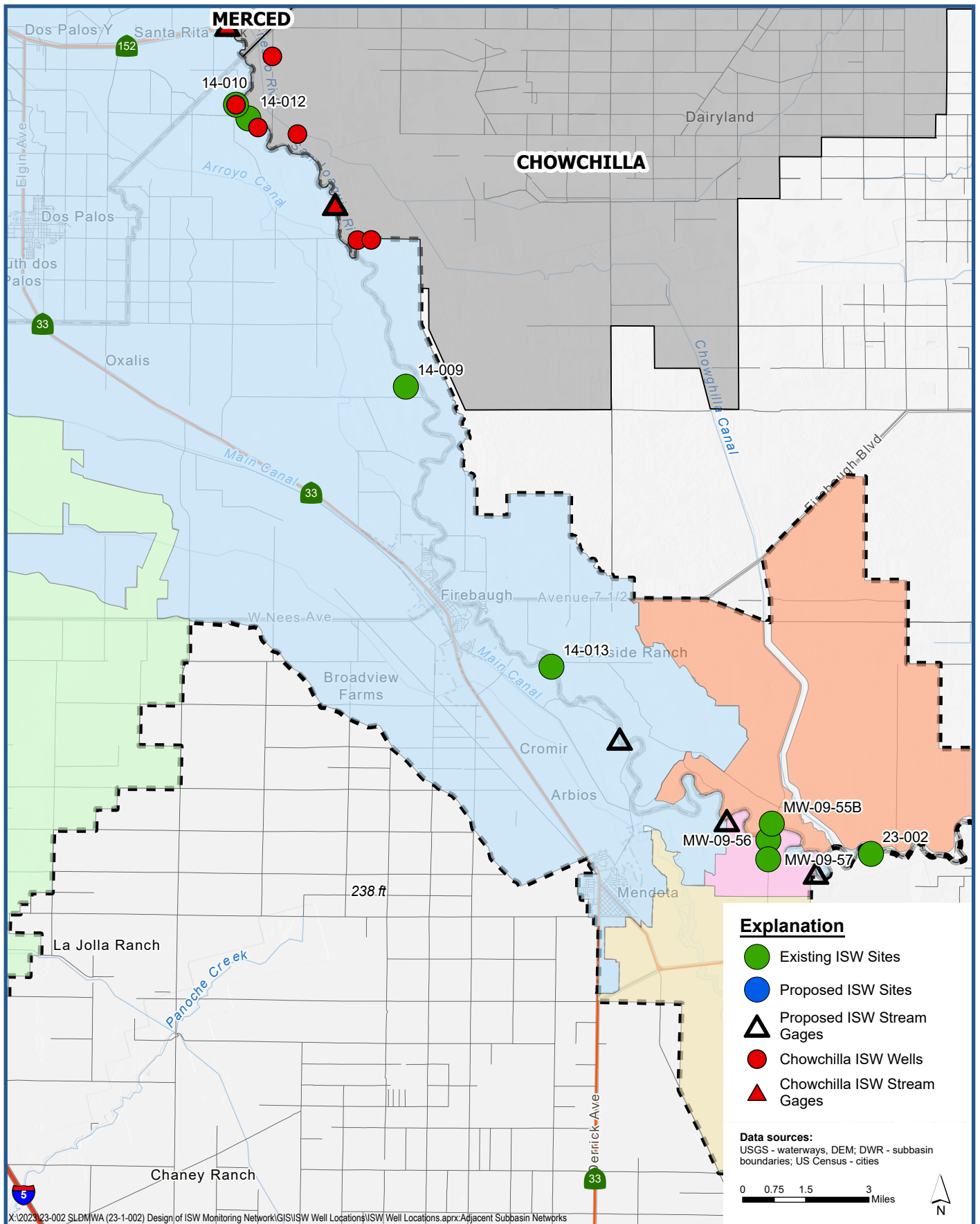
ANTICIPATED NEEDS / COLLABORATION OPPORTUNITIES

- First round of RFI will be published in July. Responses are expected within a month and data review is expected to be done by September.
 - Water budget related data and underlying Annual Reports' data
 - Editable versions of the revised GSPs and appendices.
 - Map packages and GIS data.
- P/MA Chapter and technical specifications of important P/MAs to be developed with the GSAs' input (Sept-Jan).
- Individual chapters will be delivered to review starting in October. Review timeline will be relatively short.
- Introduction and Plan Area Chapters will be written with help from GSP groups (Oct-Dec).
 - Outreach and engagement efforts and meetings' summary to be developed by GSAs.

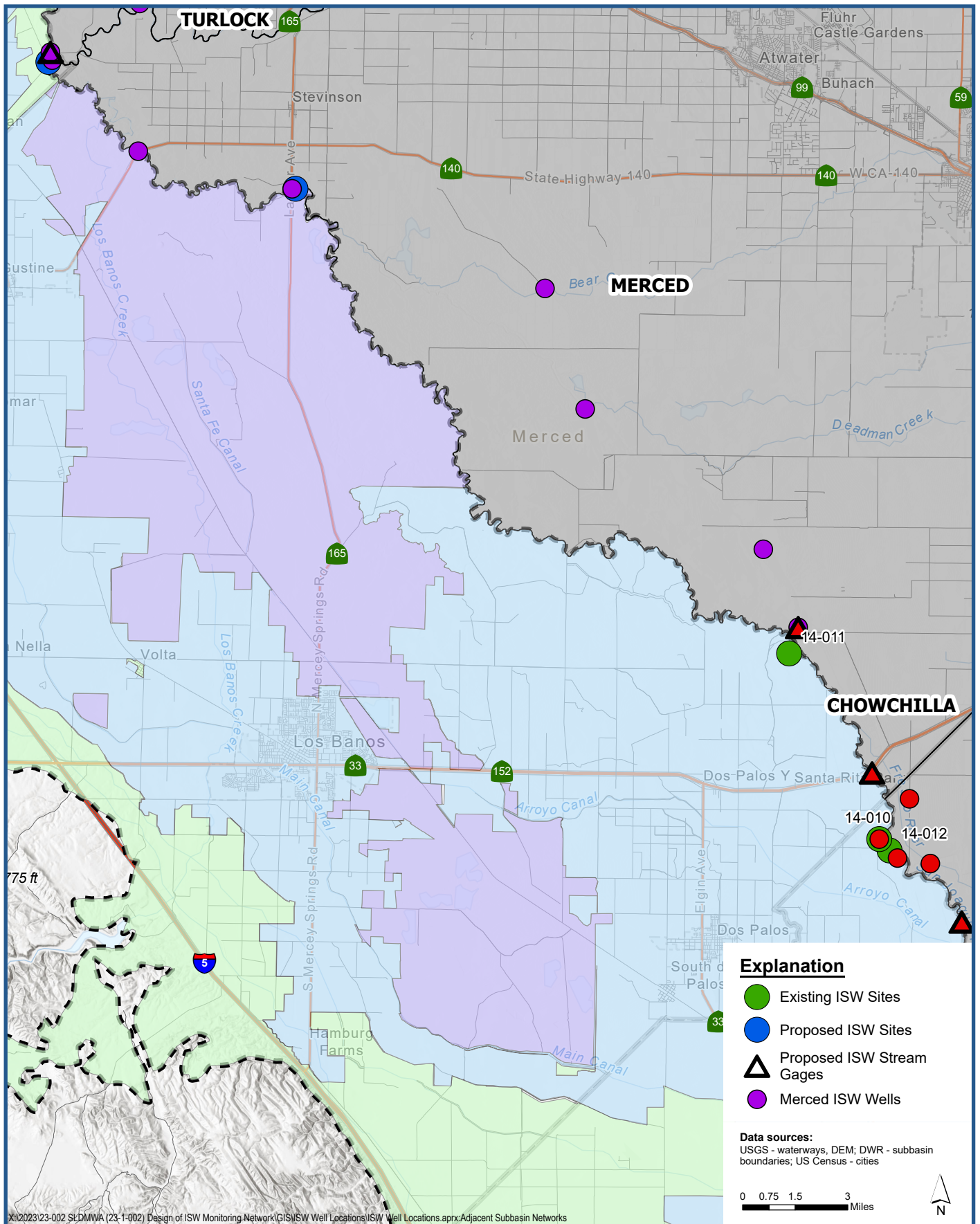
QUESTIONS

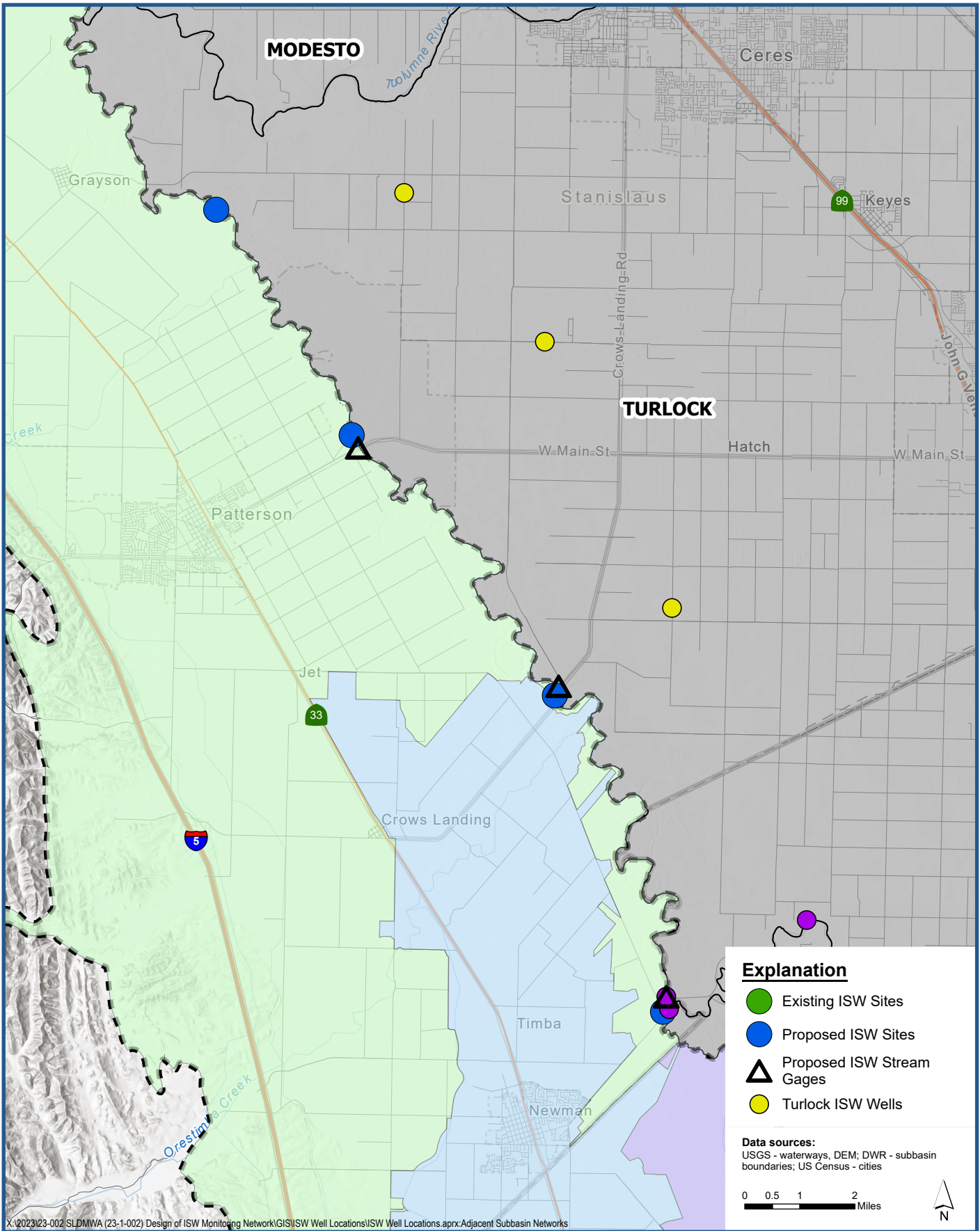


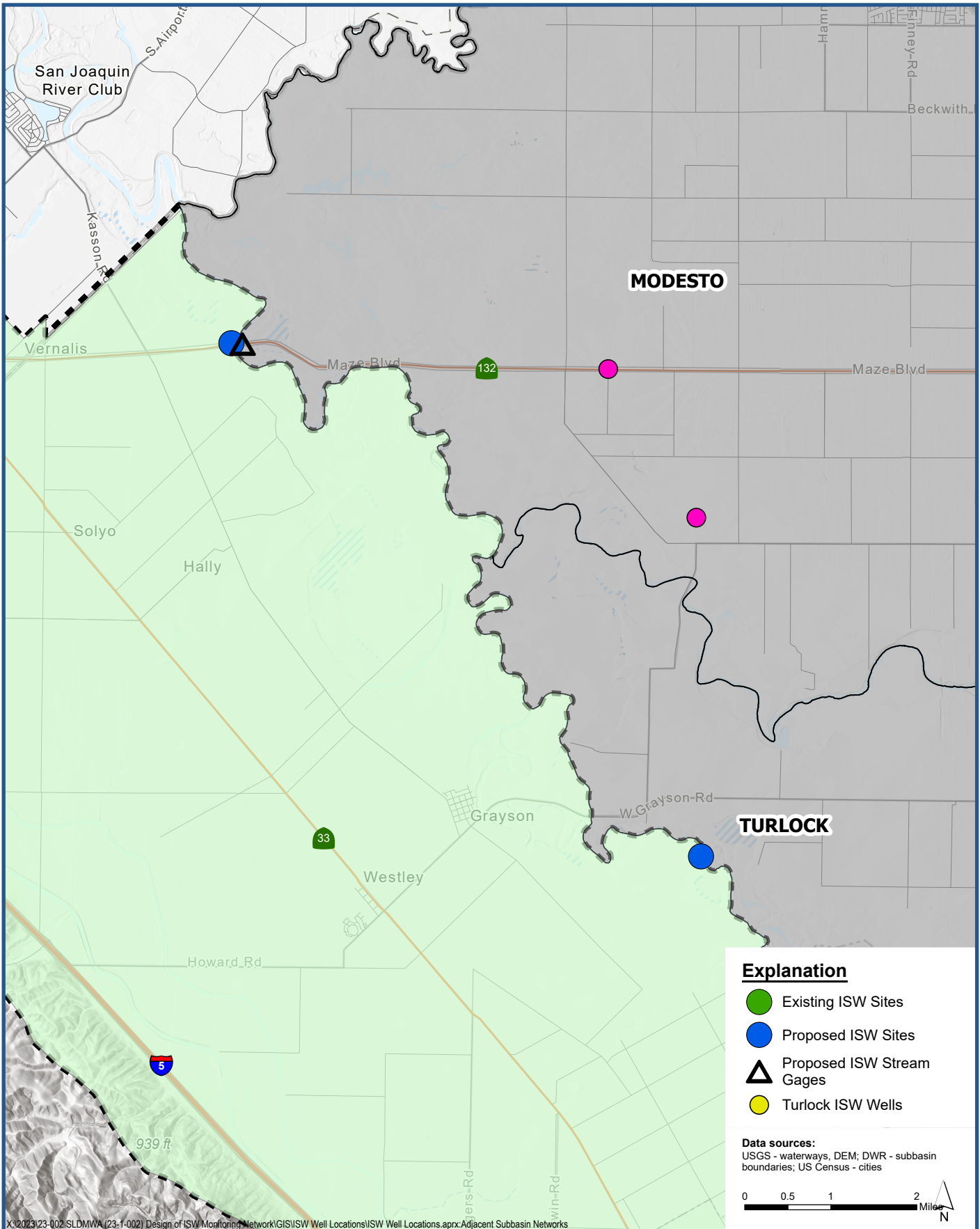




X:\2023\23-002 SLDMWA (23-1-002) Design of ISW Monitoring Network\GIS\ISW Well Locations\ISW Well Locations.aprx:Adjacent Subbasin Networks







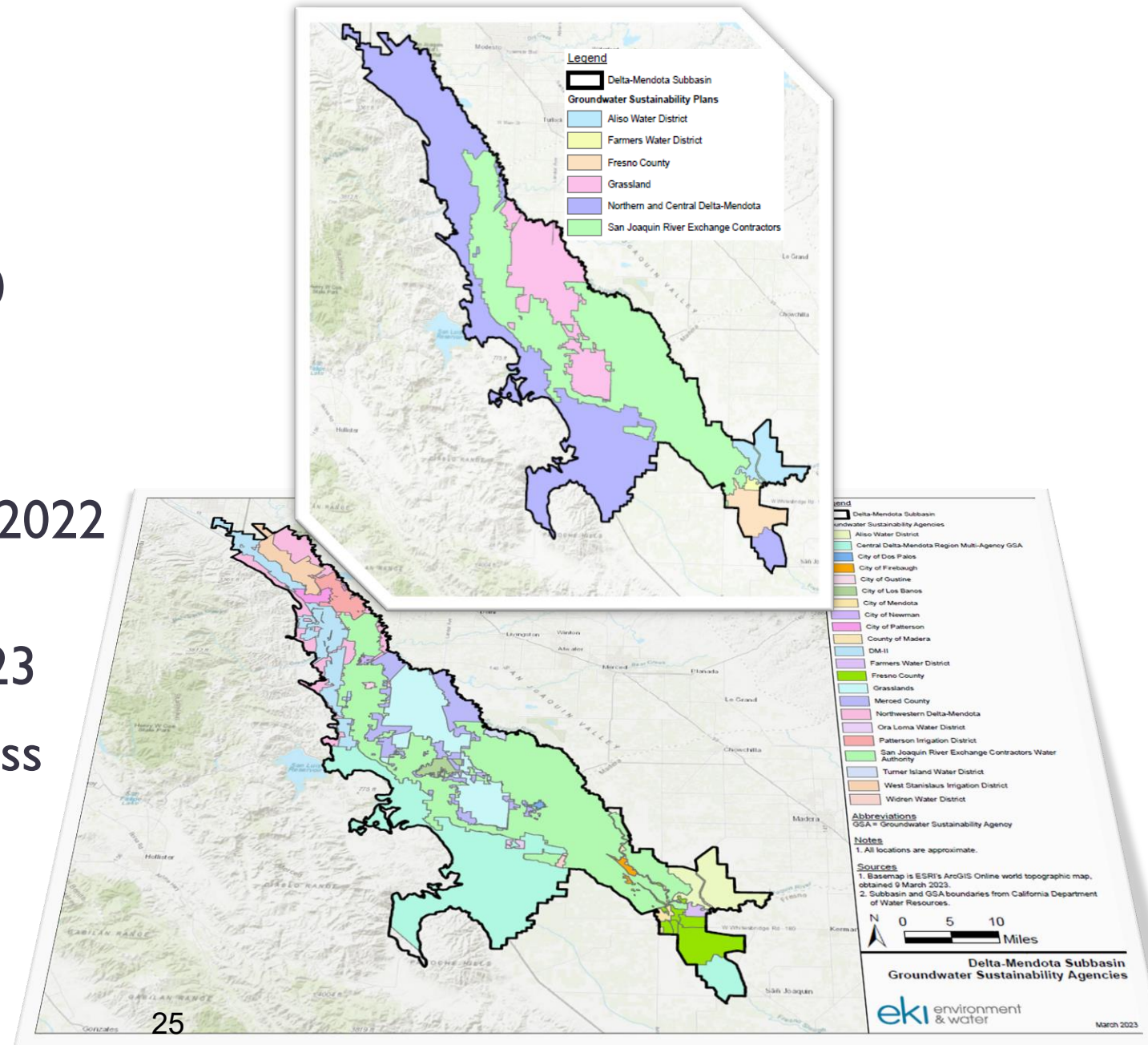
DELTA-MENDOTA SUBBASIN RESPONSE TO INADEQUATE DETERMINATION

26 JULY 2023

STATE WATER RESOURCES CONTROL BOARD MEETING #2

BACKGROUND

- 23 GSAs formed by 2017
- 6 GSPs submitted January 2020
- DWR issued incomplete letter January 23, 2022
- 6 Revised GSPs submitted July 2022
- DWR issued Inadequate Determination on March 2, 2023
- State Board intervention process triggered



SUMMARY OF DWR DETERMINED DEFICIENCIES

Deficiency #1: “The GSPs do not use the same data and methodologies”

Deficiency #2: “The GSPs have not established common definitions of undesirable results in the Subbasin”

Deficiency #3: “The GSPs in the Subbasin have not set sustainable management criteria in accordance with the GSP regulations”

Deficiency #4: “The management areas established in the Plan have not sufficiently addressed the requirements specified in 23 CCR § 354.20”

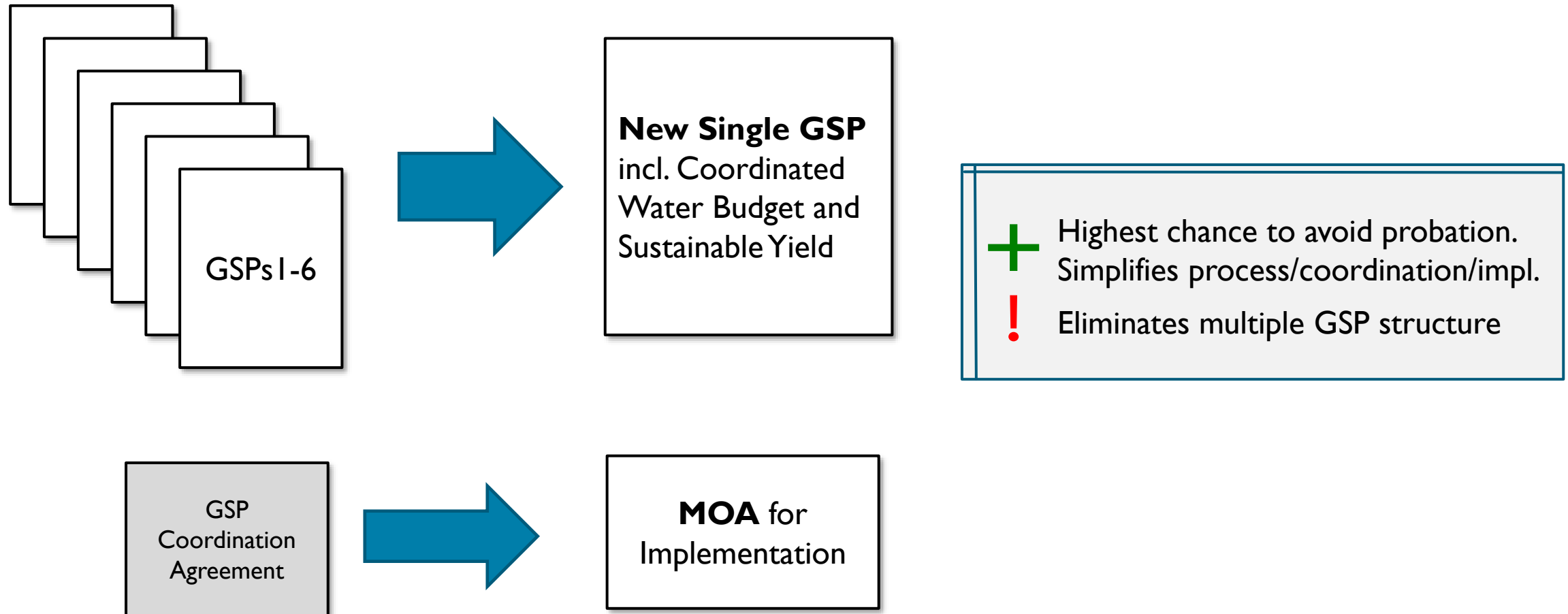
SUBBASIN GSA ACTIONS TO DATE

- Meeting near weekly of CC and TWG on Technical and Policy Issues
- Active engagement with the State Board and DWR
- Retained EKI to begin to address technical deficiencies / Revise GSP by mid-2024
- Drafting MOA to address on-going SGMA implementation with target adoption by October 2023

ADDRESS DEFICIENCIES #1 & #4

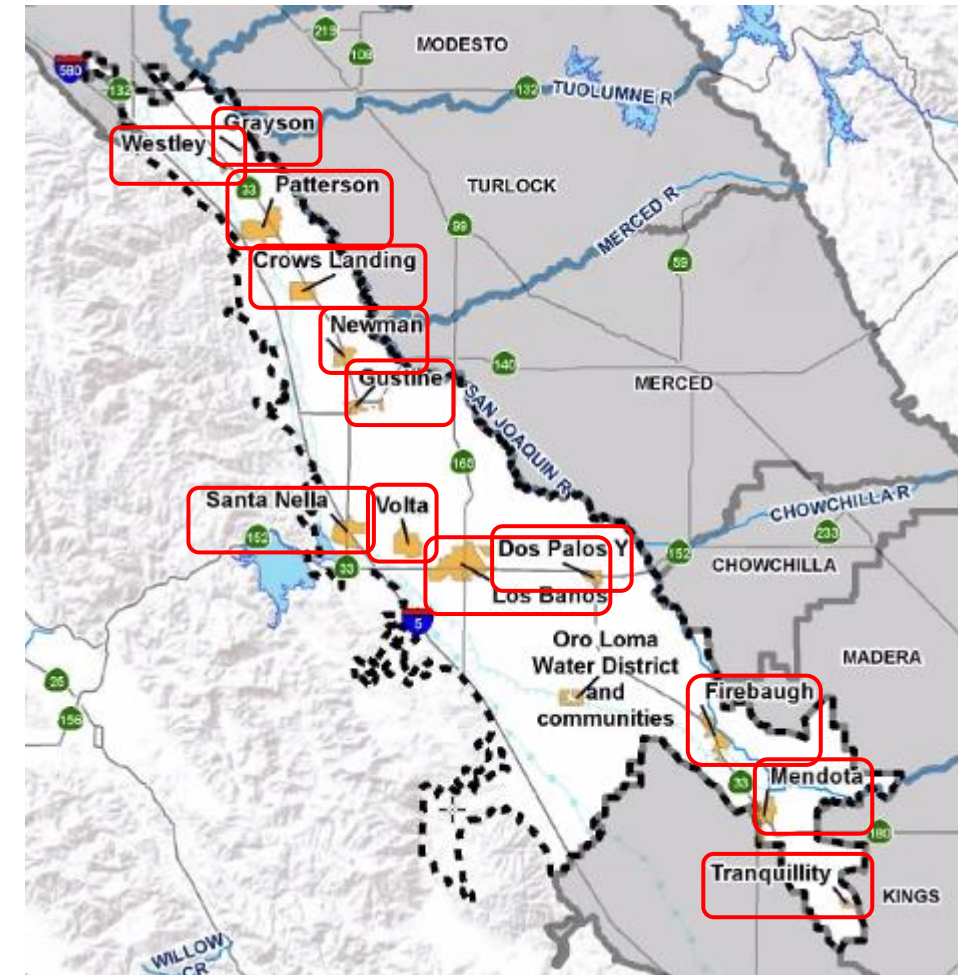
Increase Basin-Wide Coordination

ADDRESS DEFICIENCY #1 & #4 - PREPARE SINGLE GSP AND ELIMINATE MANAGEMENT AREAS



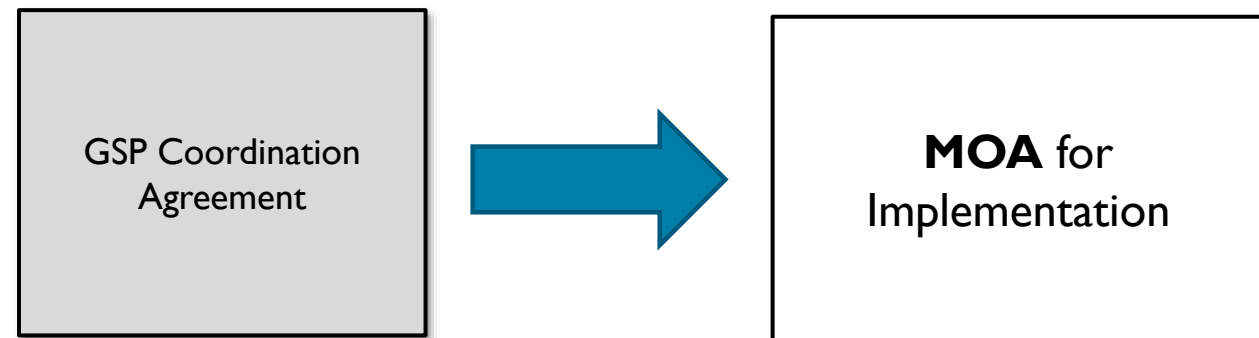
DESIGN PRINCIPLES FOR REVISED MONITORING NETWORKS

1. Each GSA will have a minimum of one Representative Monitoring Well (RMW) per aquifer where pumping occurs within its boundaries.
2. Incorporate wells from existing public water systems (PWS), where data are already being collected and drinking water beneficial uses are present.
3. Additional RMWs identified to address monitoring network gaps in Subbasin or achieve necessary data densities.
4. Avoid or screen out areas where degraded conditions already exist and where drinking water beneficial uses are not present. (e.g. COC concentrations > 3x MCL)



COORDINATION AGREEMENT TO MEMORANDUM OF AGREEMENT (MOA)

- If the Subbasin adopts a single GSP, then existing Coordination Agreement (as defined by SGMA) is no longer needed
 - Remains in effect until one GSP is adopted.
- Memorandum of Agreement will replace Coordination Agreement
 - Goes into effect when single GSP is adopted.



MOA

- Emphasizes the powers of the individual GSAs
- Describes the commitment by the GSAs to have a Subbasin-wide monitoring network
- Adaptive Management Process for addressing MT exceedances
 - Location based on GSA, but can determine if intra- or inter-basin impacts
 - Plan to address exceedances and brainstorming amongst the Coordination Committee
 - Implement P&MAs

ADDRESS DEFICIENCY #1

Subbasin-wide water budget

DWR DEFICIENCIES FOR WATER BUDGET

Deficiency #1: “The GSPs do not use the same data and methodologies”

- “the water budget revisions made to the Plan **no longer align** with the Technical Memoranda or Coordination Agreement and **numerous inconsistencies** exist throughout the Subbasin’s six GSPs”
- “Each of the revised GSPs still rely upon **separate water budgets** and use a **variety of modeling approaches** that rely upon **GSP-specific** hydrogeologic conceptual models”
- “the Plan has not provided an explanation for the **continued use of water year 2013** as the Subbasin’s current water year”
- “It is **unclear why the inflows and outflows in the Subbasin have changed** so much if the water budget components were only simplified and more concisely organized.”

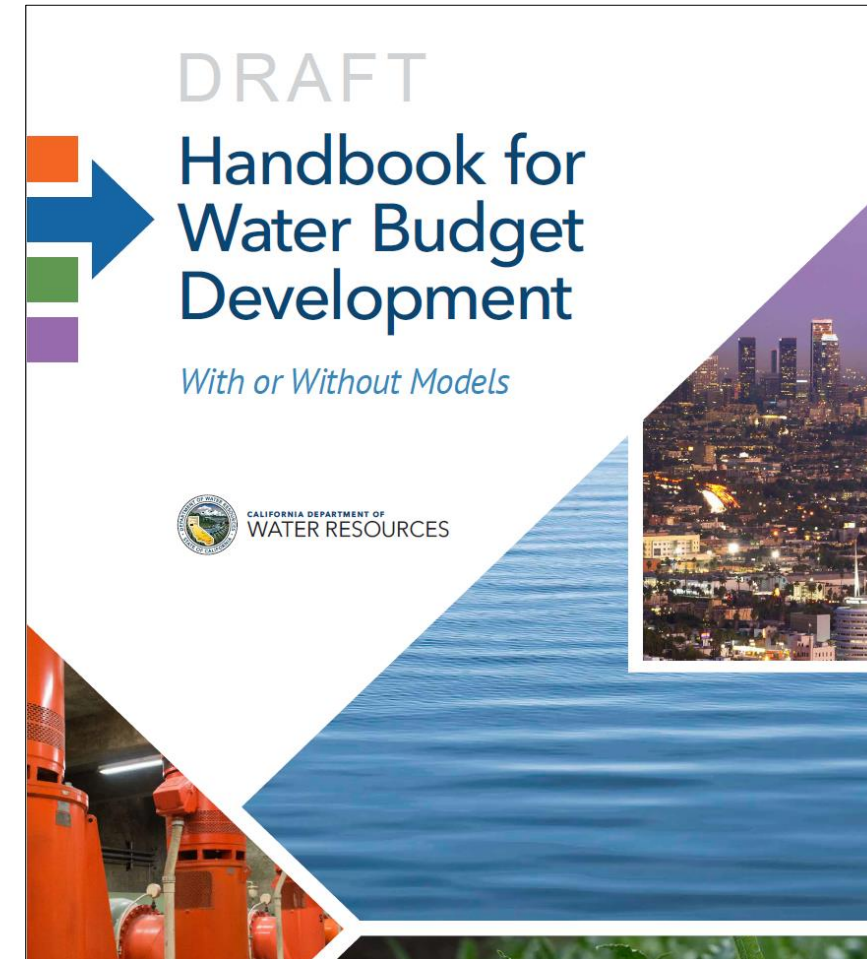
WATER BUDGET GUIDELINES

Figure 8-34 Land System Water Budget Components and MODFLOW-OWHM Water Budget Elements

LAND SYSTEM WATER BUDGET (Acre-Feet)		
	Component	Credit(+)/Debit(-) Model Output
INFLOWS	Precipitation	Detailed Farm Budget: Q-p-in
	Surface Water Delivery	Detailed Farm Budget: Q-nrd-in + Q-srd-in + Q-rd-in
	Groundwater Extraction	Detailed Farm Budget: Q-wells-in
	Stored Water Extraction	Detailed Farm Budget: Q-wells-in
	Applied Water Reuse/Recycled Water	N/A
	Applied Water	Detailed Farm Budget: Q-nrd-in + Q-srd-in + Q-rd-in + Q-wells-in
	Total Inflow	
OUTFLOWS	Evapotranspiration	Detailed Farm Budget: Q-ei-out + Q-ep-out + Q-egw-out + Q-ti-out + Q-tp-out + Q-tgw-out
	Runoff	Detailed Farm Budget: Q-run-out
	Return Flow	Detailed Farm Budget: Q-run-out
	Recharge of Applied Water	Detailed Farm Budget: Q-dp-out
	Recharge of Precipitation	Detailed Farm Budget: Q-dp-out
	Managed Aquifer Recharge	Detailed Farm Budget: Q-dp-out
	Recycled Water Export	Detailed Farm Budget: Q-dp-out
	Total Outflow	
STORAGE CHANGE	Change in Land System Storage	Unsaturated Zone Budget: In - Out
	Land System Mass Balance Error	

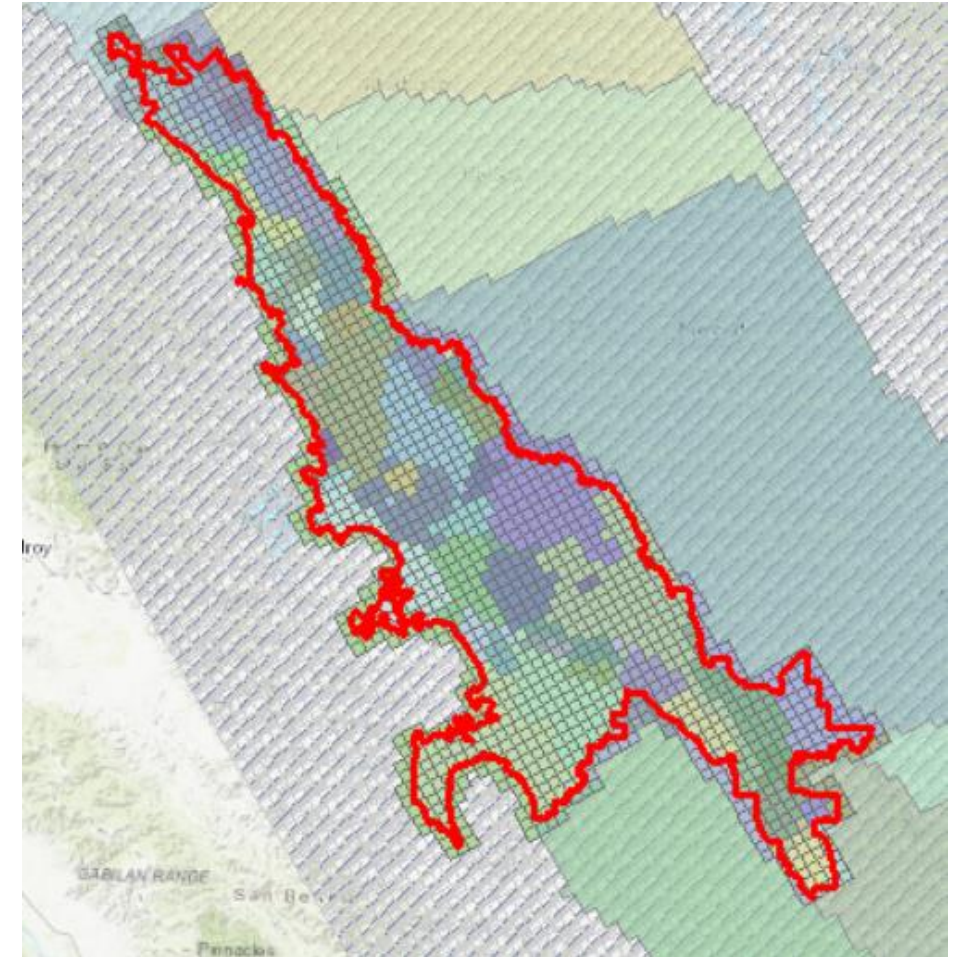
Figure 8-36 Groundwater System Budget Components and MODFLOW-OWHM Water Budget Elements

GROUNDWATER SYSTEM WATER BUDGET (Acre-Feet)		
	Component	Credit(+)/Debit(-) Model Output
INFLOWS	Recharge of Applied Water	Zone Budget: Farm Net Recharge
	Recharge of Precipitation	Zone Budget: Farm Net Recharge
	Managed Aquifer Recharge	Zone Budget: Recharge
	Groundwater Gain from Stream	Zone Budget: Stream Leakage
	Groundwater Gain from Lake	Lake Budget: Groundwater Outflow
	Conveyance Seepage	Stream Budget: Flow to Aquifer (positive values)
	Subsurface Inflow	Zone Budget: Constant Head + Head Dep Bounds + From Other Zones
	Water Release Caused by Land Subsidence	Zone Budget: Instantaneous Elastic Flow + Instantaneous Inelastic Flow + Delayed Elastic Flow + Delayed Inelastic Flow
		Total Inflow
OUTFLOWS	Groundwater Extraction	Zone Budget: Constant Head + Head Dep Bounds + To Other Zones
	Stored Water Extraction	Zone Budget: Wells
	Groundwater Loss to Stream	WEL input file
	Groundwater Loss to Lake	Zone Budget: Stream Leakage
	Subsurface Outflow	Lake Budget: Groundwater Inflow
	Groundwater Export	Zone Budget: Wells
	Stored Water Export	Zone Budget: Wells
	Total Outflow	Zone Budget: Storage In - Storage Out
STORAGE CHANGE	Change in Groundwater Storage	Groundwater Budget: Beginning Storage - Ending Storage
	Groundwater System Mass Balance Error	



ADDRESSING DEFICIENCY #1

- CVHM2-SJB produces consistent basin-wide water budgets that address the water budget deficiency outlined in DWR determination letter.
- CVHM (and consequently CVHM2-SJB) is a DWR-approved model to use under SGMA according to DWR Water Budget BMP.
 - Enhanced subregion resolution within Delta-Mendota using refined datasets
 - Model time frame (1961 to 2019)
 - 1.0 square mile grid spatial resolution



WATER BUDGET TIMELINES

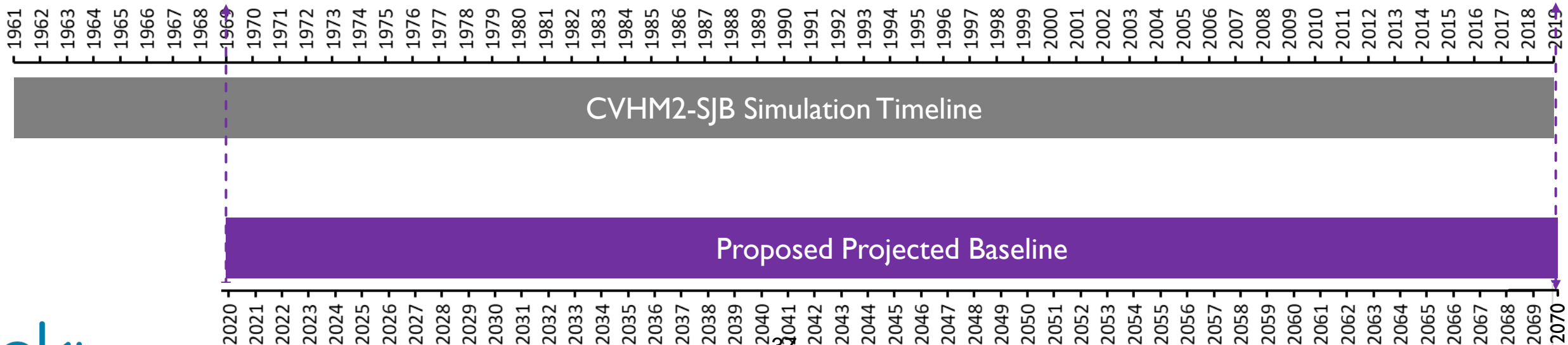
- Historical: WY 2003-2018
- Current: WY 2019
- Future: WY 2020-2070

2022 GSP Current

2022 GSP
Historical Baseline

Proposed Historical Baseline

Proposed Current



HISTORICAL GW WATER BUDGET (WY 2003-2018)

Average annual rates in AFY

Aquifer	Inflow to Basin (+)			Outflow from Basin (-)				GW Storage Change
	Recharge	Net Subsurface Inflow	GW Gain from Stream	GW Extraction	Net Drain	Net Subsurface Outflow	GW ET	
Upper Aquifer	398,180	-	5,418	-270,855	-60,520	-26,007	-74,159	-24,577
Lower Aquifer	2,863	147,750	5,493	-218,794	-	-	-	-58,416
							TOTAL	-82,993

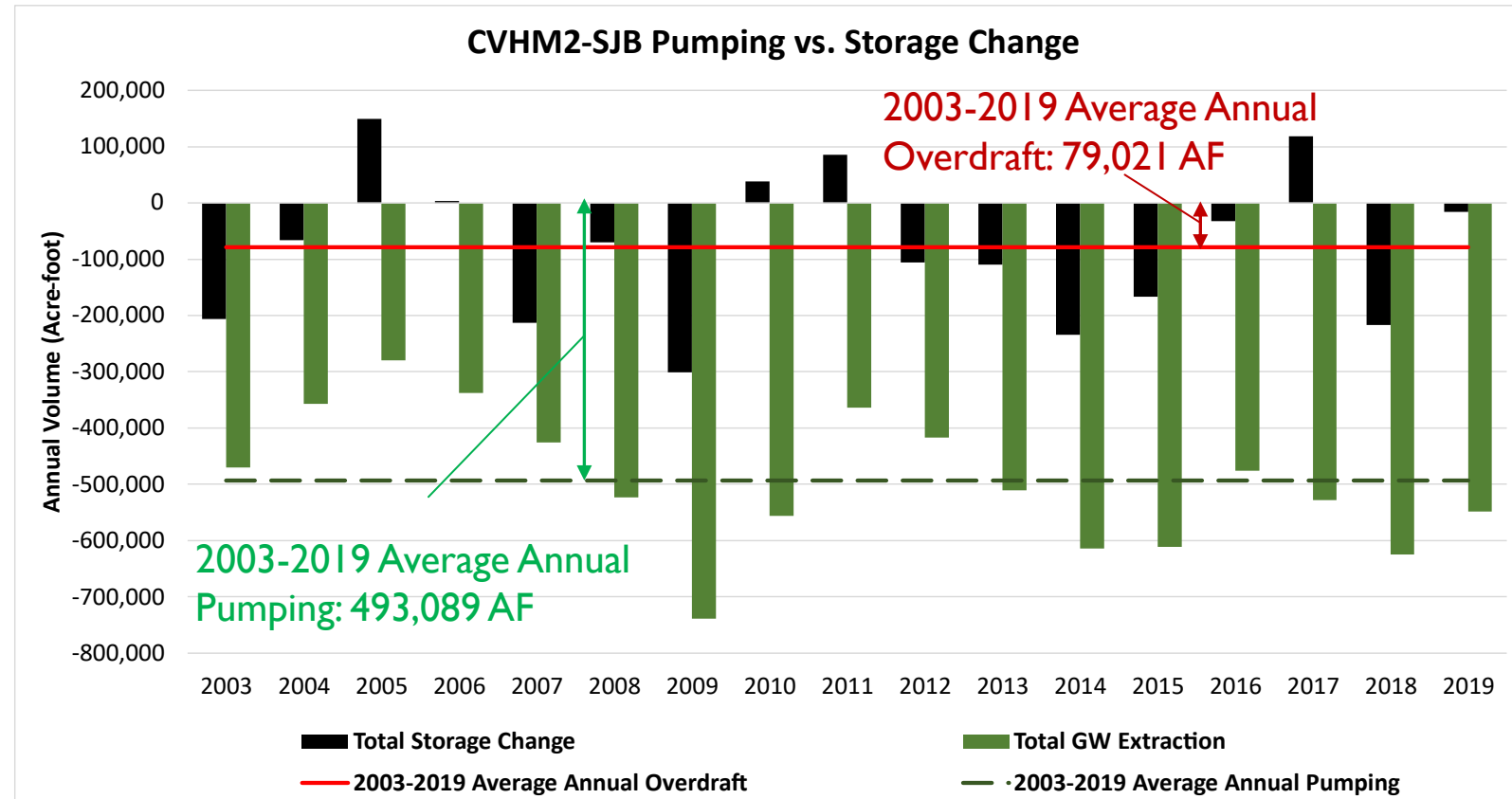
CURRENT WATER BUDGET (WY 2019)

Average annual rates in AFY

Aquifer	Inflow to Basin (+)			Outflow from Basin (-)				GW Storage Change
	Recharge	Net Subsurface Inflow	GW Gain from Stream	GW Extraction	Net Drain	Net Subsurface Outflow	GW ET	
Upper Aquifer	443,095	-	128,277	-306,975	-70,288	-67,480	-77,901	51,225
Lower Aquifer	2,884	158,193	8,944	-241,162	-	-	-	-66,688
							TOTAL	-15,463

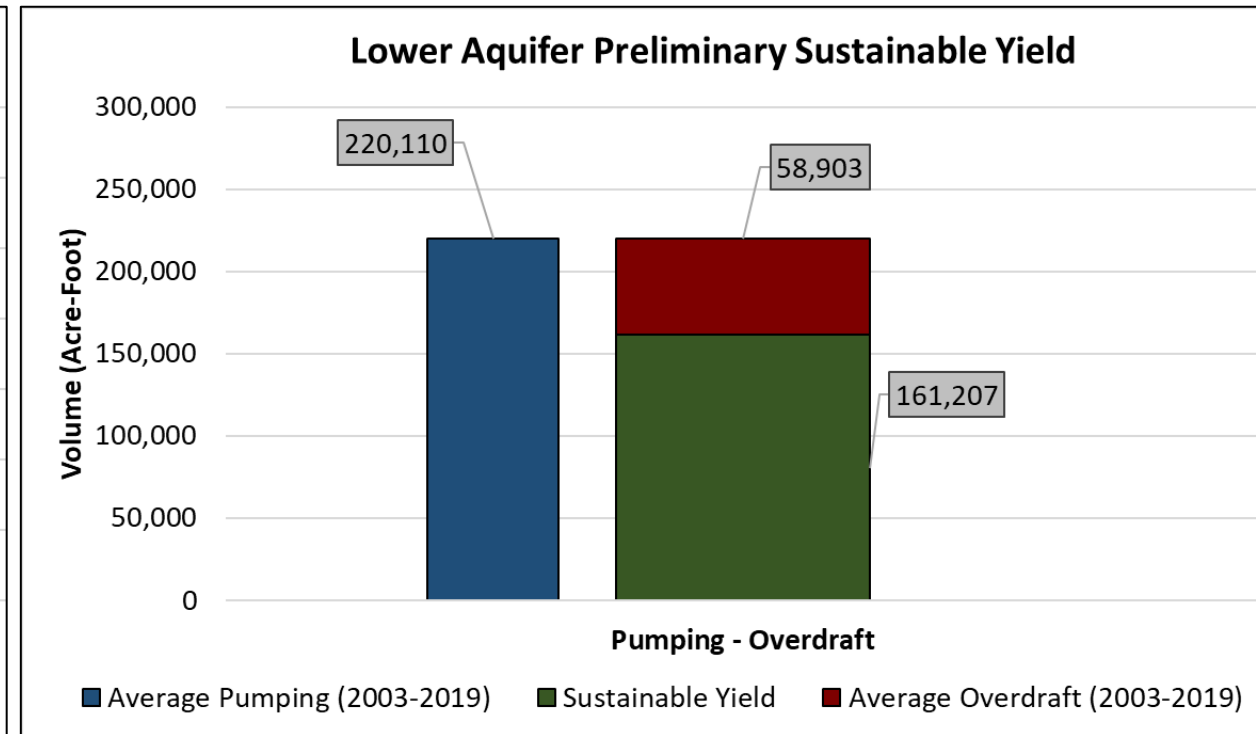
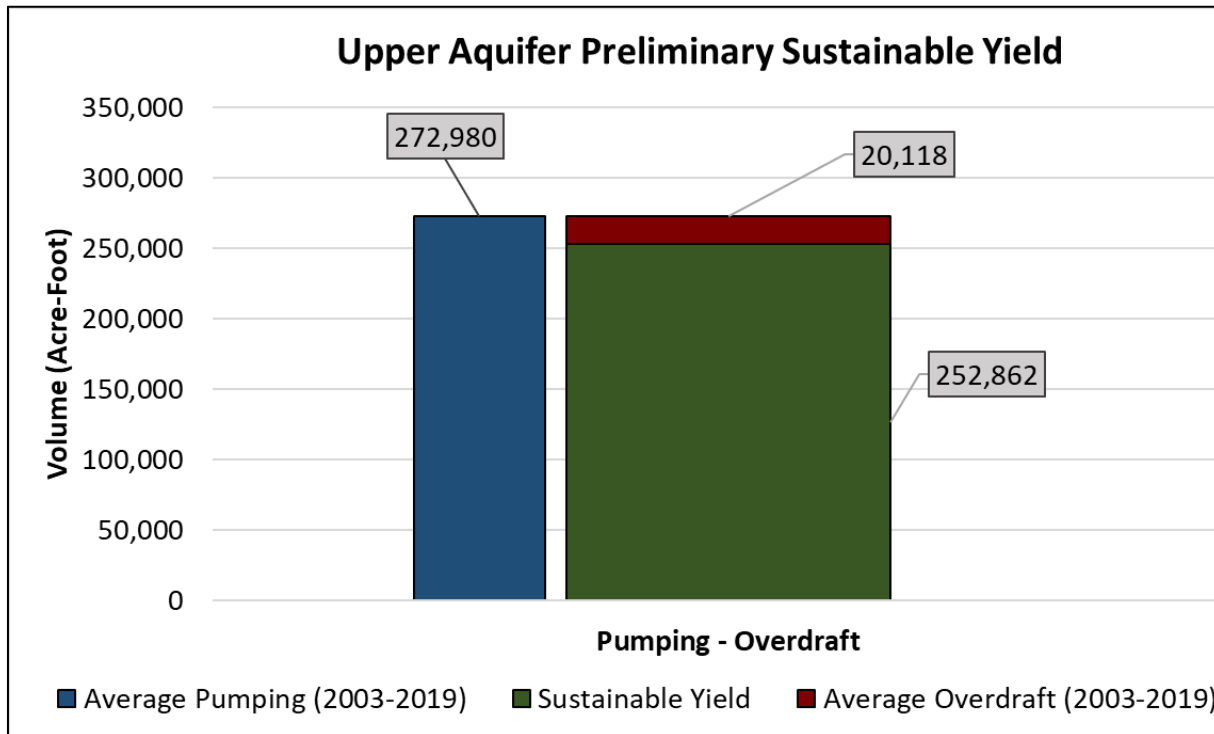
STORAGE CHANGE AND OVERDRAFT

- The average overdraft over WY 2003-2019 is 79,021 AFY.
- Average pumping over the same period is ~493,089 AFY.
- Reducing pumping to cease overdraft (assuming no other actions are taken) would require a ~16% reduction in total pumping.



PRELIMINARY ESTIMATION OF SUSTAINABLE YIELD (BASED ON CONDITIONS OBSERVED 2003-2019)

- Upper aquifer: ~253,000 AFY
- Lower Aquifer: ~161,000 AFY



PRELIMINARY CLIMATE CHANGE SCENARIOS

- Climate projections based on DWR's guidance – 2030 central tendency and 2070 central tendency
- Precipitation and ET data are updated by multiplying projected baseline values by the climate change factors (CC2030 and CC2070)
- Projected unimpaired and managed streamflow, as well as surface water deliveries, will be implemented using DWR change factors and CALSIM-II simulations for CC2030 and CC2070 in CVHM2-SJB.
- A selected set of P/MAs, including demand management MAs and Tier I supply augmentation, will be incorporated in the model to estimate sustainable yield and assess set SMCs.

PROJECTED GW WATER BUDGETS (WY 2020-2070)

Average annual rates in AFY

Period	Inflow to Basin (+)			Outflow from Basin (-)				GW Storage Change
	Recharge	Net Subsurface Inflow	GW Gain from Stream	GW Extraction	Net Drain	Net Subsurface Outflow	GW ET	
Upper Aquifer								
Projected	304,140	-	25,128	-250,942	-35,706	-16,771	-47,951	-18,707
CC-2030	313,814	-	27,739	-260,701	-36,580	-18,203	-48,505	-18,830
CC-2070	330,158	-	31,855	-277,713	-38,100	-20,578	-49,134	-19,672
Lower Aquifer								
Projected	2,557	146,306	6,285	-196,219	-	-	-	-33,767
CC-2030	2,674	151,907	6,383	-206,162	-	-	-	-38,023
CC-2070	2,885	159,752	6,568	-223,915	-	-	-	-44,994

Increase in ET & Subsurface Outflow
 Increase in Recharge and Stream Gain

Increase in Pumping But Minimal Loss of Additional Storage

Increase in ET
 Increase in Subsurface Inflow

Increase in Pumping & Additional Loss of Storage



GW Storage Change annual rates from CVHM2-SJB include changes due to subsidence.

ADDRESS DEFICIENCIES #2 & #3

SMC #1:

Chronic Lowering of Groundwater Levels

DWR DEFICIENCIES FOR GROUNDWATER LEVELS

Deficiency #2: “The GSPs have not established common definitions of undesirable results in the Subbasin”

- **No new supporting information** is provided within the Common Chapter or within the revised GSPs to justify the new groundwater management approach. (i.e., the coordinated Undesirable Results definitions)
- **No justification for setting a 50 percent threshold** for groundwater levels or water quality is provided, details regarding modifying wells and pumps are absent from the resubmitted material, ... (i.e., part of revised significant and unreasonable definition)
- ... **lack of specific, quantitative details**, or a more defined and transparent decision-making process for establishing definitions of sustainability

Deficiency #3: “The GSPs in the Subbasin have not set sustainable management criteria in accordance with the GSP regulations”

- The Plan does not indicate when these historic low groundwater levels were observed.
- **No analysis was provided explaining or justifying why 50 percent was chosen** as the threshold or **what impacts would occur** to the Subbasin’s pumping wells or the beneficial uses and users of groundwater if that threshold is approached or exceeded.
- There is no discussion in the Plan related to continued overdraft or subsidence, migration of contamination plums, degradation of water quality, or depletions of interconnected surface water if groundwater levels approach or exceed to new minimum thresholds, especially for those wells located near the San Joaquin River.
- The revised Plan does not provide an explanation **how the GSAs have determined that managing the Subbasin to near historical low groundwater elevations would avoid undesirable results** for the other applicable sustainability indicators.
- It is unclear if the minimum thresholds have been selected to avoid undesirable results.

PROCESS REQUIRED TO JUSTIFY SMCs

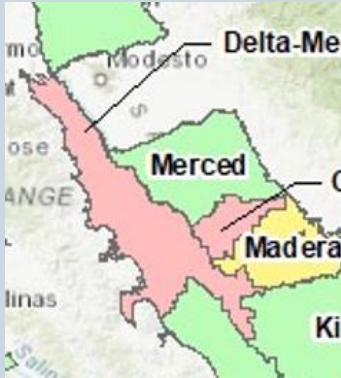
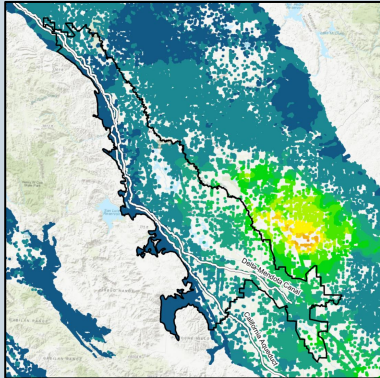
Undesirable Results (URs) (CCR §354.26)

- Identify beneficial uses/users that are impacted by URs
- Describe the causes and effects of URs
- Describe what constitutes "significant and unreasonable" effects
- Define quantitative criteria relating URs to MT exceedances

Minimum Thresholds (MTs) (CCR § 354.28)

- Describe information and criteria used to establish and justify the MTs
- Describe relationship between MTs for each SI, and how URs are avoided
- Describe how MTs avoid impacts to adjacent basins
- Describe how MTs may affect beneficial uses/users, land uses and property interests
- Discuss related state, federal or local standards

WATER LEVEL SMC DEVELOPMENT PROCESS

ID Beneficial Users	Impacts to Beneficial Users	Consideration of Adjacent Basins	Relationships with Other Sustainability Indicators	State, Federal, and Local Standards
<ul style="list-style-type: none"> • Holders of overlying GW rights (ag users, domestic well owners) • Municipal Well Operators • Environmental Users of GW (GDEs, managed wetlands) 	<ul style="list-style-type: none"> • Well impacts analysis to assess vulnerability of well dewatering • Analysis of GDE health (using PULSE data)* <p>* Recognize that managed wetlands are also supported by surface water</p>	<ul style="list-style-type: none"> • Compare MOs/MTs to those in adjacent basins to assess potential impacts to GW gradients 	<ul style="list-style-type: none"> • GW Storage • Subsidence • Interconnected Surface Water • Water Quality 	<ul style="list-style-type: none"> • Not applicable for water levels

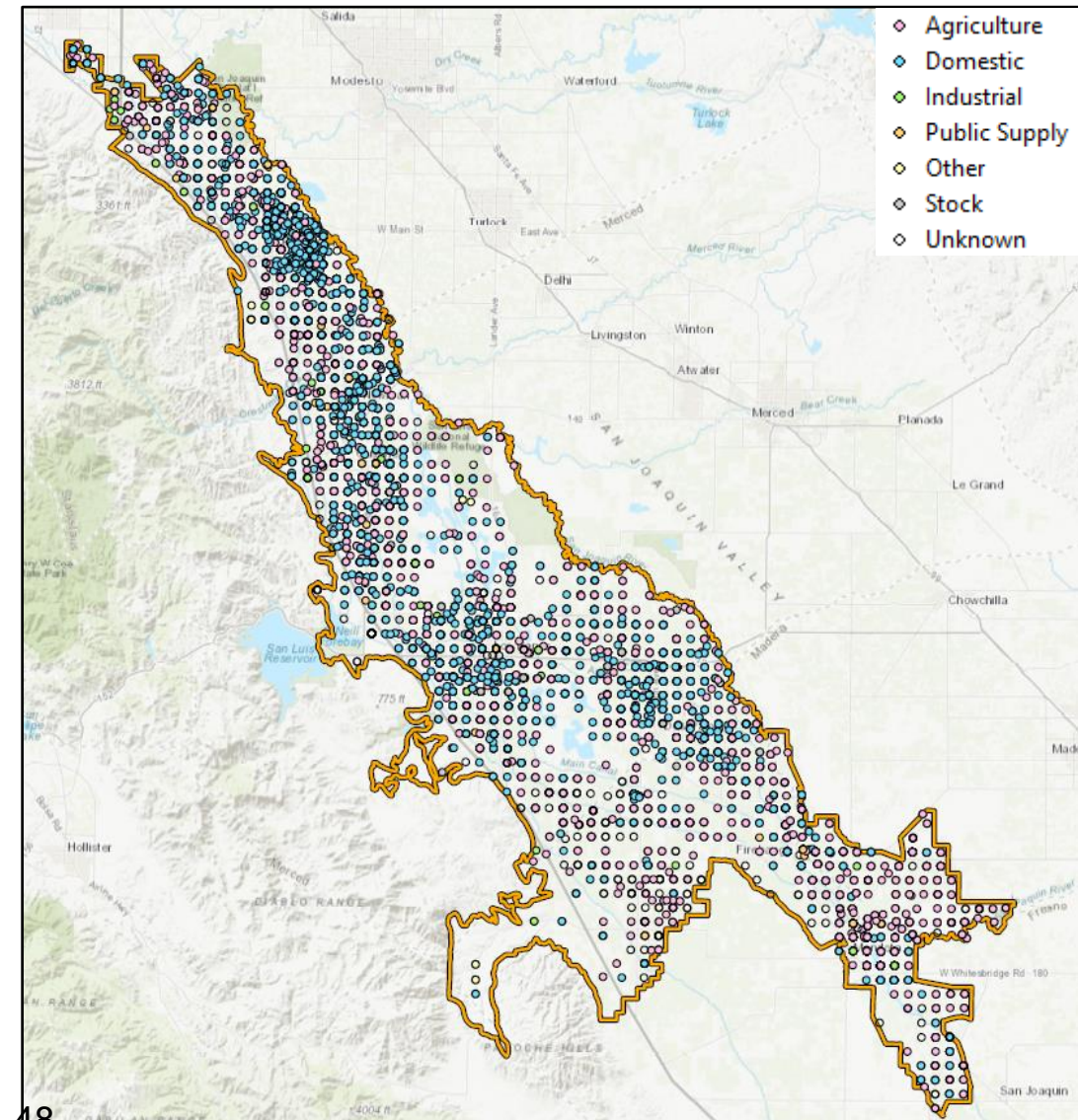
BENEFICIAL USERS: GROUNDWATER PUMPERS

Well Count by Type*:

- Agricultural: 1,729
- Domestic: 2,470
- Public Supply: 87
- Industrial: 71
- Other: 1,172

Total: 5,529 wells

* Excludes cathodic, test, injection, remediation, and monitoring wells



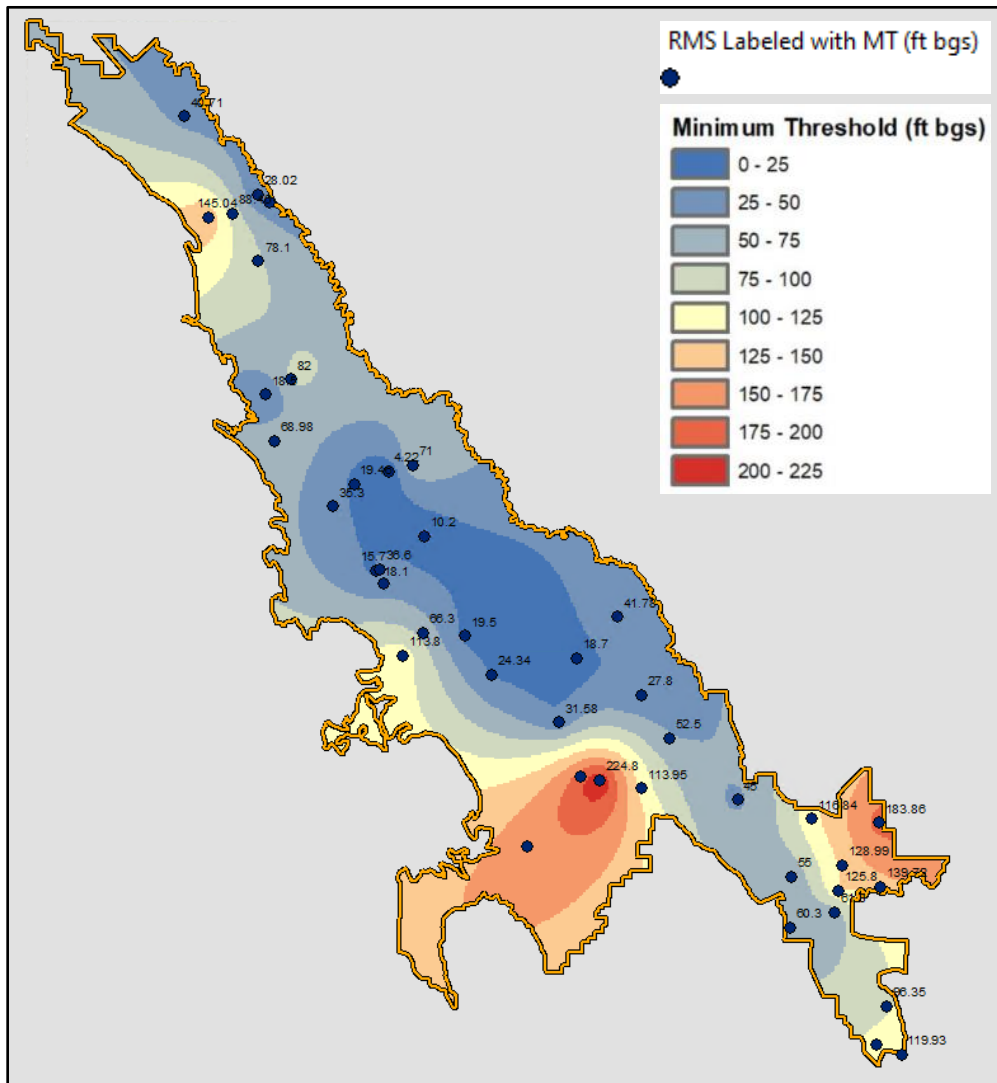
IDENTIFICATION OF NEGATIVE EFFECTS OF SUSTAINABILITY INDICATORS ON BENEFICIAL USERS

Sustainability Indicator	Beneficial Uses/Users				
	Agricultural/ Industrial Users	Domestic / Small Community Users	Municipal Users	Environmental Users	Critical Surface Infrastructure
Chronic Lowering of Groundwater Levels	Well dewatering* BUT also effects on ag economy if SMCs too strict	Well dewatering*	Well dewatering*	Dewatering of root zones for phreatophyte plant communities (GDEs)	Indirect: lowering of groundwater levels below historical lows can lead to land subsidence

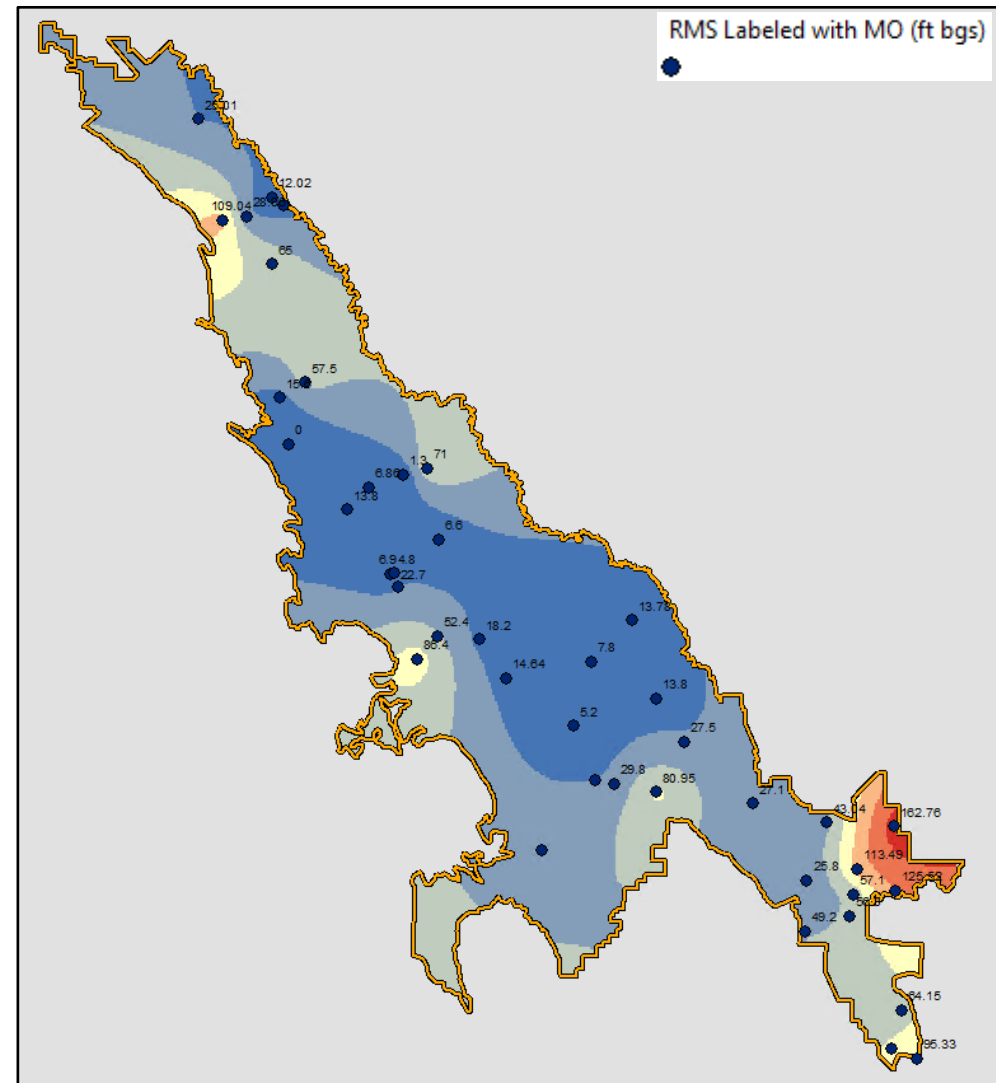
PROPOSED WATER LEVEL URs AND MTs/MOs

- **Undesirable Results:** UR occurs if MTs are exceeded at 25% or more of RMS for two consecutive years.
- **Minimum Thresholds:** Set at historic low groundwater level (prior to end of WY 2016 [i.e., up through Sept 2016])
- **Measurable Objectives:** Set at seasonal high water levels from WY 2015 (i.e., Spring 2015)
- **Interim Milestones:** Glide path between MTs and MOs based on future modeling and planned P/MA implementation

RMS AND SMC CONTOURS – UPPER AQUIFER

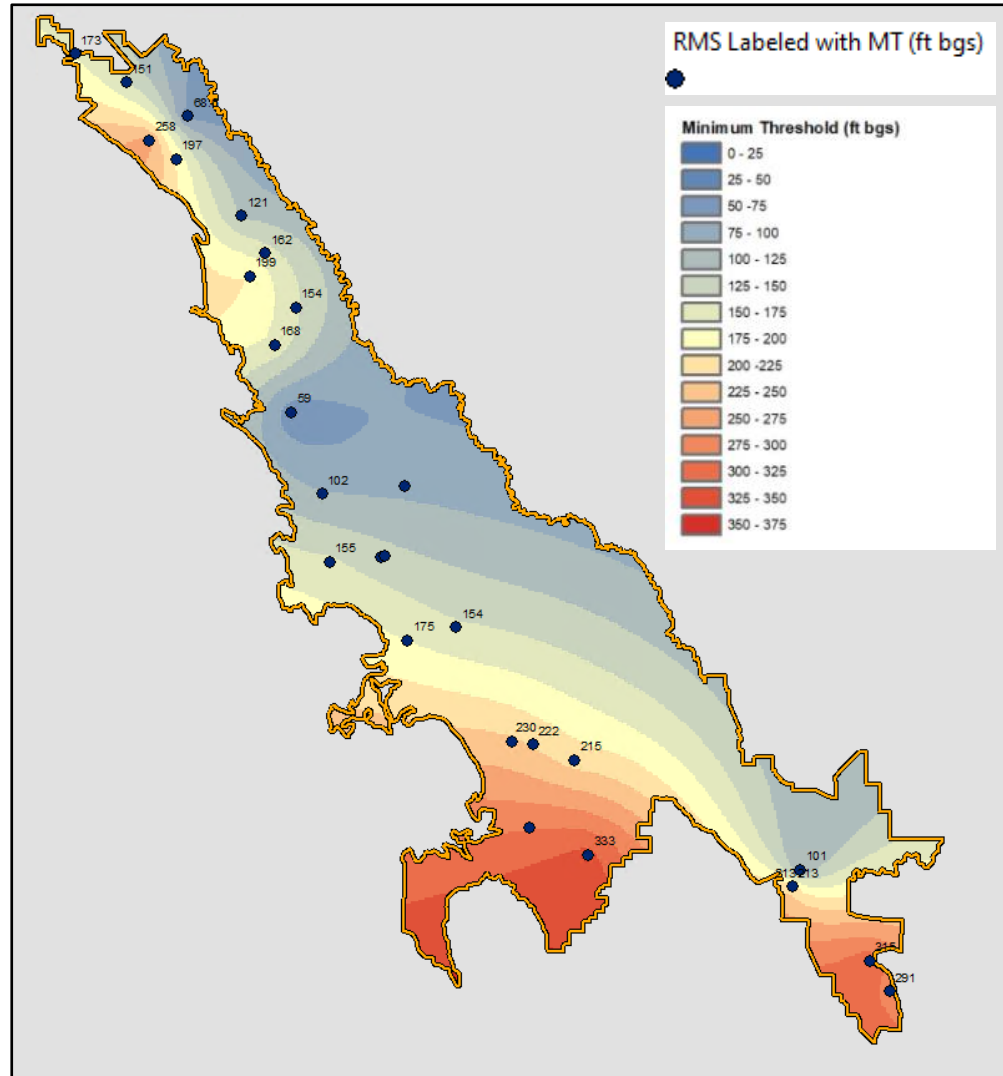


MT Contours – Upper Aquifer

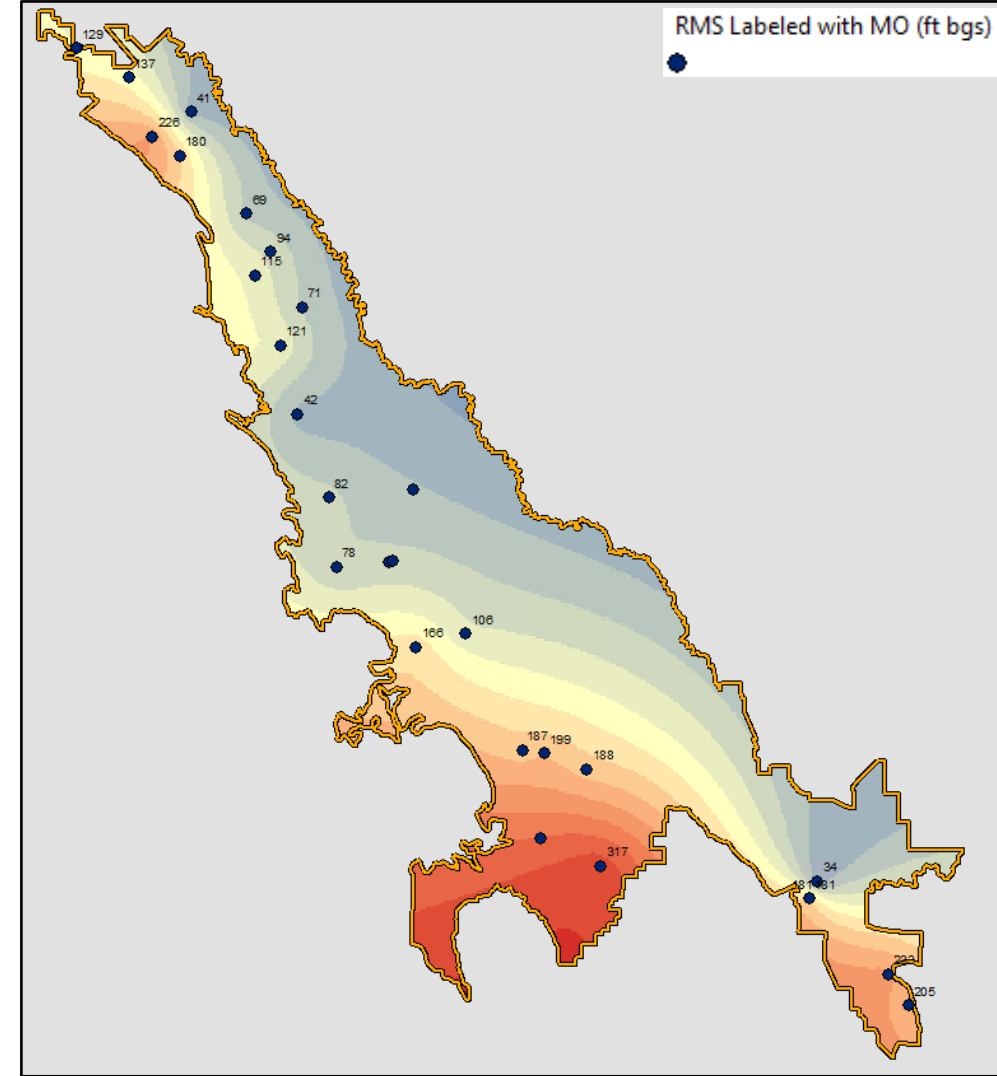


MO Contours – Upper Aquifer

RMS AND SMC CONTOURS – LOWER AQUIFER



MT Contours – Lower Aquifer

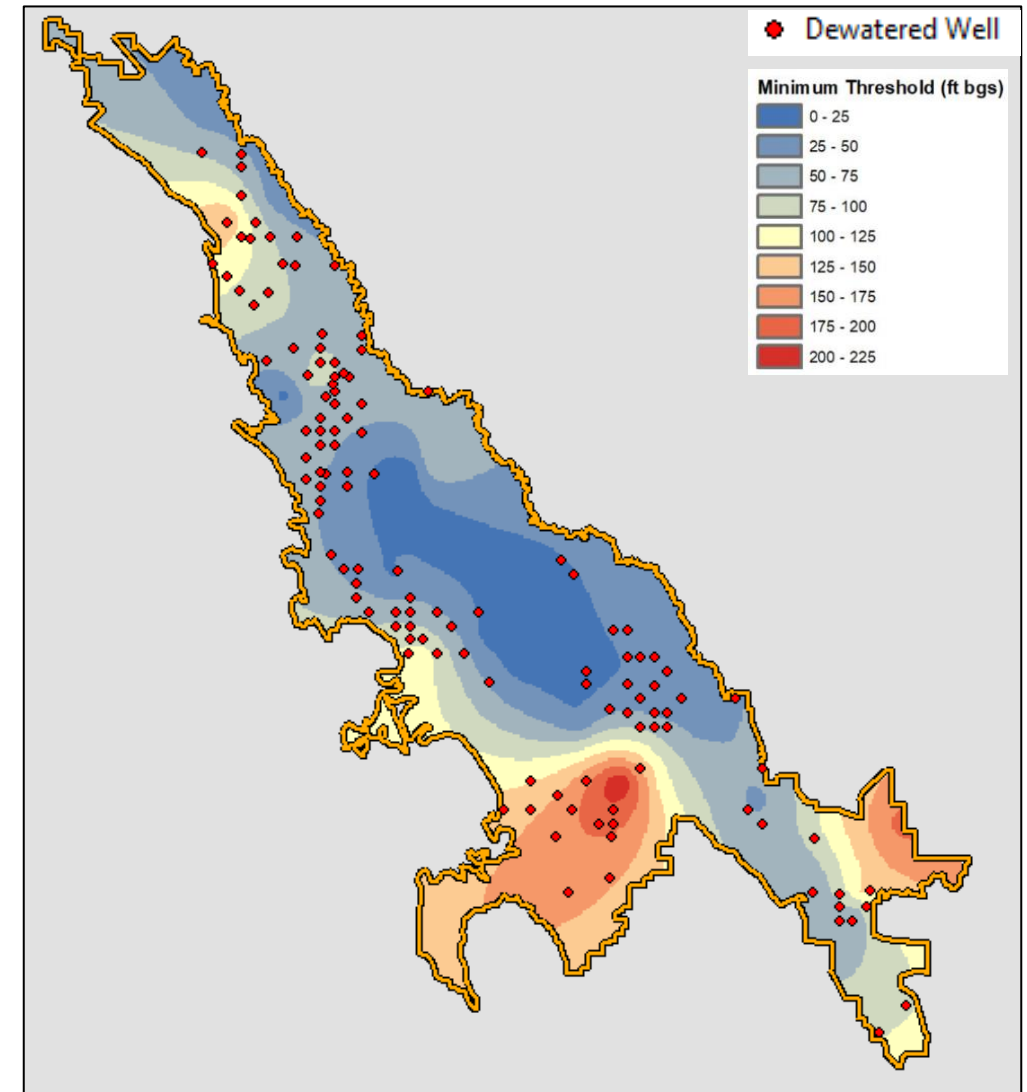


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MO Contours – Lower Aquifer

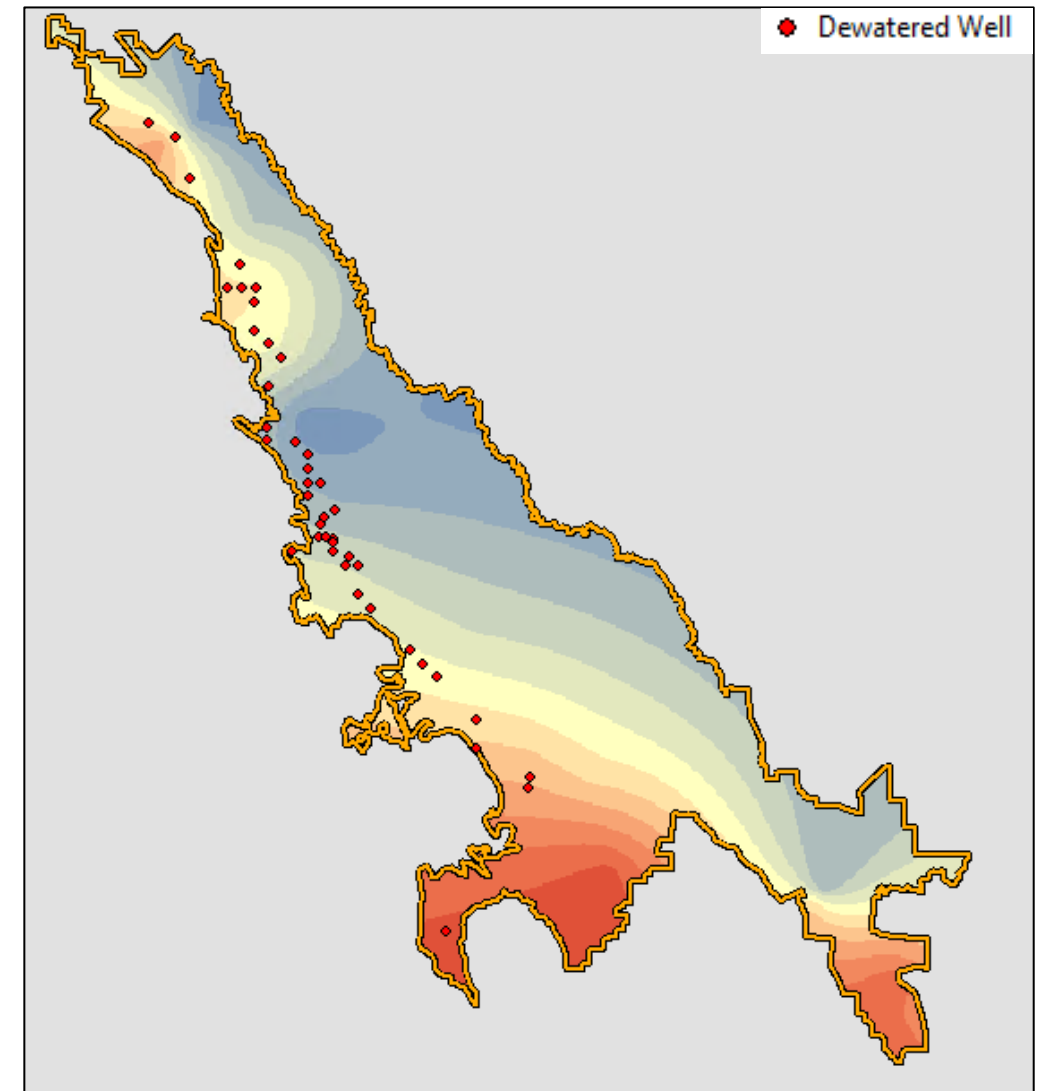
WELL IMPACTS ANALYSIS AT SMCs – UPPER AQUIFER

- 1.5% of wells dewatered at MOs
 - 46 out of 3,051 total wells
 - 31 out of 1,739 domestic wells (1.8%)
- 5.4% of wells dewatered at MTs
 - 165 out of 3,051 total wells
 - 128 out of 1,739 domestic wells (7.4%)

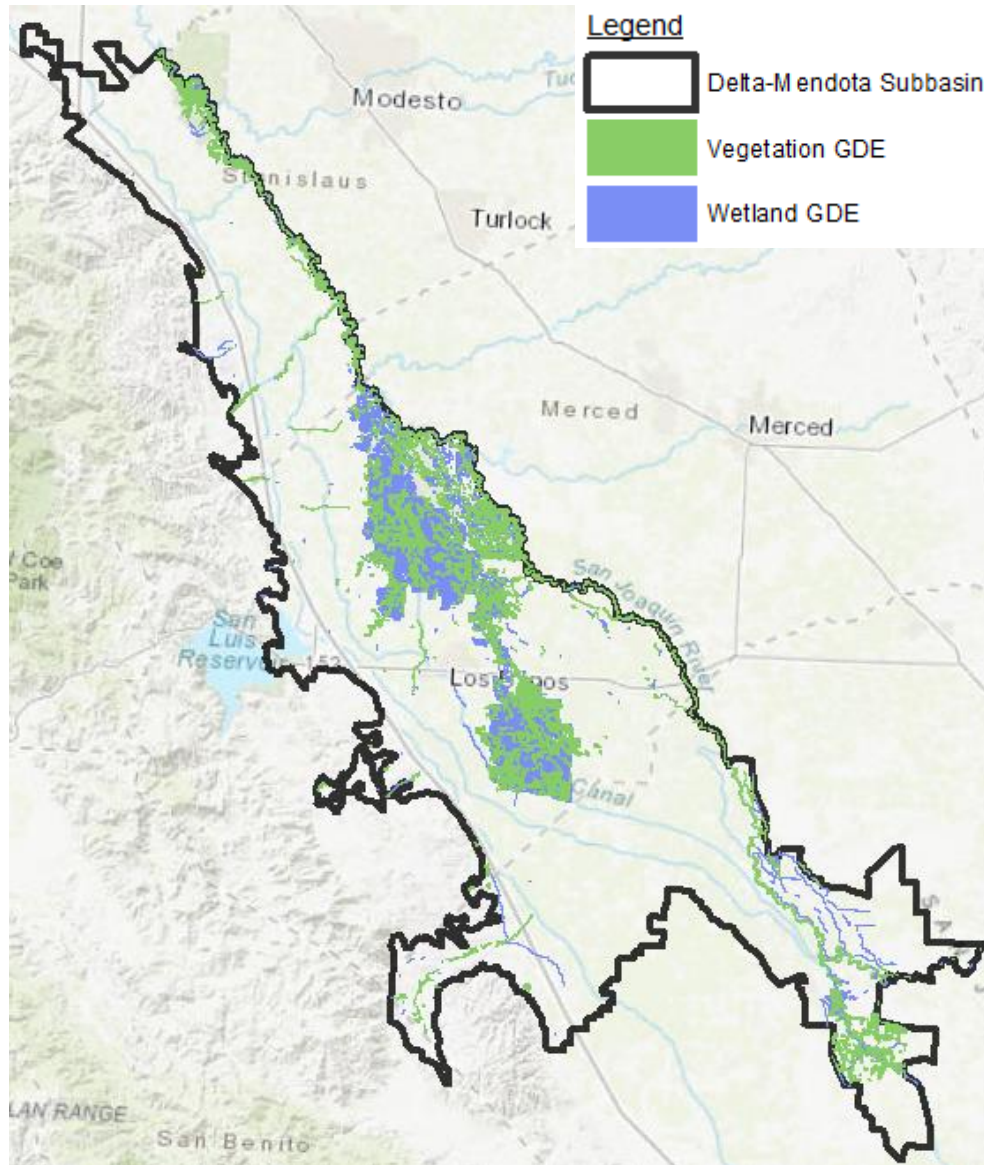


WELL IMPACTS ANALYSIS AT SMCs – LOWER AQUIFER

- 0.6% of wells dewatered at MOs
 - 15 out of 2,386 wells
 - 9 out of 683 domestic wells (1.3%)
- 2.4% of wells dewatered at MTs
 - 57 out of 2,386 total wells
 - 32 out of 683 domestic wells (4.7%)



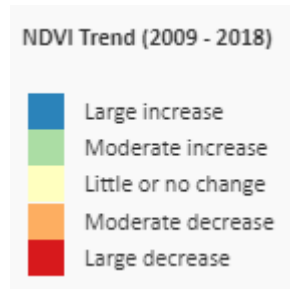
BENEFICIAL USERS: GDEs AND MANAGED WETLANDS



- Total of 74,376 acres of combined vegetation and wetland GDEs
- GDEs are located in the following GSP Groups:
 - Grasslands (81%)
 - Northern & Central D-M (7%)
 - Fresno County MA (6%)
 - SJREC (6%)
 - Aliso WD (<1%)
 - Farmers WD (<1%)

GDE IMPACTS ANALYSIS

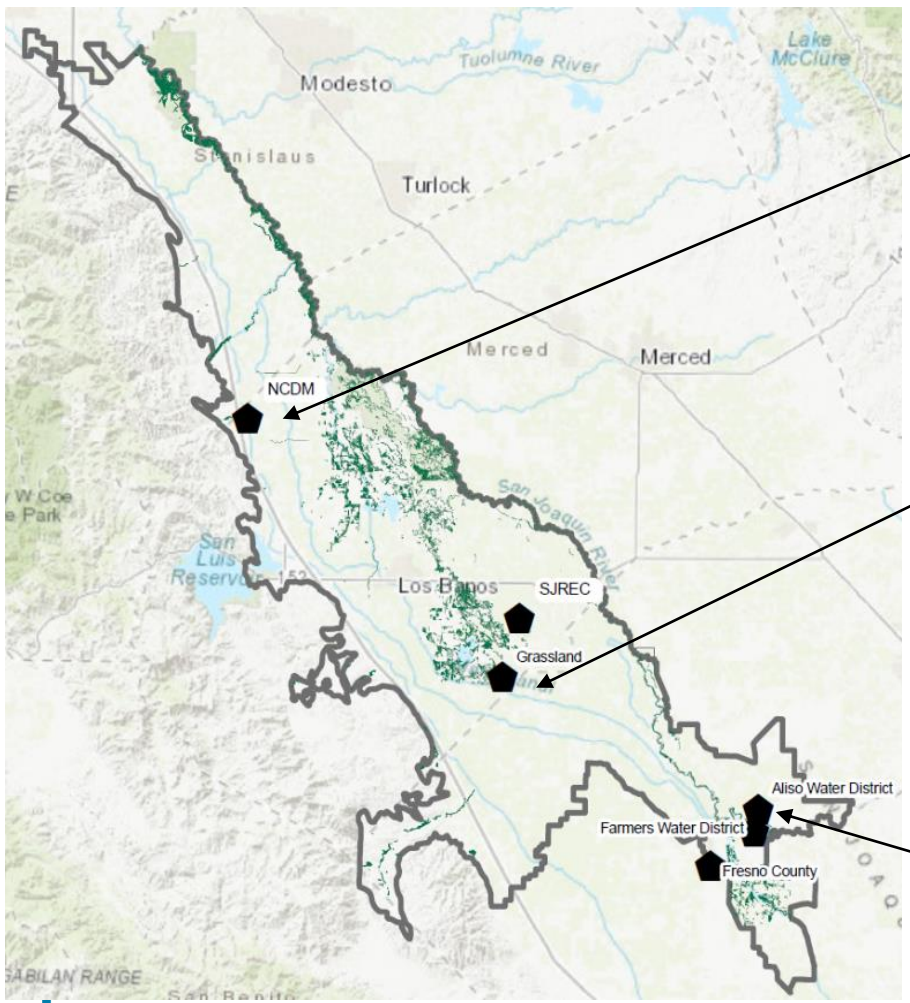
- Examined trends in vegetative health (NDVI and NDMI) between 2009-2018 from The Nature Conservancy GDE Pulse tool
- Within the combined potential GDEs area, summed the total cells by each GSP group that had increases or decreases based on the GDE Pulse color scale
- Increasing GDE health over the 10-year period



GSP Group	Change in GDE area NDVI trends from 2009-2018
Grasslands	39%
Northern & Central D-M	44%
Fresno County MA	18%
SJREC	29%
Aliso WD	88%
Farmers WD	78%
Area weighted average	37%

Results may change upon receipt and processing of data from 2018-2022

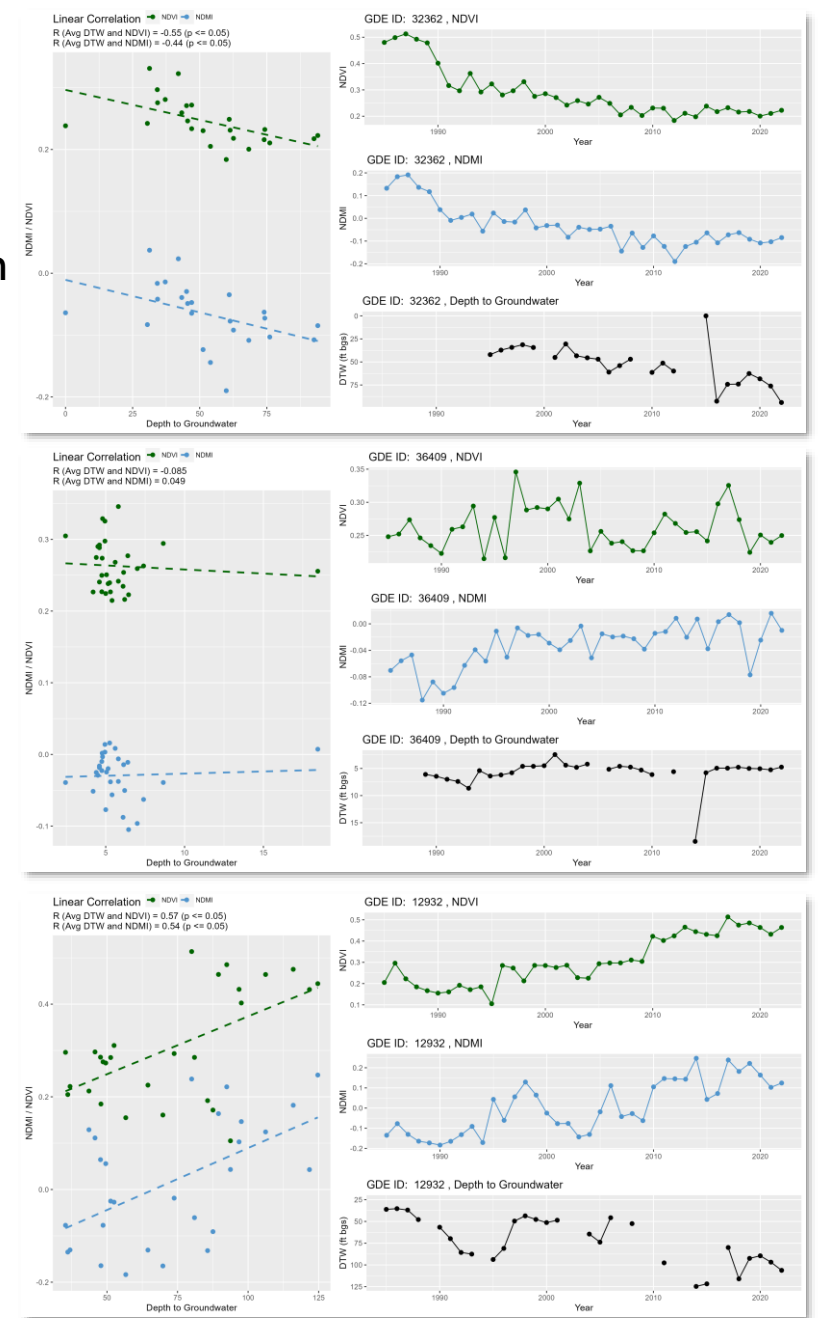
VEGETATIVE GDE HEALTH AND NEARBY RMS WATER LEVELS



Decreasing GDE health with decreasing water levels

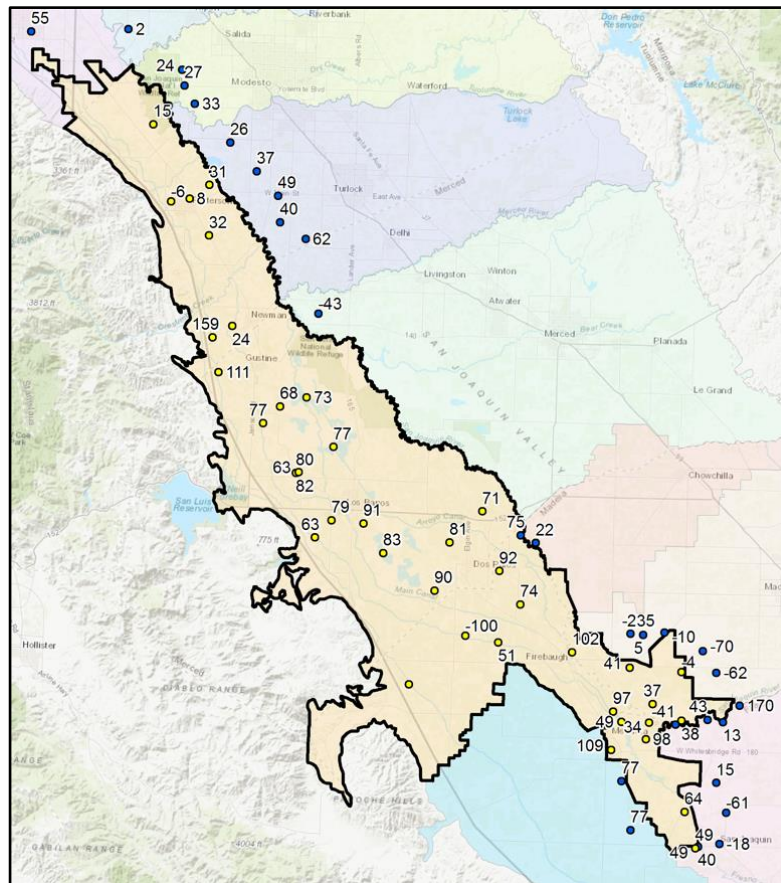
Relatively stable GDE health and water levels

Increasing GDE health with decreasing water levels

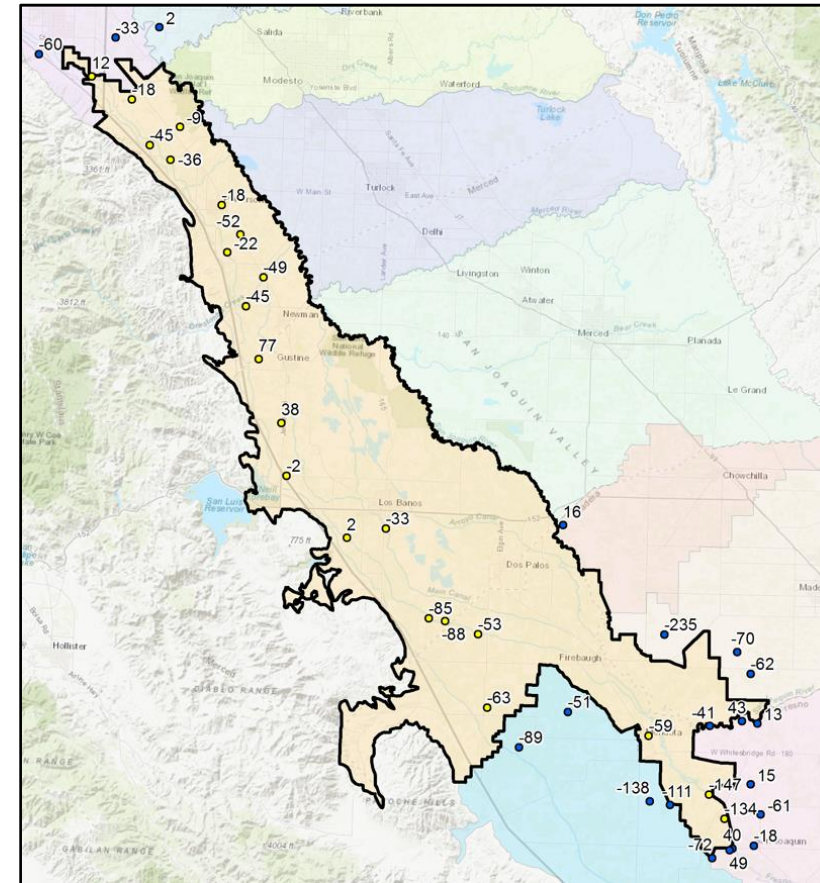


IMPACTS TO ADJACENT BASINS

- Groundwater level MTs set at 2016 historical lows in the D-M basin are generally as high or higher than those set in adjacent basins



Upper Aquifer*



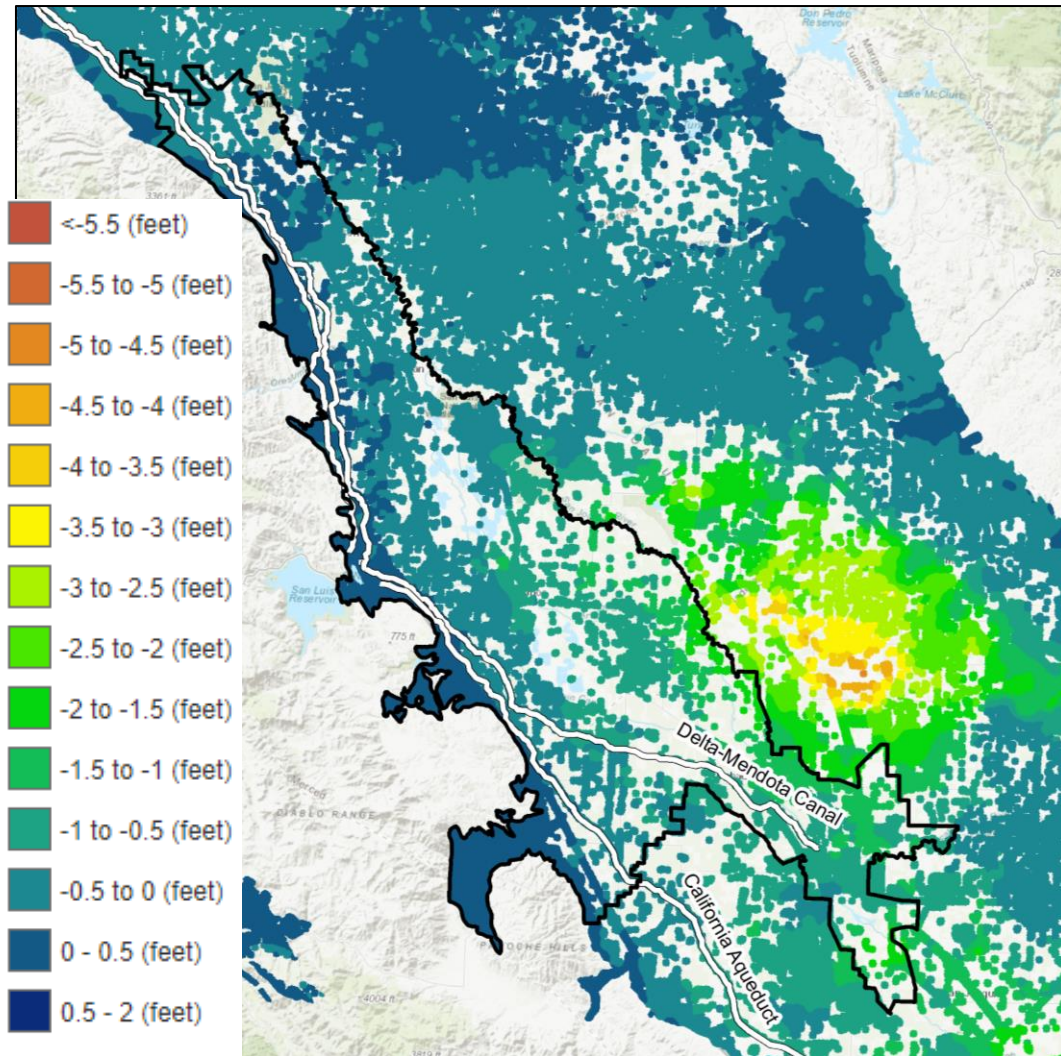
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Lower Aquifer*

** MTs for RMS wells in adjacent basins are not fully differentiated between aquifers in these maps due to incomplete available information. Results may change upon further information/analysis.*

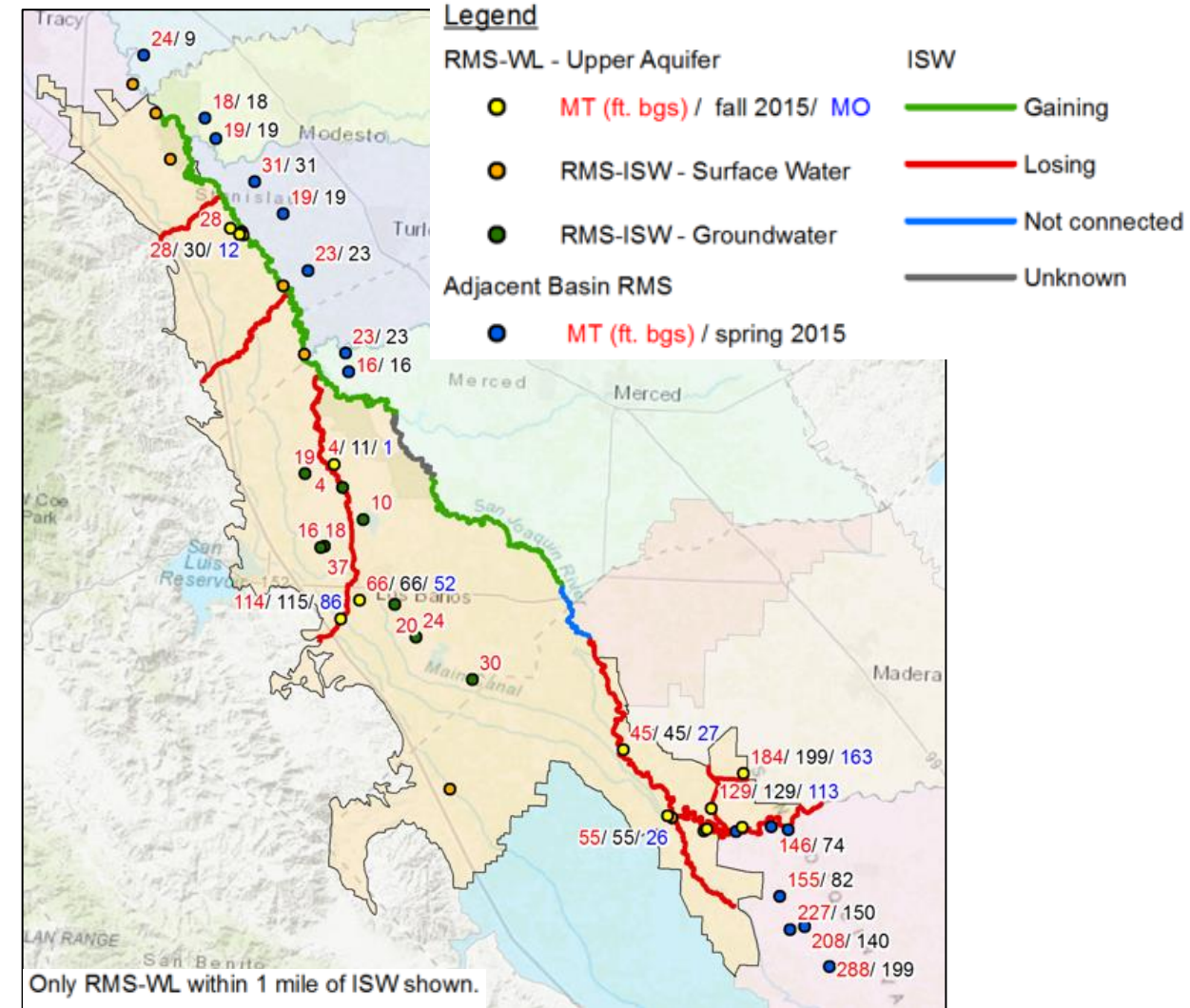
RELATED SUSTAINABILITY INDICATORS

Ground Subsidence June 2015 – June 2022



TRE Altamira InSAR

Interconnected Surface Water



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ASSESSMENT OF RELATED SUSTAINABILITY INDICATORS

- **GW Storage:** Do GW level MTs allow for adequate flexibility for operation of the basin during drought periods? **YES**
- **Subsidence:** Do GW level MTs prevent GW levels from exceeding historical lows, thus theoretically preventing new subsidence? **YES**
- **Interconnected Surface Water:** Do GW level MTs prevent GW levels from exceeding historical lows prior to 2015, thus avoiding new undesirable results for the ISW indicator? **YES**
- **Water Quality:** Do GW level MTs prevent GW levels from exceeding historical lows, thus theoretically preventing new water quality degradation related to groundwater extractions? **YES**

UR DEFINITION & JUSTIFICATION

UR Criteria	UR Justification
<p>MT exceedances at 25% of RMS for two consecutive years (four seasonal measurements)</p>	<p>Groundwater Pumpers</p> <ul style="list-style-type: none"> • Even if MTs were exceeded in ALL RMS, less than 10% of domestic wells would be impacted; fewer wells would be impacted at the UR criterion of 25% of RMS. • A percentage much lower than 25% suggests a primarily local impact, whereas much larger percentage suggests a widespread impact inconsistent with the Sustainability Goal. • Impacts are not significant and unreasonable because, based on current age of wells, approximately 19% of domestic wells (and 25% of all wells) are more than 40 years old and would likely have to be replaced anyway before 2040. • Domestic well mitigation program. <p>Groundwater Dependent Ecosystems</p> <ul style="list-style-type: none"> • Based on NDVI trends between 2009 and 2018, the average change in GDE health by area increased by approximately 37%, which represents the historical range of GDE health fluctuation and response to climatic and managed conditions. • A UR criterion of 25% of RMS falls within the range of GDE health by area fluctuations observed between 2009-2018 (37%).

MT/MO JUSTIFICATIONS

Impacts to Beneficial Users	Impacts to Adjacent Basins	Impacts to Other Sustainability Indicators
<ul style="list-style-type: none"> • Less than 10% of wells will be impacted, which is lower than the anticipated natural replacement rate given current well ages - Offset with well mitigation program. • The average change in GDE health by area between 2009-2018, which represents a historical range of GDE health fluctuation and response to climatic and managed conditions, increased by 37%. 	<p>Groundwater level MTs set at 2016 historical lows in the D-M basin are generally as high or higher than those set in adjacent basins.</p>	<ul style="list-style-type: none"> • Impacts no worse than recent historic lows, SGMA baseline. • Sufficient GW storage to meet several years of drought. • MTs limited to no lower than historic lows theoretically prevents additional subsidence* and groundwater quality degradation due to groundwater extraction. <p><i>* Delayed subsidence from historic lows may still occur for years</i></p>

ADDRESS DEFICIENCIES #2 & #3

SMC #2:

Reduction of Groundwater Storage

DWR DETERMINATION: REDUCTION OF GROUNDWATER STORAGE SMC DEFICIENCIES

Deficiency #2: “The GSPs have not established common definitions of undesirable results in the Subbasin”

- (they) “do not explain what are now considered to be significant and unreasonable conditions. For example, ... **what is considered insufficient water storage is not quantified.**”

Deficiency #3: “The GSPs in the Subbasin have not set sustainable management criteria in accordance with the GSP regulations”

- “The Lower Aquifer is now using the (SMC) established for land subsidence... **The use of land subsidence as a proxy for groundwater storage is not consistent with the GSP regulations.**”
- “there still **does not appear to be a straightforward quantification of overdraft** in the Subbasin and no discussion of **how the overdraft will be mitigated.**”
- “There also does not appear to be a discussion regarding **how the loss of storage and groundwater elevation declines will affect the drinking water wells** in the Subbasin...”

PROPOSED REDUCTION OF GROUNDWATER STORAGE SMCs

■ Undesirable Results:

- Define significant and unreasonable impacts to beneficial users as:
 - Insufficient storage to maintain beneficial uses, including a 5-year drought buffer
 - More than a 15% decrease in the volume of usable groundwater in storage relative to WY 2019 baseline

■ Minimum Thresholds/ Interim Milestones / Measurable Objectives:

- Use groundwater level SMCs as a proxy; no separate MTs/IMs/MOs

PROPOSED APPROACH TO JUSTIFICATION OF REDUCTION OF GW STORAGE SMCs

- Use groundwater levels as a proxy for storage by demonstrating that MTs set for groundwater levels would be protective against Undesirable Results for groundwater storage
 - Calculate the difference in storage between 2015 (pre-SGMA) groundwater levels and MT groundwater levels; do the same for 2019 groundwater levels (“current”)
 - Apply model to calculate the total volume of storage between 2015/2019 groundwater levels and the bottom of the respective aquifers
 - Calculate the % change in storage from 2015/2019 levels to groundwater level MTs
 - Assess whether at MTs we can argue that groundwater level SMCs are protective against URs for groundwater storage
- Assess remaining storage below groundwater level MTs is equivalent to more than 5 years of average annual GW extractions (~490,000 AFY), showing that available storage above SMCs provides a buffer against dry years

CHANGE IN STORAGE AT WATER LEVEL MTs RELATIVE TO 2015 WATER LEVELS

Upper Aquifer:

- Volume of Storage in 2015: 9,457,447 AF
- Volume of Storage at MTs: 9,233,026 AF
- Potential reduction in Storage at MTs: **2.4%**
- ~34 years of storage available to support GW pumping

Lower Aquifer:

- Volume of Storage in 2015: 6,295,537 AF
- Volume of Storage at MTs: 6,066,680 AF
- Potential reduction in Storage at MTs: **3.6%**
- ~28 years of storage available to support GW pumping

Notes:

1. Upper aquifer GW pumping estimated from CVHM2-SJB – 270,855 AFY
2. Lower aquifer GW pumping estimated from CVHM2-SJB – 218,794 AFY
3. CVHM2-SJB upper aquifer assumed to be model layer 1 – 8 68
4. CVHM2-SJB lower aquifer assumed to be model layer 9 – 13

CHANGE IN STORAGE AT WATER LEVEL MTs RELATIVE TO “CURRENT” (2019) WATER LEVELS

Upper Aquifer:

- Volume of Storage in 2019: 10,325,028 AF
- Volume of Storage at MTs: 9,233,026 AF
- Potential reduction in Storage at MTs: **10.6%**
- ~34 years of storage available to support GW pumping

Lower Aquifer:

- Volume of Storage in 2019: 6,324,600 AF
- Volume of Storage at MTs: 6,066,680 AF
- Potential reduction in Storage at MTs: **4.1%**
- ~28 years of storage available to support GW pumping

Notes:

1. Upper aquifer GW pumping estimated from CVHM2-SJB – 270,855 AFY
2. Lower aquifer GW pumping estimated from CVHM2-SJB – 218,794 AFY
3. CVHM2-SJB upper aquifer assumed to be model layer 1 – 8 69
4. CVHM2-SJB lower aquifer assumed to be model layer 9 – 13

UR DEFINITION & JUSTIFICATION

UR Criteria	UR Justification
<p>> 15% decrease in volume of useable groundwater storage</p>	<p>Groundwater Pumpers</p> <ul style="list-style-type: none">• The total amount that would be lost in the combined aquifer system going from 2019 levels to groundwater level MTs is only approximately 8%.• A percentage much lower than 15% suggests minimal change in water availability. Impacts are not significant and unreasonable because, multiple decades worth of water remains in storage when water levels are at MTs.• Even if groundwater level MTs were exceeded in ALL RMS, less than 10% of domestic wells would be impacted.• Domestic well mitigation program. <p>Groundwater Dependent Ecosystems</p> <ul style="list-style-type: none">• Based on NDVI trends between 2009 and 2018, the average change in GDE area increased by ~37%, which represents the historical range of GDE health fluctuation.• A UR criterion of 15% of RMS falls within the range of GDE health by area fluctuations observed between 2009-2018 (37%).

MT/MO JUSTIFICATIONS

Impacts to Beneficial Users	Impacts to Adjacent Basins	Impacts to Other Sustainability Indicators
<ul style="list-style-type: none"> • Less than 8% of storage would be lost and less than 10% of wells will be impacted, which is lower than the anticipated natural replacement rate given current well ages - Offset with well mitigation program. • The average change in GDE health by area between 2009-2018, which represents a historical range of GDE health fluctuation and response to climatic and managed conditions, increased by 37%. 	<p>Use of groundwater level MTs as proxy means groundwater will not be below 2016 historical lows in the D-M basin. These are generally as high or higher than those set in adjacent basins.</p>	<ul style="list-style-type: none"> • Impacts no worse than recent historic lows, SGMA baseline. • MTs limited to no lower than historic lows theoretically prevents additional subsidence* and groundwater quality degradation due to groundwater extraction. <p><i>* Delayed subsidence from historic lows may still occur for years</i></p>

ADDRESS DEFICIENCIES #2 & #3

SMC #3:

Degraded Water Quality

DWR DEFICIENCIES FOR WATER QUALITY

Deficiency #2: “The GSPs have not established common definitions of undesirable results in the Subbasin”

- **“No new supporting information** is provided within the Common Chapter or within the revised GSPs to justify the new groundwater management approach. (i.e., the coordinated Undesirable Results definitions)”
- **“... lack of specific, quantitative details,** or a more defined and transparent decision-making process for establishing definitions of sustainability”

Deficiency #3: “The GSPs in the Subbasin have not set sustainable management criteria in accordance with the GSP regulations”

- **“No analysis** has been conducted to justify the use of 50 percent [of RMS with MT exceedances] as a threshold”
- **“Minimum thresholds associated with other constituents of concern,** such as boron, nitrate as nitrogen, and unquantified “poor quality groundwater” have been removed from the revised Plan and **no justification** for the removal of these constituents has been provided”




REQUIREMENTS FOR WATER QUALITY SMCs

- The **minimum threshold** for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality ...that may lead to undesirable results [23 CCR § 354.28(c)(4)].
 - based on the number of supply wells, a volume of water or a location of an isocontour that exceeds concentrations of constituents ... of concern for the basin
 - consider local, state and federal water quality standards applicable to the basin
- The **measurable objective** shall be ... quantitative values using the same metrics and monitoring sites as are used to define the (MTs) [23 CCR § 354.30(b)].

PRELIMINARY CONSTITUENTS OF CONCERN

Potential COCs identified for Delta-Mendota Subbasin by SWRCB in letter dated 22 November 2022

- 1,2,3-TCP
- Arsenic
- Boron*
- Gross Alpha radioactivity
- Hexavalent Chromium [Cr(VI)]
- Nitrate (NO₃)
- Total Dissolved Solids (TDS)



State Water Resources Control Board

November 22, 2022

Monica Salais GSP Review Section Manager Sustainable Groundwater Management Office Department of Water Resources Monica.Salais@water.ca.gov	Shane Edmunds GSP Review Section Manager Sustainable Groundwater Management Office Department of Water Resources Shane.Edmunds@water.ca.gov
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GROUNDWATER QUALITY CONSIDERATIONS FOR HIGH AND MEDIUM PRIORITY GROUNDWATER BASINS

The State Water Resources Control Board (State Water Board) staff is providing this letter in support of the Department of Water Resources' (DWR) review pursuant to the Sustainable Groundwater Management Act (SGMA) (Water Code § 10720 et seq.) and the regulations implementing SGMA (SGMA regulations) (Cal Code Regs., tit. 23, § 350 et seq.) of groundwater sustainability plans (GSPs) submitted by groundwater sustainability agencies (GSAs) in high and medium priority groundwater basins subject to SGMA.

This letter is to inform you that, based on an assessment of more than 24 GSPs, State Water Board staff have identified that many of the GSPs do not comprehensively describe or set appropriate sustainable management criteria (SMC) for groundwater quality.

Water Quality Impacts on Groundwater and Requirements for GSAs under SGMA
SGMA is not a remedial statute and does not attempt to resolve all groundwater quality issues but requires that operation of a basin within its sustainable yield, as defined by SGMA, does not cause undesirable results, including water quality degradation. Water Code Section 10727.2 and the SGMA regulations require GSAs to characterize groundwater quality and identify associated undesirable results in the GSPs for their basins. In addition, any projects or management actions adopted by a GSA within their GSP should not cause degradation of water quality that could lead to an undesirable result.

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

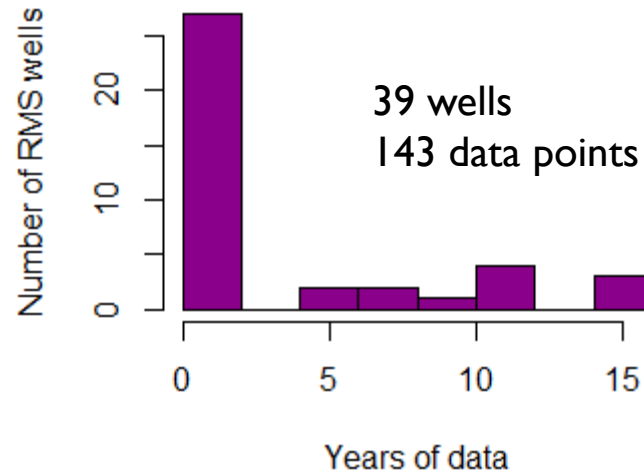
1001 I Street, Sacramento, CA 95814 | Mailing Address: P.O. Box 100, Sacramento, CA 95812-0100 | www.waterboards.ca.gov

DATA SOURCES USED TO ASSESS POTENTIAL COCs

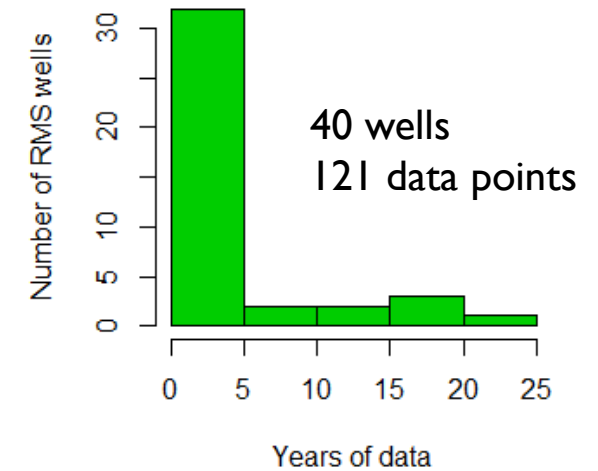
■ Delta-Mendota DMS

- 3 constituents (B, NO₃, and TDS)
- 1,004 data points
- 77 wells
- 40 years

NO₃ data from DMS



B data from DMS



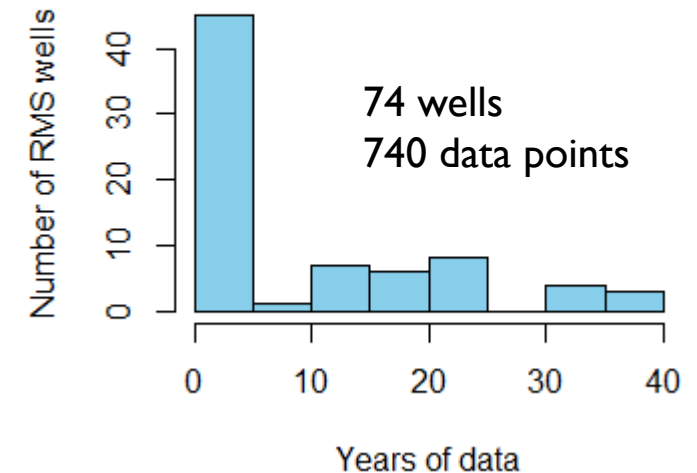
■ GAMA

- All constituents
- ~39,800 data points
- ~ 2,700 wells
- ~ 90 years

■ SWRCB GW Quality Visualization Tool

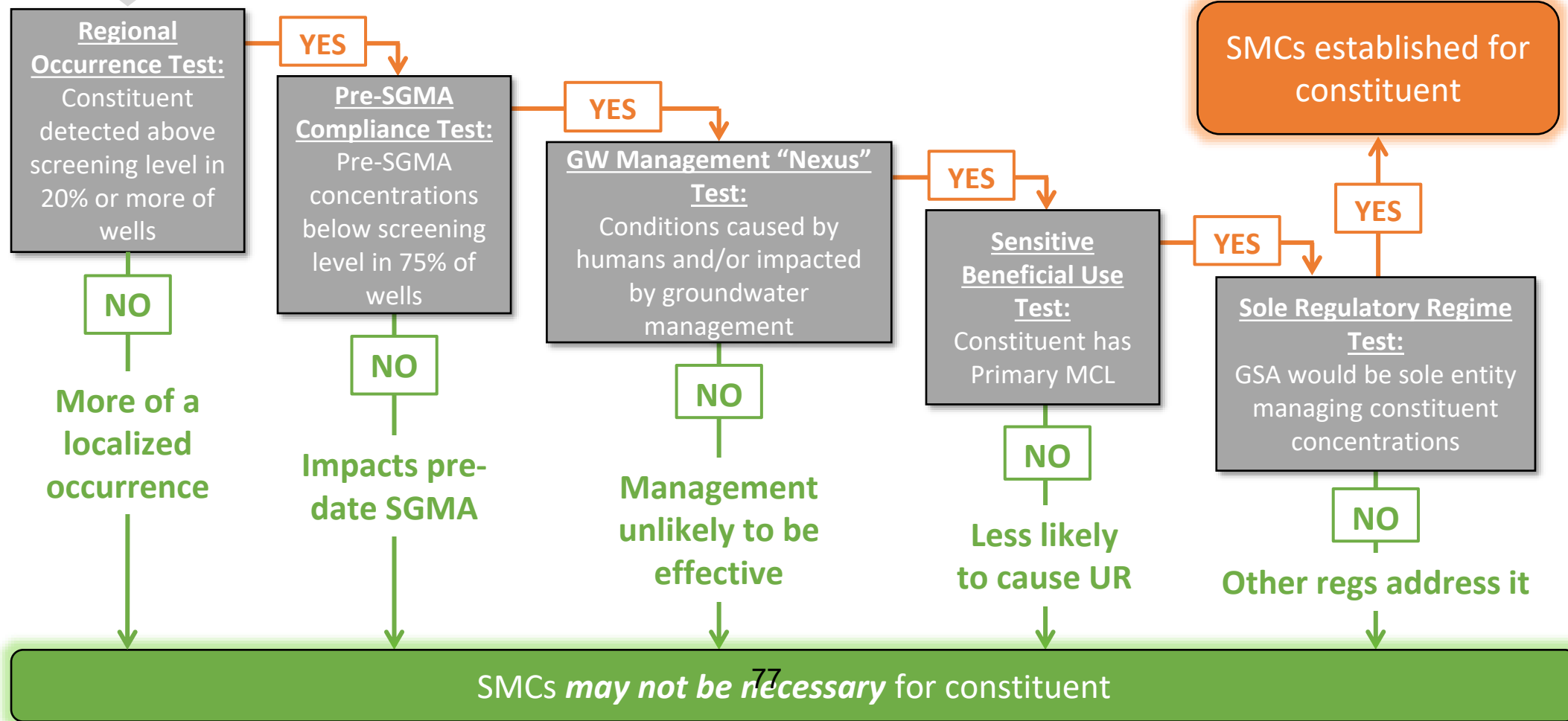
- All constituents except B
- ~19,650 data points
- 1,961 wells
- 82 years

TDS data from DMS



SCREENING PROCESS TO FOCUS ON COCs THAT ARE APPROPRIATE TO ADDRESS VIA SGMA

Constituents with Available Data and a Screening Level for any Beneficial Use

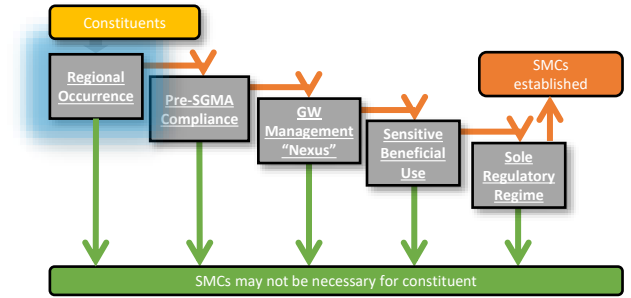


POTENTIAL TESTS TO SCREEN OUT COCs

- **Regional occurrence** – Screening level/MCL exceeded in >20% of GAMA wells in last 10 years of data? [“...effects caused by groundwater conditions occurring throughout the basin” (CWC § 10721(x))]
- **Pre-SGMA compliance** – At least 50% of wells were **in compliance** with screening level/MCL prior to SGMA? [SGMA does not require GSPs to address URs that occurred before, and have not been corrected by, January 1, 2015. (CWC § 10727.2(b)(4))]
- **GW management nexus** – Is it anthropogenic, and/or is there a correlation between groundwater levels and concentrations? *[Department staff recognize that GSAs are not responsible for improving existing degraded water quality conditions. GSAs are required, however, to manage future groundwater extraction to ensure that groundwater use subject to its jurisdiction does not significantly and unreasonably exacerbate existing degraded water quality conditions. ... the analysis should be on whether groundwater extraction is causing the degradation in contrast to only looking at whether a specific project or management activity results in water quality degradation. Department staff recommend that the SVBGSA coordinate with the appropriate water quality regulatory programs and agencies ... to understand and develop a process for determining when groundwater management and extraction is resulting in degraded water quality in the Subbasin (180/400-Ft Aquifer, page 26-27)]*
- **Sensitive beneficial use** – Does it have a primary MCL? [23 CCR § 354.28 directs that “the Agency shall consider local, state, and federal water quality standards applicable to the basin”]
- **Sole regulatory regime** – Would the GSA be the only entity regulating the constituent in groundwater or well water?

REGIONAL OCCURRENCE TEST (GAMA)

Screening Level/MCL exceeded in >20% of GAMA wells 2013 – 2023?



Well Category	% of GAMA Wells Exceeding Screening Level/MCL for Given Constituent						
	Gross Alpha	Arsenic	Boron	Cr (VI)	Nitrate	1,2,3-TCP	TDS
Municipal	4%	18%	44%	47%	12%	15%*	29%
Water Supply, Other	<i>no data</i>	13%	57%	43%	13%	<i>insufficient data</i>	43%
Domestic	<i>no data</i>	0%	44%	0%	22%	<i>insufficient data</i>	53%
Irrigation / Industrial	<i>no data</i>	0%	18%	33%	0%	<i>insufficient data</i>	36%

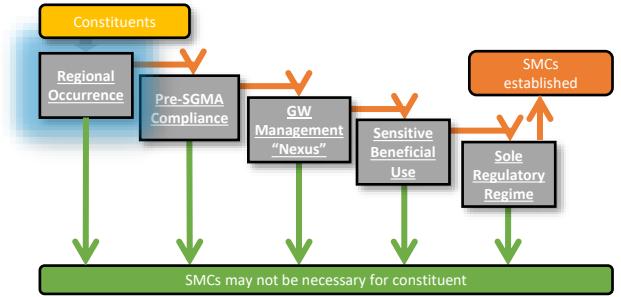
Yes (may need SMC) / No (may not need SMC)

Notes

- * Reporting limits for some 1,2,3-TCP data points are higher than the MCL. In these cases, NDs may or may not have MCL exceedance. GAMA used reporting limit as the reported values.
- "Insufficient data" indicates data quality or quantity not supporting regional occurrence test. For example, reporting limit is greater than MCLs.

REGIONAL OCCURRENCE TEST (SWRCB)

Screening level/MCL exceeded in >20% of SWRCB-reported wells 2013 – 2023?



Well Category	% of SWRCB-Reported Wells Exceeding MCL for Given Constituent						
	Gross Alpha	Arsenic	Boron	Cr (VI)	Nitrate	1,2,3-TCP	TDS
Municipal	4%	18%	no data	31%	12%	5%	29%
Water Supply, Other	--	--	no data	--	--	--	43%
Domestic	--	--	no data	--	22%	--	50%
Irrigation / Industrial	--	--	no data	--	--	--	36%

Yes (may need SMC) / No (may not need SMC)

Notes

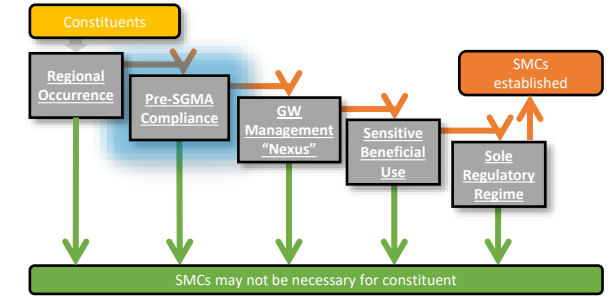
1. Screening levels set at MCLs except for Cr(VI) which uses a HBSL of 20 µg/L.
2. -- indicates either no exceedances or no measurements. SWRCB's SGMA Groundwater Quality Visualization Tool does not distinguish between constituents with no measurements or no exceedances. <https://www.waterboards.ca.gov/sgma/water-quality-visualization-tool.html>
3. Boron not included in SWRCB data set.

ARSENIC, GROSS ALPHA, AND 1,2,3-TCP REMOVED BY REGIONAL OCCURRENCE TEST

Potential COC	Regional Occurrence (% exceedance)	Pre-SGMA Compliance	GW Management Nexus	Sensitive Beneficial Use	Other Regulatory Regime
Arsenic	Muni: 18% Other supply: 3% Domestic: 0%	✘			
Boron	Muni: 44% Other supply: 57% Domestic: 44%	➡			
Cr(VI)	Muni: 47% Other supply: 43% Domestic: 0%	➡			
Gross Alpha	Muni: 4% Other supply: insufficient data Domestic: insufficient data	✘			
Nitrate	Muni: 12% Other supply: 13% Dom: 22%	➡			
TDS	Muni: 29% Other supply: 43% Domestic: 53%	➡			
1,2,3-TCP	Muni: 15% Other supply: insufficient data Domestic: insufficient data	✘			

PRE-SGMA COMPLIANCE TEST (GAMA)

At least 50% of GAMA wells in compliance with screening level/MCL Pre-SGMA?



Well Category	% of GAMA Wells in Compliance with Screening Level/MCL for Given Constituent						
	Gross Alpha	Arsenic	Boron	Cr (VI)	Nitrate	1,2,3-TCP	TDS
Municipal	88%	84%	61%	55%	92%	18%	64%
Water Supply, Other	0%	88%	41%	78%	87%	insufficient data	55%
Domestic	no data	100%	no data	100%	87%	insufficient data	25%
Irrigation / Industrial	no data	86%	no data	33%	86%	insufficient data	57%

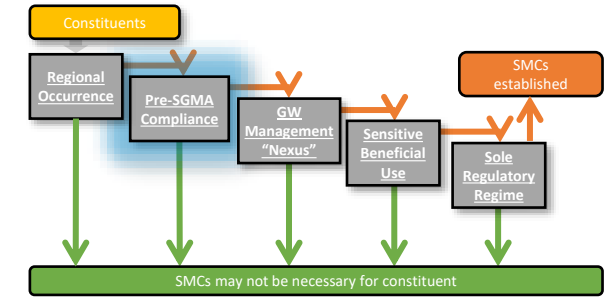
Yes (may need SMC) / No (may not need SMC)

Notes

1. Reporting limits (0.12 ug/L) for some 1,2,3-TCP data points are higher than the MCL. In these cases, NDs may or may not have MCL exceedance.
2. "Insufficient data" indicates data quality or quantity not supporting regional occurrence test. For example, reporting limit is greater than MCLs.
3. Data from 2005-2014 are used for this analysis.

PRE-SGMA COMPLIANCE TEST (SWRCB)

At least 50% of SWCRB-reported wells in compliance with MCL PRE-SGMA?



Well Category	% of SWRCB-Reported Wells in Compliance with MCL for Given Constituent						
	Gross Alpha	Arsenic	Boron	Cr (VI)	Nitrate	1,2,3-TCP	TDS
Municipal	88%	83%	no data	73%	92%	--	64%
Water Supply, Other	no data	88%	no data	78%	87%	--	55%
Domestic	--	--	no data	--	--	--	--
Irrigation / Industrial	no data	no data	no data	no data	no data	no data	no data

Yes (may need SMC) / No (may not need SMC)

Notes

1. Screening levels set at MCLs except Cr(VI) which uses a HBSL of 20 µg/L.
2. Data from 2005-2014 are used for this analysis.
3. -- indicates either no exceedances or no measurements. SWRCB's SGMA Groundwater Quality Visualization Tool does not distinguish between constituents with no measurements or no exceedances. <https://www.waterboards.ca.gov/sgma/water-quality-visualization-tool.html>
4. 35 domestic wells sampled with no detected exceedances. Constituents tested for are not specified.
5. No irrigation/industrial or monitoring wells measured.
6. Boron is not included in SWRCB data set.

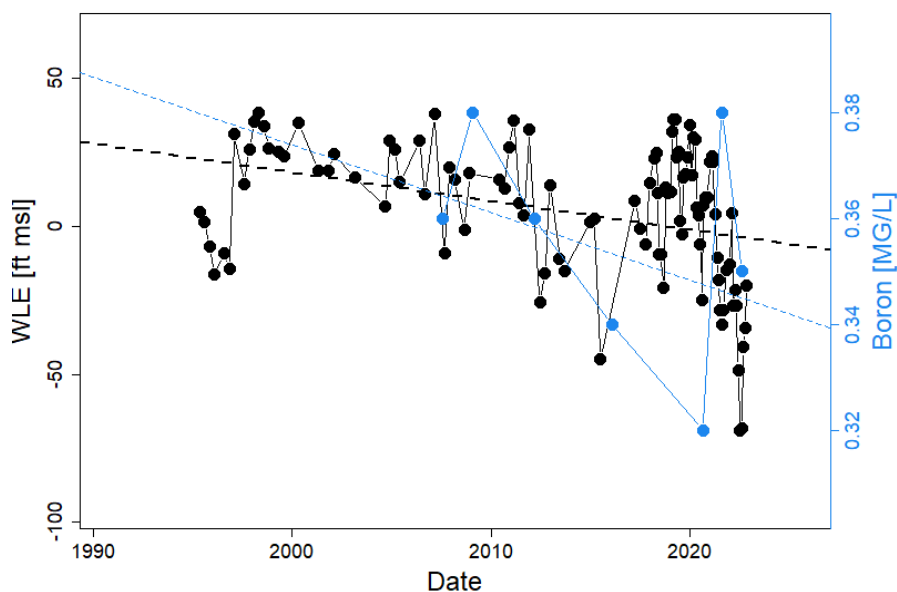
COCs REMAINING AFTER PRE-SGMA COMPLIANCE TEST

Potential COC	Regional Occurrence (% exceedance)	Pre-SGMA Compliance	GW Management Nexus	Sensitive Beneficial Use	Other Regulatory Regime
Arsenic	Muni: 18% Other supply: 3% Domestic: 0%	✗ Muni: 84% Other supply: 88% Domestic: 100%			
Boron	Muni: 44% Other supply: 57% Domestic: 44%	➡ Muni: 61% Other supply: 41% Domestic: no data	➡		
Cr(VI)	Muni: 47% Other supply: 43% Domestic: 0%	➡ Muni: 55% Other supply: 78% Domestic: 100%	➡		
Gross Alpha	Muni: 4% Other supply: insufficient data Domestic: insufficient data	✗ Muni: 88% Other supply: 0% Domestic: no data			
Nitrate	Muni: 12% Other supply: 13% Dom: 22%	➡ Muni: 92% Other supply: 87% Dom: 87%	➡		
TDS	Muni: 29% Other supply: 43% Domestic: 53%	➡ Muni: 64% Other supply: 55% Domestic: 25%	➡		
1,2,3-TCP	Muni: 15% Other supply: insufficient data Domestic: insufficient data	✗ Muni: 18% Other supply: insuff. data Domestic: insuff. data			

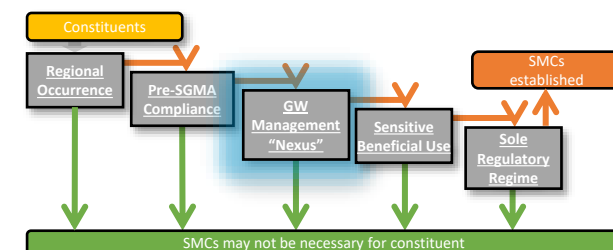
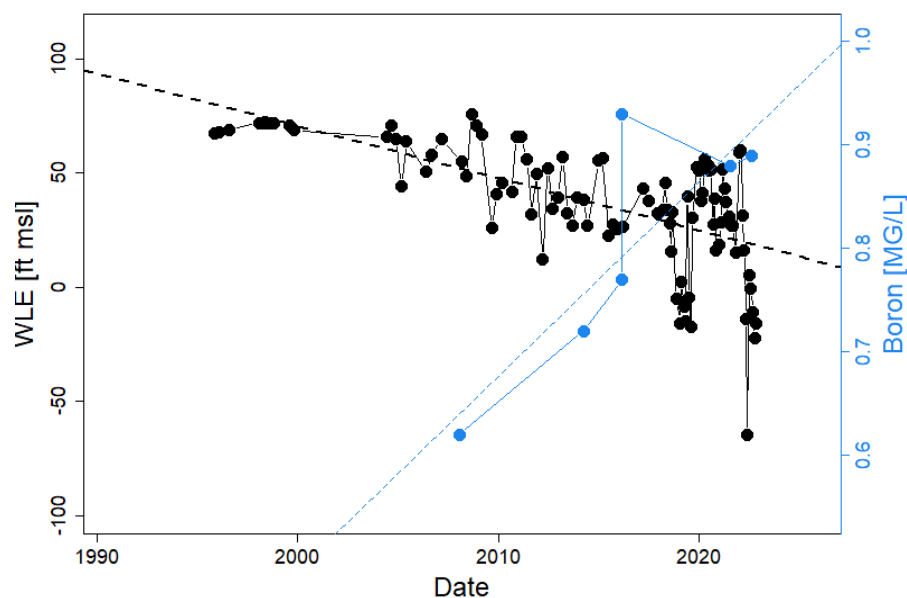
GW MANAGEMENT NEXUS TEST: BORON

- Boron primarily from Coast Range marine shale and hydrothermal fluids.
- Where DMS data are available, correlation between Water Level (WL) and Water Quality (WQ) trends not statistically significant or clear result of groundwater recharge or extraction

NCDM 01-008 Boron

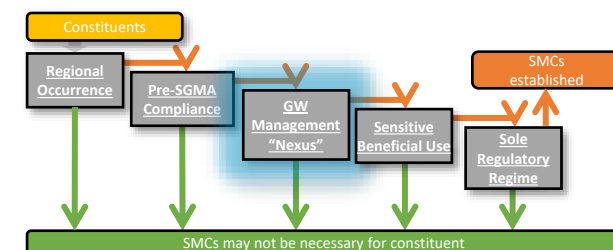


NCDM 01-007 Boron



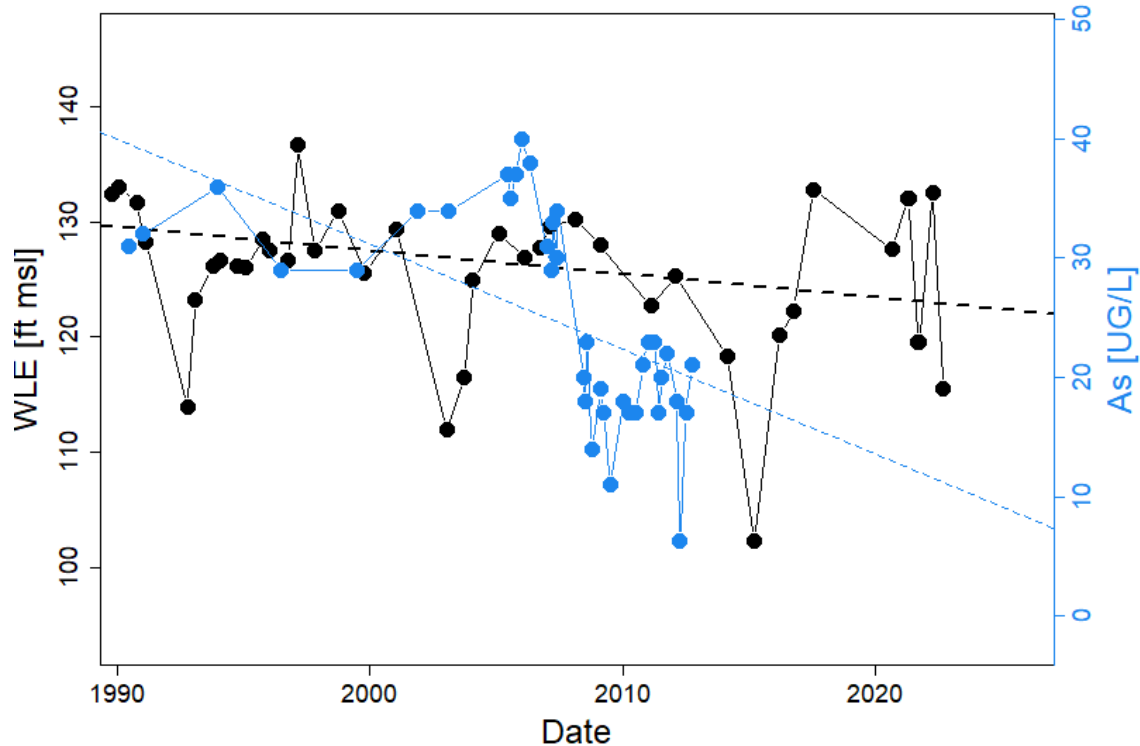
GW MANAGEMENT NEXUS TEST: CHROMIUM AND ARSENIC

- Chromium and Arsenic primarily related to sediment source and redox conditions.
- GAMA wells show few significant trends which do not appear spatially correlated with RMS water levels.

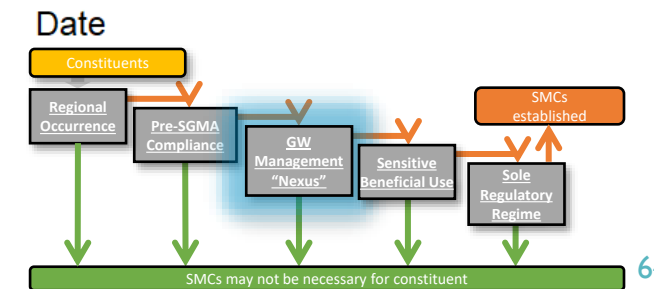
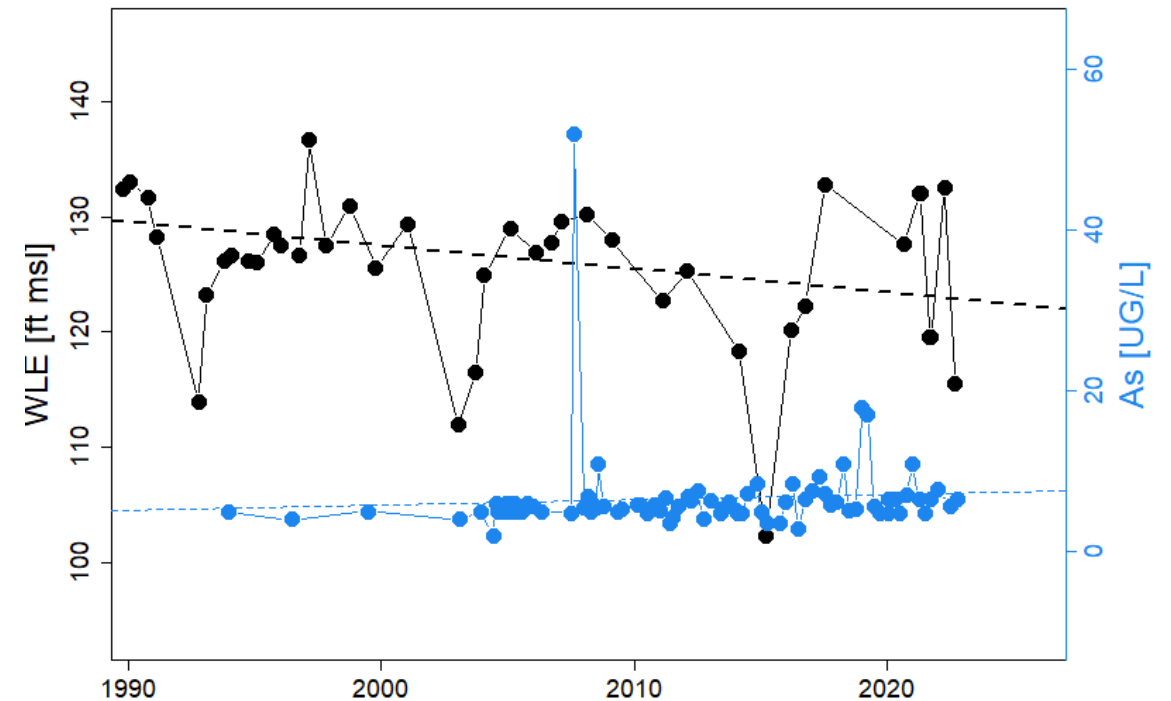


NO CORRELATION BETWEEN ARSENIC (As) CONCENTRATION AND NEARBY WATER LEVEL

RMS 23-001 and GAMA CA1010005-009-009 (2,257 ft. apart)

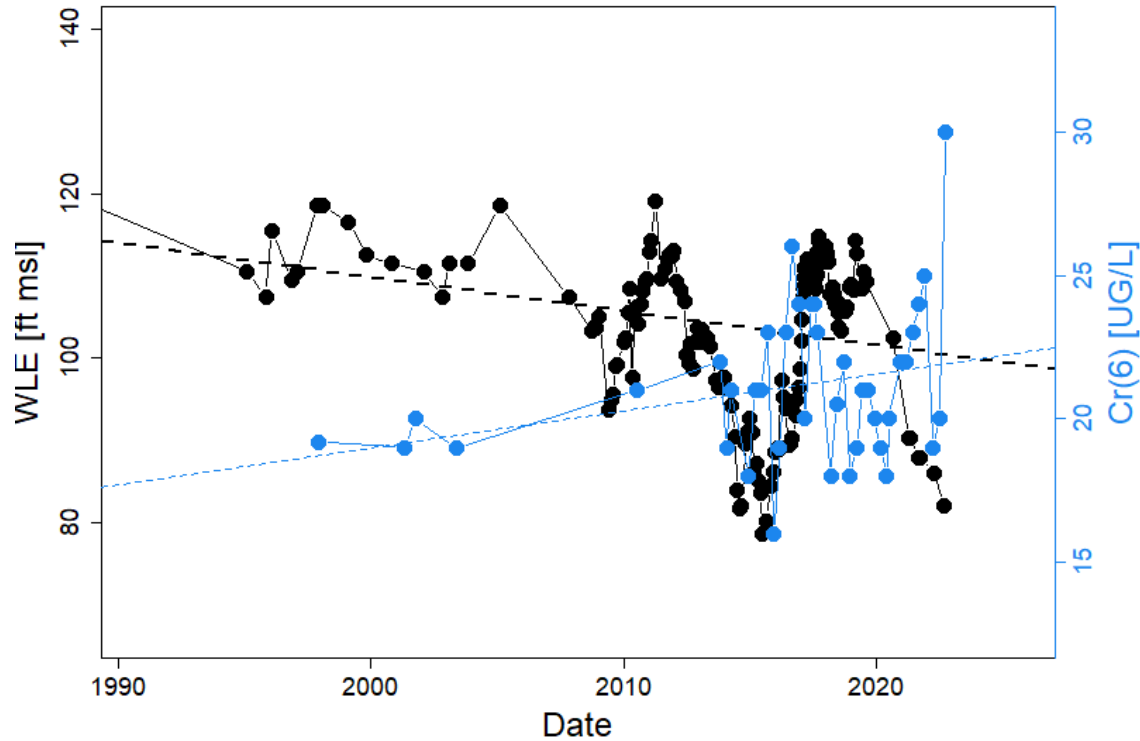


RMS 23-001 and GAMA CA1010005-010-010 (4,450 ft. apart)

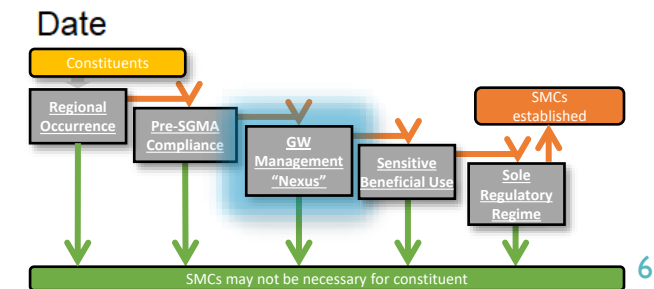
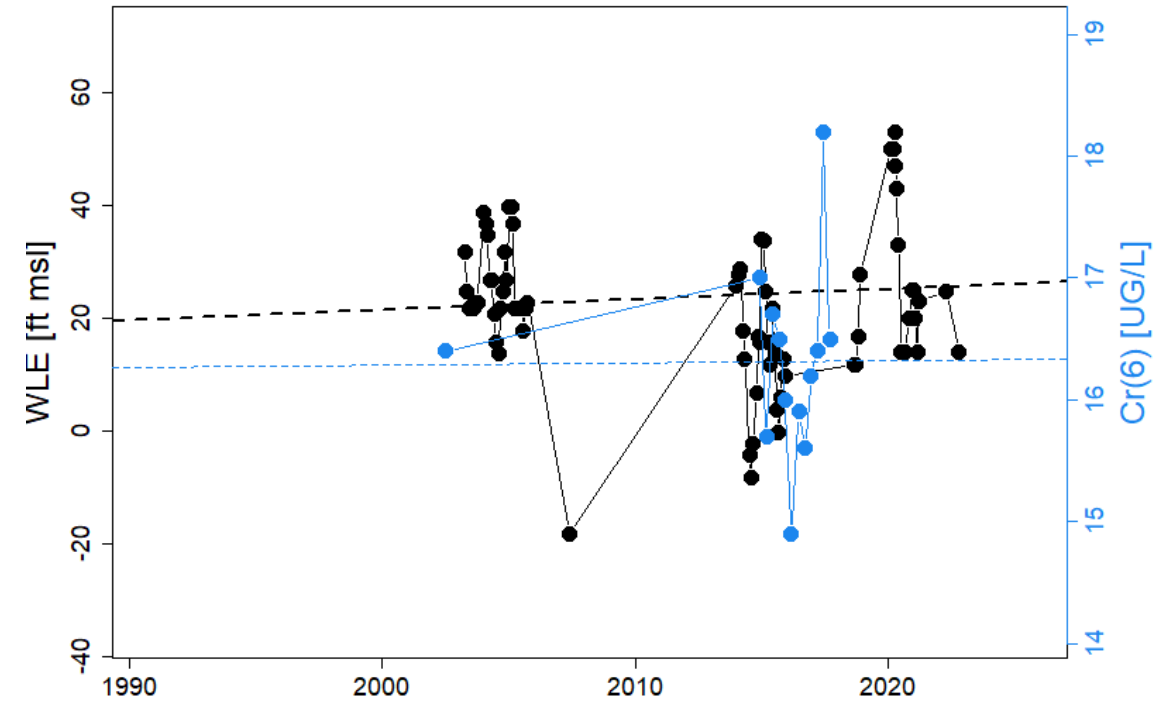


NO CORRELATION BETWEEN Cr(VI) CONCENTRATION AND NEARBY WATER LEVEL

RMS 14-004 and GAMA CA2410005-012012 (4,062 ft. apart)



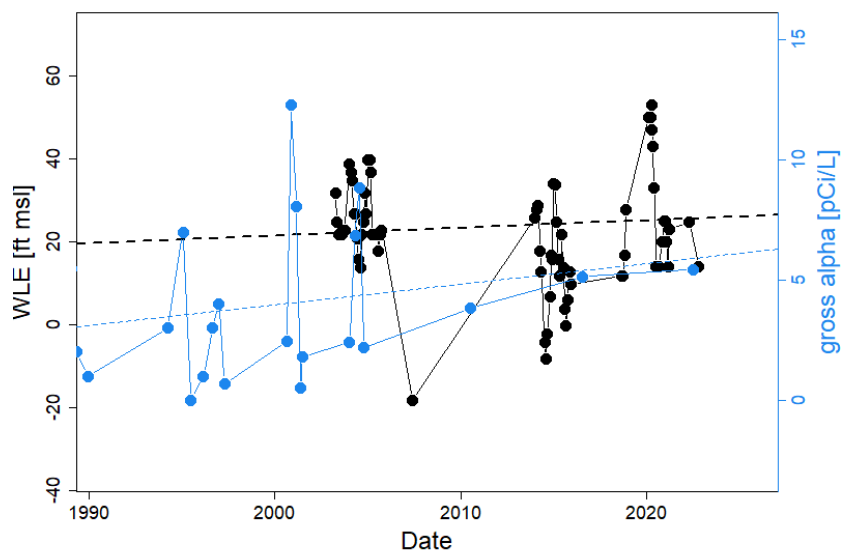
RMS 02-002 and GAMA CA5010017-005-005 (3,750 ft. apart)



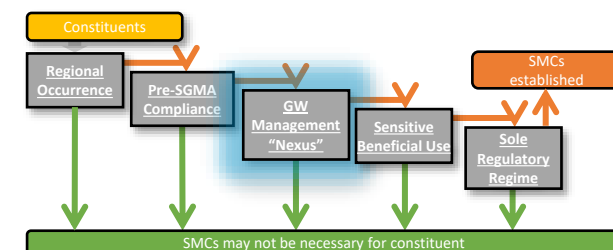
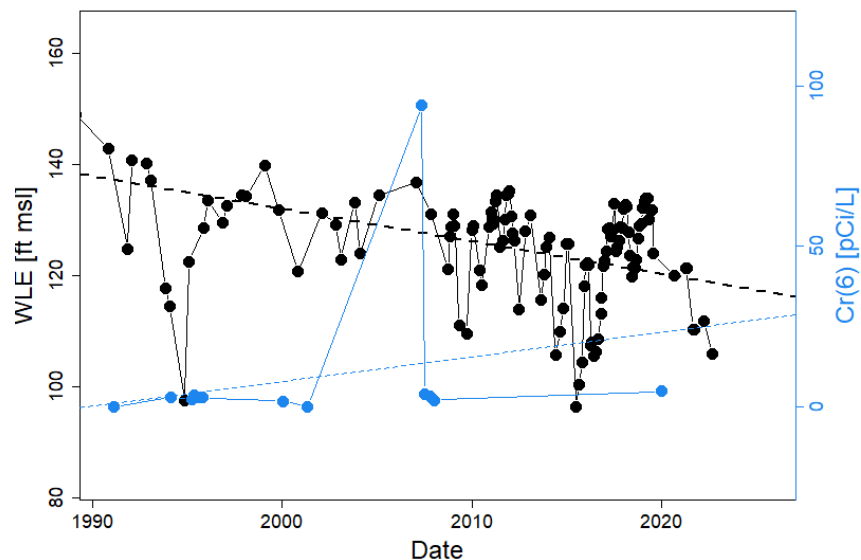
GW MANAGEMENT NEXUS TEST: GROSS ALPHA

- Gross alpha radioactivity primarily caused by decay of uranium in sediments.
- GAMA wells show few significant trends which do not appear spatially correlated with RMS water levels.

NCDM CA5010017_002_002 and 02-002 1 ft apart

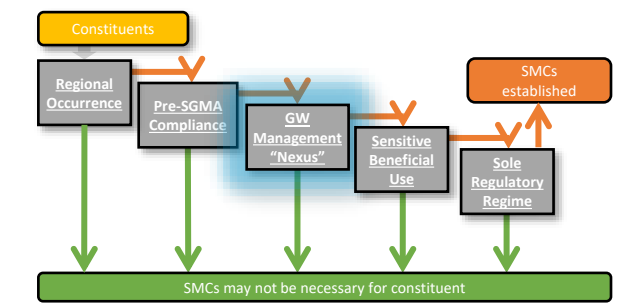


Fresno County CA1010021_003_003 and 14-002 3973 ft apart



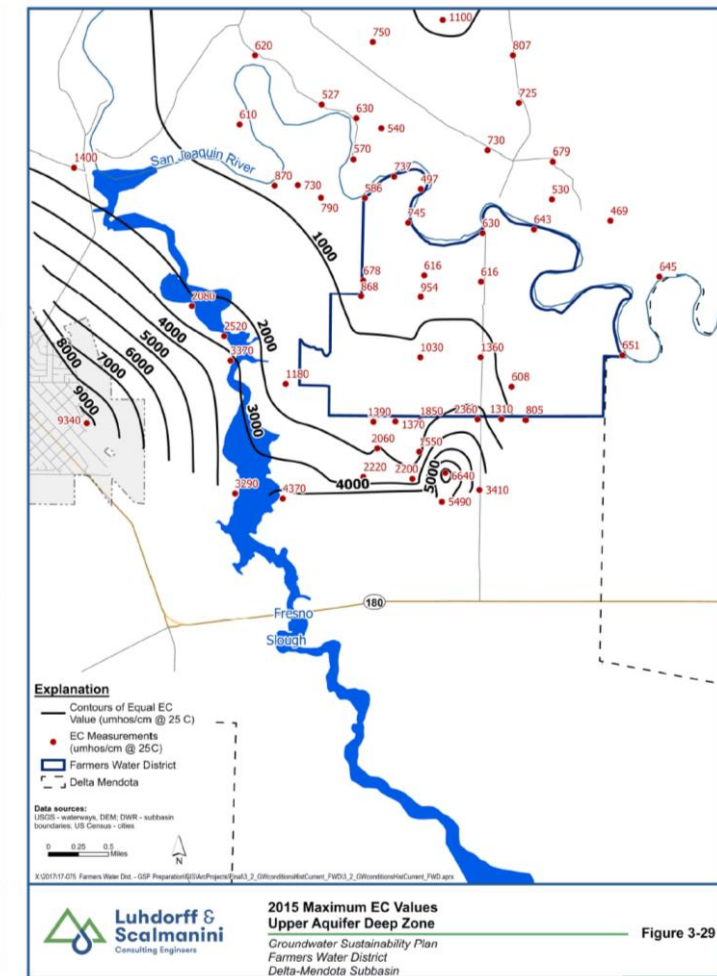
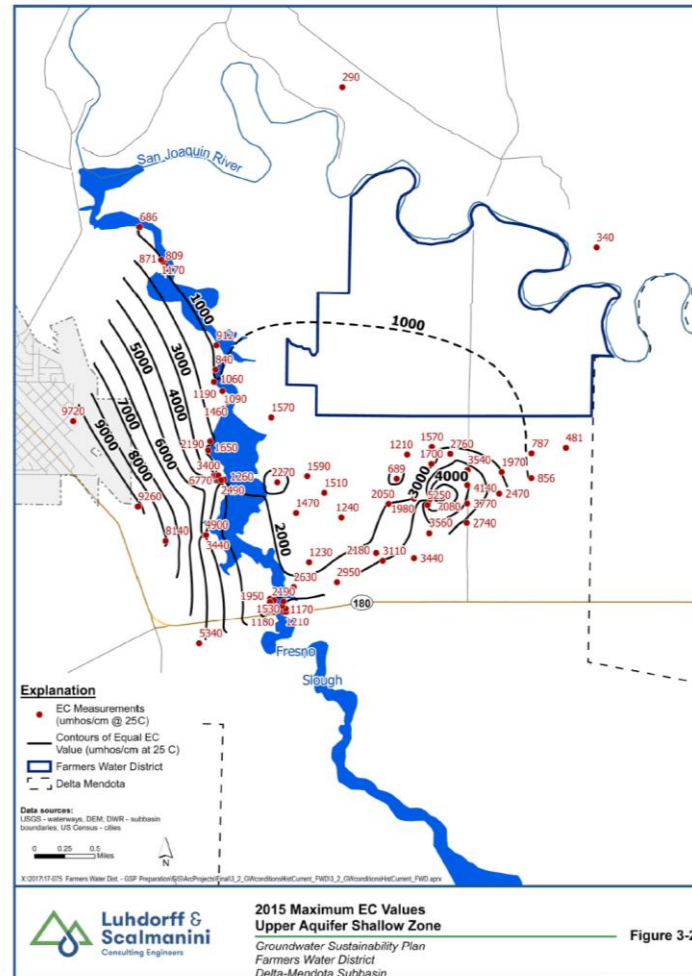
GW MANAGEMENT NEXUS TEST: TDS

- TDS primarily originates from marine sediments and hydrothermal fluids; however,
 - Additional anthropogenic point sources – e.g., Steffens/ Spreckels plume
 - May migrate due to regional groundwater levels and pumping patterns – e.g., Western Saline Front



GW MANAGEMENT NEXUS TEST: TDS - WESTERN SALINE FRONT

- Zone of high salinity water in upper aquifer in southern end of Basin
- Originally due to marine sediments
- Migrating westward due to groundwater pumping in Madera County
- EC increases of ~40 $\mu\text{mhos/cm/yr}$ in some areas



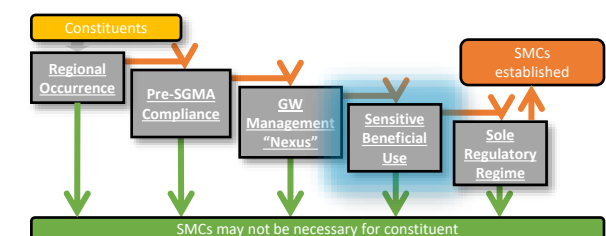
BORON & CR(VI) REMOVED BY GW MANAGEMENT NEXUS TEST

Potential COC	Regional Occurrence (% exceedance)	Pre-SGMA Compliance	GW Management Nexus	Sensitive Beneficial Use	Other Regulatory Regime
Arsenic	Muni: 18% Other supply: 3% Domestic: 0%	Muni: 84% Other supply: 88% Domestic: 100%	Primarily naturally occurring. No relationship to water levels.		
Boron	Muni: 44% Other supply: 57% Domestic: 44%	Muni: 61% Other supply: 41% Domestic: no data	Primarily naturally occurring. No relationship to water levels.		
Cr(VI)	Muni: 47% Other supply: 43% Domestic: 0%	Muni: 55% Other supply: 78% Domestic: 100%	Primarily naturally occurring. No relationship to water levels.		
Gross Alpha	Muni: 4% Other supply: insufficient data Domestic: insufficient data	Muni: 88% Other supply: 0% Domestic: no data	Primarily naturally occurring. No relationship to water levels.		
Nitrate	Muni: 12% Other supply: 13% Dom: 22%	Muni: 92% Other supply: 87% Dom: 87%	Anthropogenic. May be affected by recharge.		
TDS	Muni: 29% Other supply: 43% Domestic: 53%	Muni: 64% Other supply: 55% Domestic: 25%	Natural and anthropogenic. May be affected by pumping.		
1,2,3-TCP	Muni: 15% Other supply: insufficient data Domestic: insufficient data	Muni: 18% Other supply: insuff. data Domestic: insuff. data	Anthropogenic. May be affected by recharge.		

SENSITIVE BENEFICIAL USE TEST

Constituent	Screening Level	Screening Level Type
Arsenic	10 µg/L	Primary MCL
Boron	1 mg/L	Notification Level
Hexavalent Chromium	10 µg/L	Draft Primary MCL
Gross Alpha Radioactivity	15 pCi/L	Primary MCL
Nitrate (as N)	10 mg/L	Primary MCL
Total Dissolved Solids	500 mg/L “recommended” 1,000 mg/L “upper”	Secondary MCL
1,2,3-TCP	0.005 µg/L	Primary MCL

Presence of MCL = Potable use deemed sensitive by OEHHA and SWRCB



COCs REMAINING AFTER SENSITIVE BENEFICIAL USE TEST

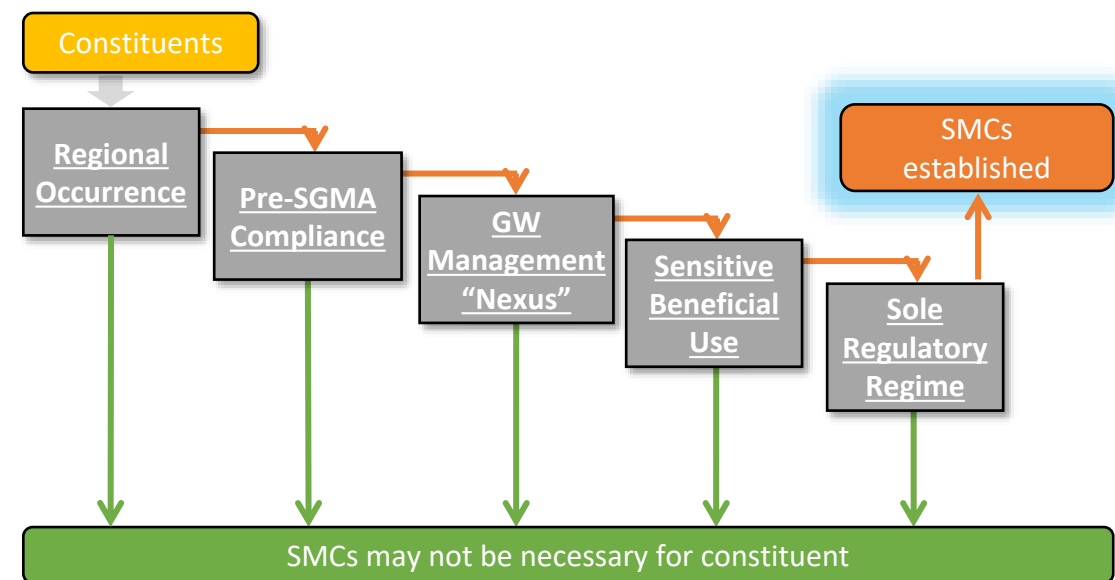
Potential COC	Regional Occurrence (% exceedance)	Pre-SGMA Compliance	GW Management Nexus	Sensitive Beneficial Use	Other Regulatory Regime
Arsenic	Muni: 18% Other supply: 3% Domestic: 0%	Muni: 84% Other supply: 88% Domestic: 100%	Primarily naturally occurring. No relationship to water levels.	Primary MCL	
Boron	Muni: 44% Other supply: 57% Domestic: 44%	Muni: 61% Other supply: 41% Domestic: no data	Primarily naturally occurring. No relationship to water levels.	Notification Level	
Cr(VI)	Muni: 47% Other supply: 43% Domestic: 0%	Muni: 55% Other supply: 78% Domestic: 100%	Primarily naturally occurring. No relationship to water levels.	Primary MCL	
Gross Alpha	Muni: 4% Other supply: insufficient data Domestic: insufficient data	Muni: 88% Other supply: 0% Domestic: no data	Primarily naturally occurring. No relationship to water levels.	Primary MCL	
Nitrate	Muni: 12% Other supply: 13% Dom: 22%	Muni: 92% Other supply: 87% Dom: 87%	Anthropogenic. May be affected by recharge.	Primary MCL	
TDS	Muni: 29% Other supply: 43% Domestic: 53%	Muni: 64% Other supply: 55% Domestic: 25%	Natural and anthropogenic. May be affected by pumping.	Secondary MCL	
1,2,3-TCP	Muni: 15% Other supply: insufficient data Domestic: insufficient data	Muni: 18% Other supply: insuff. data Domestic: insuff. data	Anthropogenic. May be affected by recharge.	Primary MCL	

COCs REMAINING AFTER OTHER REGULATORY REGIME TEST

Potential COC	Regional Occurrence (% exceedance)	Pre-SGMA Compliance	GW Management Nexus	Sensitive Beneficial Use	Other Regulatory Regime
Arsenic	Muni: 18% Other supply: 3% Domestic: 0%	✗ Muni: 84% Other supply: 88% Domestic: 100%	Primarily naturally occurring. No relationship to water levels.	Primary MCL	Muni: CA Title 22 Domestic: none
Boron	Muni: 44% Other supply: 57% Domestic: 44%	➡ Muni: 61% Other supply: 41% Domestic: no data	➡ Primarily naturally occurring. No relationship to water levels.	✗ Notification Level	Muni: H&S Code §116455 (notification) Domestic: none
Cr(VI)	Muni: 47% Other supply: 43% Domestic: 0%	➡ Muni: 55% Other supply: 78% Domestic: 100%	➡ Primarily naturally occurring. No relationship to water levels.	✗ Primary MCL	Muni: CA Title 22 Domestic: none
Gross Alpha	Muni: 4% Other supply: insufficient data Domestic: insufficient data	✗ Muni: 88% Other supply: 0% Domestic: no data	Primarily naturally occurring. No relationship to water levels.	Primary MCL	Muni: CA Title 22 Domestic: none
Nitrate	Muni: 12% Other supply: 13% Dom: 22%	➡ Muni: 92% Other supply: 87% Dom: 87%	➡ Anthropogenic. May be affected by recharge.	➡ Primary MCL	➡ IRLP, CV-SALTS Muni: CA Title 22 Domestic: none
TDS	Muni: 29% Other supply: 43% Domestic: 53%	➡ Muni: 64% Other supply: 55% Domestic: 25%	➡ Natural and anthropogenic. May be affected by pumping.	➡ Secondary MCL	➡ IRLP, CV-SALTS Muni: CA Title 22 Domestic: none
1,2,3-TCP	Muni: 15% Other supply: insufficient data Domestic: insufficient data	✗ Muni: 18% Other supply: insuff. data Domestic: insuff. data	Anthropogenic. May be affected by recharge.	Primary MCL	Muni: CA Title 22 Domestic: none

PRIORITY COCs REMAINING AFTER SCREENING

- NO₃
- TDS



Potential COC	Regional Occurrence (% exceedance)	Pre-SGMA Compliance	GW Management Nexus	Sensitive Beneficial Use	Other Regulatory Regime
Arsenic	Muni: 18% Other supply: 3% Domestic: 0%	✗ Muni: 84% Other supply: 88% Domestic: 100%	Primarily naturally occurring. No relationship to water levels.	Primary MCL	Muni: CA Title 22 Domestic: none
Boron	Muni: 44% Other supply: 57% Domestic: 44%	➡ Muni: 61% Other supply: 41% Domestic: no data	➡ Primarily naturally occurring. No relationship to water levels.	✗ Notification Level	Muni: H&S Code §116455 (notification) Domestic: none
Cr(VI)	Muni: 47% Other supply: 43% Domestic: 0%	➡ Muni: 55% Other supply: 78% Domestic: 100%	➡ Primarily naturally occurring. No relationship to water levels.	✗ Primary MCL	Muni: CA Title 22 Domestic: none
Gross Alpha	Muni: 4% Other supply: insufficient data Domestic: insufficient data	✗ Muni: 88% Other supply: 0% Domestic: no data	Primarily naturally occurring. No relationship to water levels.	Primary MCL	Muni: CA Title 22 Domestic: none
Nitrate	Muni: 12% Other supply: 13% Dom: 22%	➡ Muni: 92% Other supply: 87% Dom: 87%	➡ Anthropogenic. May be affected by recharge.	➡ Primary MCL	➡ IRLP, CV-SALTS Muni: CA Title 22 Domestic: none
TDS	Muni: 29% Other supply: 43% Domestic: 53%	➡ Muni: 64% Other supply: 55% Domestic: 25%	➡ Natural and anthropogenic. May be affected by pumping.	➡ Secondary MCL	➡ IRLP, CV-SALTS Muni: CA Title 22 Domestic: none
1,2,3-TCP	Muni: 15% Other supply: insufficient data Domestic: insufficient data	✗ Muni: 18% Other supply: insuff. data Domestic: insuff. data	Anthropogenic. May be affected by recharge.	Primary MCL	Muni: CA Title 22 Domestic: none

PROPOSED APPROACH TO WATER QUALITY COCs

SWRCB COCs	GSP Monitoring & Management Plan
Nitrate	Basin-wide issues for all beneficial users; GSAs will establish SMCs and conduct monitoring & reporting as part of SGMA process
TDS	
Arsenic	Naturally occurring; Already monitored by PWS and regulated by SWRCB for drinking water beneficial users; GSAs will coordinate with PWS to evaluate data
Hexavalent Chromium	
Gross Alpha radioactivity	
1,2,3-TCP	Localized occurrence; Already monitored by PWS and regulated by SWRCB for drinking water beneficial users; GSAs will coordinate with PWS to evaluate data
Boron	Naturally occurring; Issue for agricultural beneficial users; GSAs will coordinate with PWS to evaluate data

WATER QUALITY UNDESIRABLE RESULTS

- **Undesirable Results:** UR occurs if MTs are exceeded at **25%** or more of RMS for two consecutive years as a result of groundwater recharge or extraction.

WATER QUALITY URs AND MTs/MOs

■ **Minimum Thresholds:**

- For RMS/COC with pre-2015* conc. less than MCL:
- For RMS/COC with pre-2015* conc. between MCL and exclusion threshold:

MT = MCL

MT = Greater of:

- 20% above pre-2015 conc.
- Projected 2040 concentration (if sufficient data available)

■ **Measurable Objectives:**

- For RMS/COC with pre-2015* conc. less than MCL:
- For RMS/COC with pre-2015* conc. between MCL and exclusion threshold:

MO = MCL

MO = Greater of:

- 10% above pre-2015 conc.
- Projected 2040 concentration (if sufficient data available)

- **Exclusion threshold:** 3x MCL - corresponds with 3,000 mg/L TDS, at which water is not considered suitable for municipal or domestic supply (SWRCB Resolution 88-63).

- **Interim Milestones:** Glide path between current concentration and MO

* For RMS/COC that do not have pre-SGMA data, set interim MTs/MOs at MCL, and conduct monitoring to establish baseline based on at least 2 years of monitoring data and use to set permanent MTs/MOs.

UR DEFINITION & JUSTIFICATION

UR Criteria	UR Justification
<p>MT exceedances at 25% of RMS for two consecutive years as a result of groundwater recharge or extraction</p>	<p>Groundwater Pumpers</p> <ul style="list-style-type: none">• SMCs are set to be protective of drinking water, which is the most sensitive beneficial use in areas already not already degraded.• A percentage much lower than 25% suggests a primarily local impact, whereas much larger percentage suggests a widespread impact inconsistent with the Sustainability Goal.• If 25% of RMS are impacted, the majority of wells still support potable use, and high quality water is still available for blending with lower quality water if needed.

MT/MO JUSTIFICATIONS

Impacts to Beneficial Users	Impacts to Adjacent Basins	Impacts to Other Sustainability Indicators
<ul style="list-style-type: none">SMCs are set to be protective of drinking water, which is the most sensitive beneficial use in areas already not already degraded.	Adjacent basins have also used MCLs to set MOs and MTs, so their ability to meet their Sustainability Goals will not be impacted by Delta-Mendota's MOs and MTs.	Water quality does not impact other sustainability indicators.

ADDRESS DEFICIENCIES #2 & #3

SMC #4:
Subsidence

DWR DEFICIENCIES FOR SUBSIDENCE

Deficiency #2: “The GSPs have not established common definitions of undesirable results in the Subbasin”

- (they) do not explain what are now considered to be significant and unreasonable conditions. For example, ... **no examples** of what are considered an **unmitigated and unmanageable** reduction of design capacity for conveyance structures are discussed.

Deficiency #3: “The GSPs in the Subbasin have not set sustainable management criteria in accordance with the GSP regulations”

- GSP Regulations ... require the minimum threshold to be expressed as a **rate and extent** of subsidence and the new minimum threshold is only expressed as a total amount of subsidence.
- the Plan does not indicate when the **period for calculation a total of two feet of additional subsidence begins**

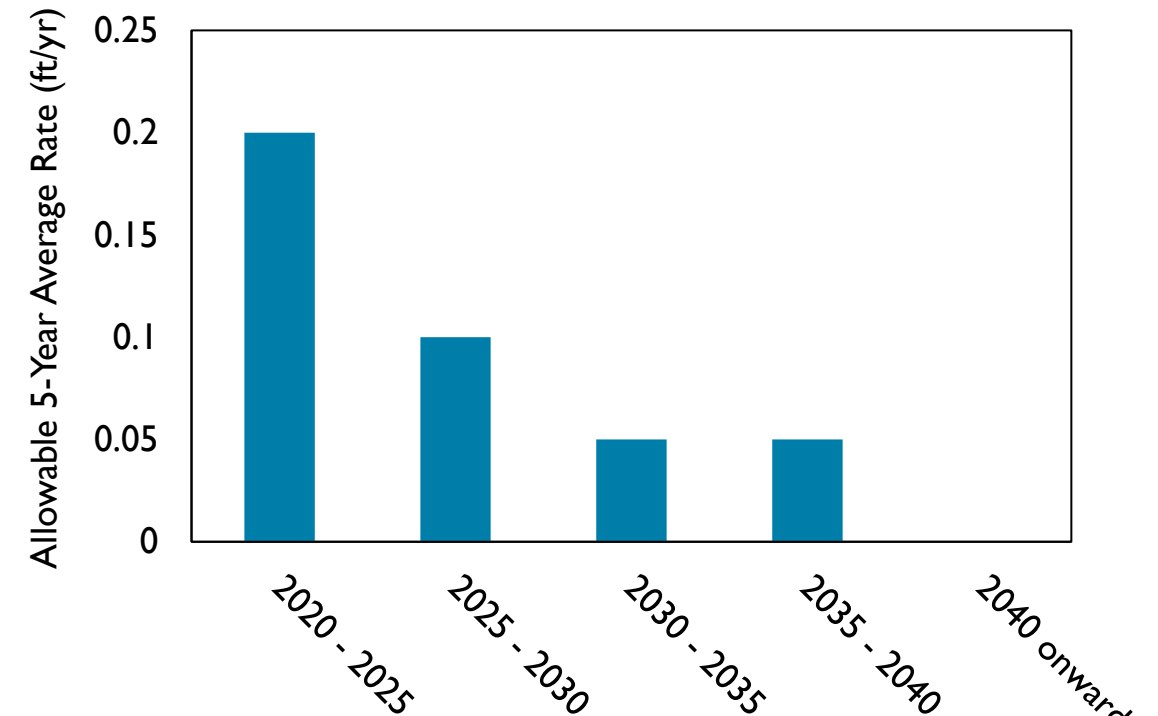
CONVERTING SMC SUBSIDENCE AMOUNTS TO RATES

Minimum Threshold/ Measurable Objective

SMC	Extent	5-Year Average Rate
Minimum Threshold	≤2 ft. by 2040	0.2 ft/year
Measurable Objective	0 ft. after 2040	0 ft/year after 2040

Interim Milestones

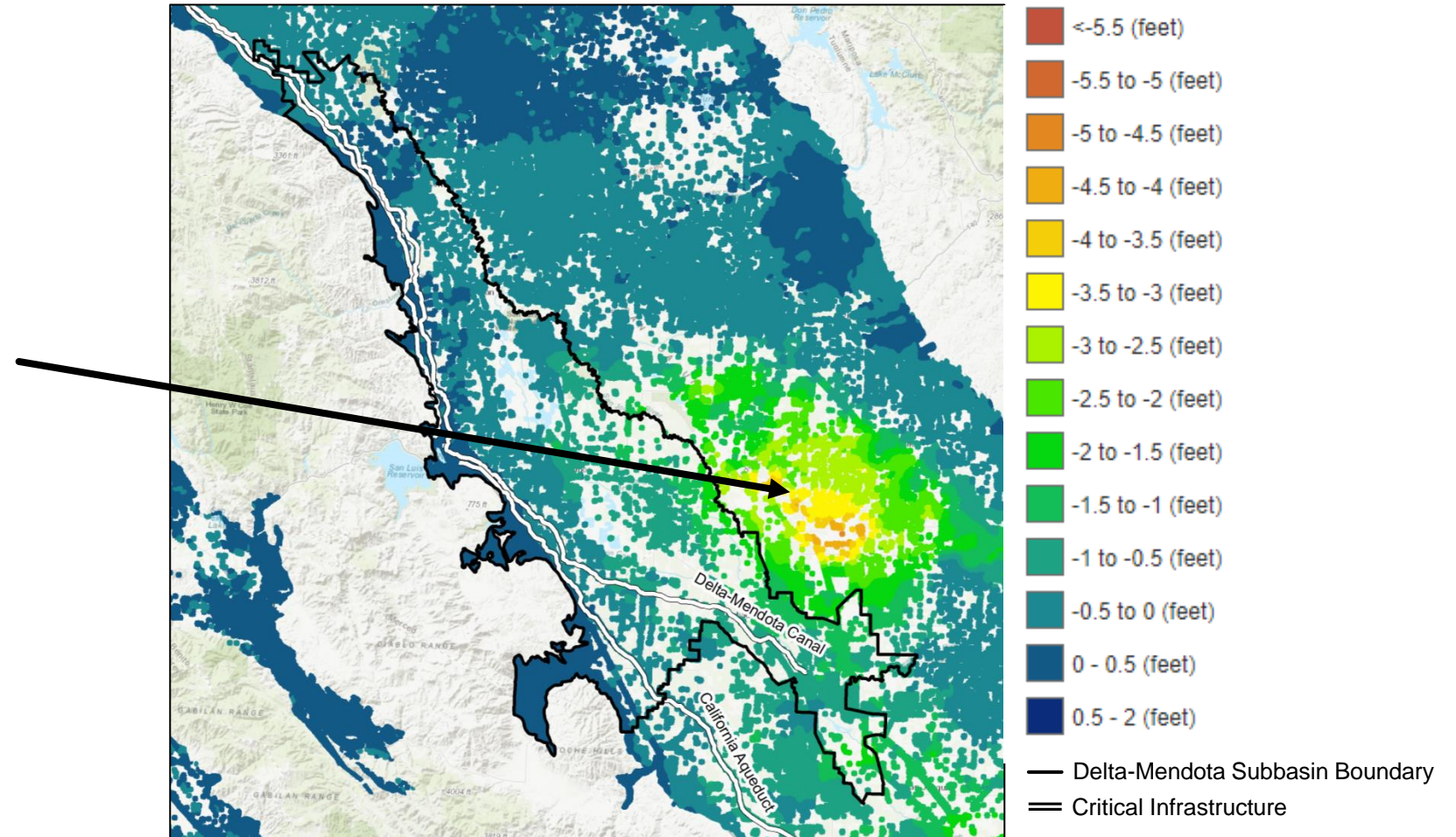
Time interval	Subsidence (ft)	5-Year Average Rate (ft/year)
2020 – 2025	1	0.2
2025 – 2030	0.5	0.1
2030 – 2035	0.25	0.05
2035 – 2040	0.25	0.05
2040 onwards	0	0



SUBSIDENCE PRIMARILY ORIGINATING OUTSIDE OF SUBBASIN

- Subsidence hotspot is located OUTSIDE of the Delta-Mendota (DM) Subbasin and impacting conditions in the DM Subbasin.
- This issue is outside of DM GSA control

Vertical displacement June 2015 – June 2022

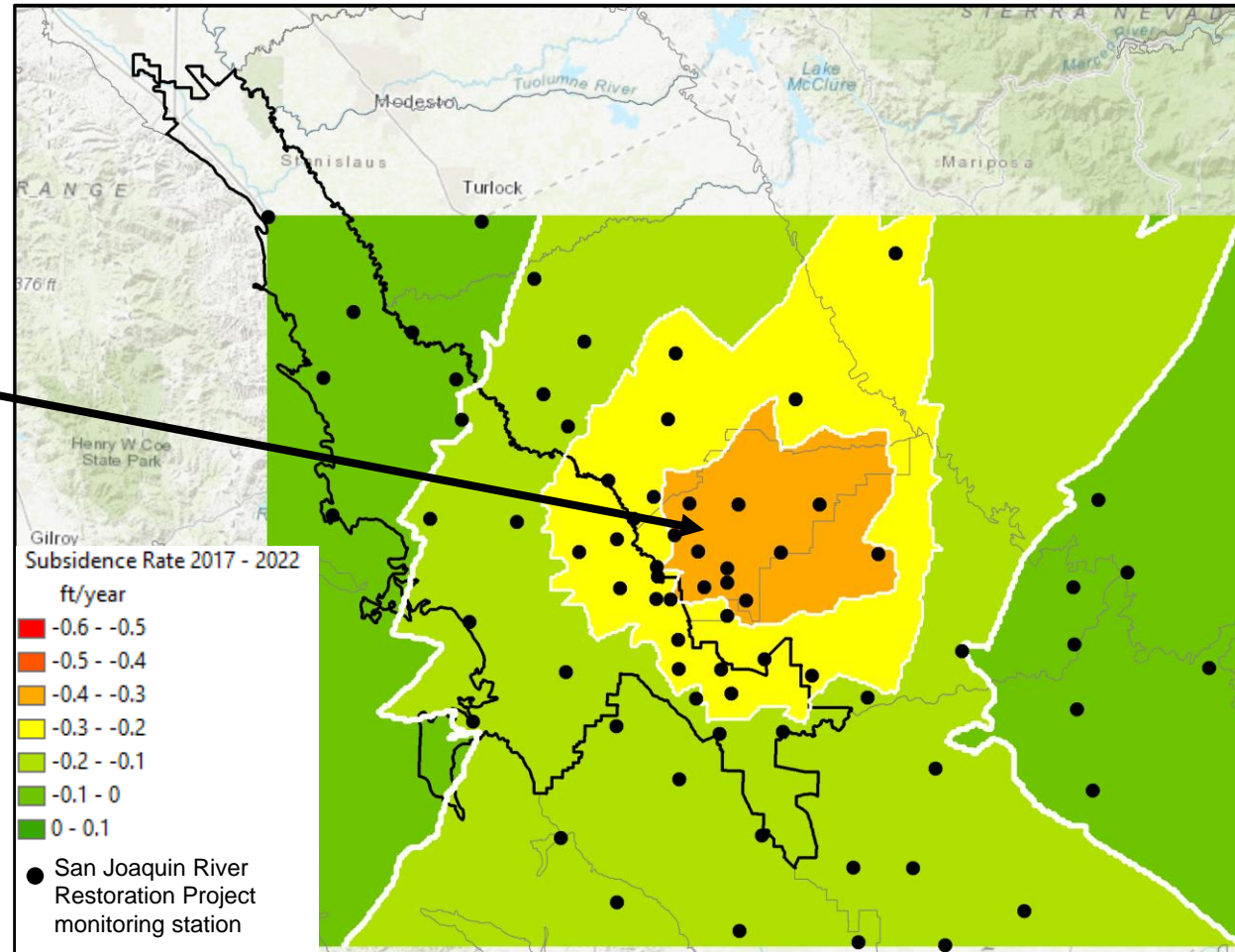


106 TRE Altamira InSAR

USBR SURVEY DATA SUPPORTS SUBSIDENCE HOTSPOT LOCATION

- Subsidence hotspot is located OUTSIDE of the Delta-Mendota (DM) Subbasin and impacting conditions in the DM Subbasin.
- This issue is outside of DM GSA control

Subsidence Rates December 2017 – December 2022



Data source: <https://www.restoresjr.net/science/subsidence-monitoring/>

PROPOSED LAND SUBSIDENCE SMCs

■ Undesirable Results:

- UR occurs if MTs are exceeded at 25% or more of RMS as a result of groundwater extraction in the basin, based on a 5-year moving average.
- Critical Infrastructure includes the California Aqueduct, Delta-Mendota Canal, and Chowchilla Bypass.
- Significant and Unreasonable definitions tied to existing mitigation plans (i.e., DMC Subsidence Correction Project)

■ Minimum Thresholds:

- Set as 2 ft total (cumulative) subsidence between 2020 and 2040, maximum 5-year average rate of 0.2 feet per year

■ Interim Milestones:

- No more than 1.0 ft cumulative subsidence by 2025; starting point is 2020 (same as for MTs and all other IMs)
- No more than 1.5 ft cumulative subsidence by 2030
- No more than 1.75 ft cumulative subsidence by 2035
- No more than 2.0 ft cumulative subsidence by 2040

■ Measurable Objectives:

- No additional cumulative subsidence beyond 2040

UR DEFINITION & JUSTIFICATION

UR Criteria	UR Justification
<p>MT exceedances at 25% of RMS based on a 5-year average rate due to groundwater extraction in the Subbasin</p>	<ul style="list-style-type: none">• 5 years of subsidence is unlikely to exceeded the maximum amount of subsidence if previous rates did not exceed the MT rate.• A percentage much lower than 25% suggests a primarily local impact, whereas much larger percentage suggests a widespread impact inconsistent with the Sustainability Goal.• The majority of subsidence occurring is not due to activities within the Subbasin.

MT/MO JUSTIFICATIONS

Impacts to Beneficial Users	Impacts to Adjacent Basins	Impacts to Other Sustainability Indicators
<p>MOs and MTs are designed to prevent subsidence that exceeds protective design standards⁽¹⁾ for critical infrastructure (i.e., Delta-Mendota Canal, California Aqueduct, and Chowchilla Bypass).</p>	<p>Adjacent basins are experiencing similar or greater subsidence than Delta-Mendota and will not be harmed by activity in the Delta-Mendota Subbasin.</p>	<ul style="list-style-type: none"> • Subsidence may result in a loss of groundwater storage; however, subsidence that does not exceed MTs is unlikely to cause groundwater storage to exceed MTs. • Subsidence MOs and MTs will prevent damage to critical infrastructure, thereby avoiding increased pumping that could occur if surface water deliveries were impeded.

Source:

(1) USBR & SLDMWA, 2023, Delta-Mendota Canal Subsidence Correction Project Plan Formulation Technical Memorandum (Appendix B of Delta-Mendota Canal Subsidence Correction Project Draft Environmental Assessment/Initial Study).

NEXT STEPS / ON-GOING EFFORTS

- Continue to meet with State Board and DWR
- Pursue adoption of MOA between Subbasin GSAs to support SGMA implementation
- Continue GSA/stakeholder outreach
- Keep working to address DWR deficiencies
- Prepare updated GSP by end of July 2024

SGMA FACILITATION SUPPORT SERVICES

IMPLEMENTATION SERVICE PLAN

ISP No. 13.3: San Joaquin Valley – Delta-Mendota (5.022-07)
San Luis & Delta-Mendota Water Authority

I. PREAMBLE

The Department of Water Resources (DWR) is offering Facilitation Support Services (FSS) to assist Groundwater Sustainability Agencies (GSAs) and local water management groups foster discussions that contribute towards implementing the Sustainable Groundwater Management Act (SGMA).

II. DESCRIPTION OF SERVICES

Under DWR Contract No. 4600013267, AM-01 Stantec Consulting Services Inc. (Contractor) provides FSS professional services in the nine below listed categories in support of DWR's Sustainable Groundwater Management Program.

1. Stakeholder Assessments
2. Governance Development
3. Stakeholder Communication and Engagement Planning and Support
4. Public and Stakeholder Outreach
5. Targeted Outreach to Underrepresented Groundwater Users
6. Tribal Government Outreach and Engagement
7. Meeting Facilitation
8. Intra-Basin and Inter-Basin Coordination Support
9. Interest-Based Negotiation

Implementation Service Plan (ISP) **No. 13.3: San Joaquin Valley – Delta-Mendota (5-022.07)** authorizes Contractor to deliver one or more of the services listed above to support the SGMA Program in the San Joaquin Valley – Delta-Mendota Subbasin.

DWR has established a not-to-exceed budget¹ of 593.25 labor hours and other direct costs to execute the Scope of Work by ~~December 31, 2021~~ June 30, 2022, unless amended.

¹Total not-to-exceed budget inclusive of ISP13, ISP13 Amdt. #1, and ISP13 Amdt. #2

III. BACKGROUND

This ISP amends ISP 13.2 to continue tasks and extend the period of performance for professional facilitation support services to the San Luis & Delta-Mendota Water Authority (SLDMWA) and the Groundwater Sustainability Agencies established within the subbasin.

Activities added, modified, or deleted are shown in red-colored text.

The Delta-Mendota Subbasin rests at the edge of the California Coastal Range and shares a common border with nine subbasins in the San Joaquin Valley Basin: Westside (5-022.09), Kings (5-022.08), Madera (5-022.06), Chowchilla (5-022.05), Merced (5-022.04), Turlock (5-022.03), Modesto (5-022.02), East San Joaquin (5-022.01), and Tracy (5-022.15). Six of the nine subbasins – including Delta-Mendota Subbasin – has been designated in critical overdraft, requiring submittal of its GSP on or before Jan. 31, 2020. Non-critical overdraft subbasins that adjoin Delta-Mendota Subbasin are Tracy (medium priority), Modesto (high priority), and Turlock (high priority).

Groundwater Sustainability Agencies within the Delta-Mendota Subbasin include: Patterson Irrigation District GSA, West Stanislaus Irrigation District GSA, DM-II GSA, City of Patterson GSA, Northwestern GSA, Central Delta-Mendota GSA, Widren GSA, Oro Loma GSA, San Joaquin River Exchange Contractors Water Authority GSA, Turner Island Water District GSA, City of Mendota GSA, City of Firebaugh GSA, City of Los Banos GSA, City of Dos Palos GSA, City of Gustine GSA, City of Newman GSA, Madera County GSA, Merced County GSA, Grassland GSA, Farmers Water District GSA, Fresno County GSA, and Aliso Water District GSA. Six GSPs were developed for the Subbasin. These GSPs, along with the required Subbasin Coordination Agreement, were due to the state on or before January 31, 2020.

The SLDMWA has been designated as the Plan Manager for the subbasin, as identified in the subbasin Coordination Agreement. In this role, the SLDMWA serves as a program manager for regional outreach and coordination for the six GSPs; in addition, SLDMWA supports development of one of the GSPs. Since 2017, SLDMWA has been coordinating and facilitating subbasin-wide coordination committee meetings and fostering interbasin coordination activities with GSAs in adjoining subbasins.

The GSAs in the subbasin, with SLDMWA as the recipient, previously received DWR Facilitation Support Services. The assigned facilitator supported GSA formation, helped develop a Subbasin Communications Plan, conducted a stakeholder assessment, and held a series of initial inter-basin coordination meetings. The GSAs also received a Proposition 1 Sustainable Groundwater Planning grant to support GSP development activities and provide outreach and technical assistance to severely disadvantaged communities in the Subbasin.

The focus of ISP 13.3 is to continue Interbasin Coordination Support with GSAs in adjoining subbasins and amend project staffing.

IV. KEY FACILITATION TASKS

The SLDMWA is serving as the Plan Manager for the San Joaquin Valley – Delta-Mendota Subbasin. As the Plan Manager, the SLDMWA will manage and direct implementation of the following Facilitation Support Service activities:

Task 1. Interbasin Coordination Support

February 1, 2020 – June 30, 2022 ~~December 31, 2021~~

Activities provided under this task include facilitation assistance to Delta-Mendota Subbasin GSAs, in coordination with SLDMWA, for development of interbasin coordination agreement, or similar agreements, with GSAs in adjoining subbasins. Task anticipates facilitation of regional meetings and special meetings between GSAs in adjoining subbasins (e.g. Delta-Mendota and Kings Subbasins, Delta-Mendota and Madera Subbasins, etc.). Such peer-to-peer meetings would seek to establish compatible sustainability goals and understanding regarding fundamental elements of the GSPs prepared by adjoining agencies as they relate to sustainable groundwater management as described in Article 8. Interagency Agreements (§357). Facilitation assistance is focused on convening and facilitating meetings where subbasin managers, technical staff, and other interested parties share, among other things, general information on agencies with groundwater management responsibilities; technical information associated with topics such as subbasin boundary flows, stream aquifer interactions, hydraulic and hydrogeologic conditions, sustainable management criteria, groundwater monitoring actions; and to collaborate on mutually agreed processes for conflict resolution among participating agencies.

Activities include:

- **Process initiation:** Includes establishment of a workplan in conjunction with key project leaders to guide implementation interbasin coordination meetings and documentation of decisions and action items. Activity includes up to two meetings. Activity to include general update to Delta-Mendota Subbasin Communication Plan consistent with workplan and adopted GSPs.
- **Regional Meetings:** Includes preparation and facilitation of up to 10 peer-to-peer GSA meetings in various geographies, as defined by the workplan.
- **Special Meetings:** Includes preparation and facilitation of up to 5 meetings with individual GSAs for dispute resolution and conflict resolution purposes.
- **Interbasin Coordination/Action Strategy Report and Decision Log/Database:** Includes documentation of results of workplan implementation and maintenance of a Decision Log/Database to assist in preparation of coordination agreements, or similar devices.

Assumptions:

- Workplan assumed at up to 15 pages with summary presentation provided by facilitators.
- All meetings to be held by phone/webinar.
- Regional meetings assumed to average 54 hours each.
- Special meetings assumed to average 15 hours each.

- Interbasin coordination meetings assumed be held in various geographies as agreed by members.
- Special meetings with individual GSAs to be held in location, as-necessary, to convene participants.
- Interbasin Coordination/Action Strategy Report assumed at up to 15 pages, with summary presentation provided by facilitators.

Deliverables:

- Workplan and Presentation
- Meeting Agendas
- Meeting Summaries
- Presentations and Handouts, if provided
- Interbasin Coordination/Action Strategy Report and Decision Log/Database

Level of Effort (LOE):

Name	Classification	ISP 13	ISP 13.1	ISP 13.2	ISP 13.3
Christy Clark	Lead Facilitator	277	3		
Kirsten Pringle	Associate Facilitator	193	33.25		
Lisa Beutler	Senior Facilitator			48	

Task 2. Contract Management

February 1, 2020 – June 30, 2022 ~~December 31, 2021~~

Activities anticipated under this task include:

- Prepare and submit monthly progress reports of activities in support of this ISP.
- Submittal of deliverables identified in this ISP.

Deliverables:

- Monthly Progress Report
- Submittal of deliverables identified in this ISP

Level of Effort (LOE):

Name	Classification	ISP 13	ISP 13.1	ISP 13.2	ISP 13.3
Christy Clark	Lead Facilitator	11	4		
Kirsten Pringle	Associate Facilitator	22	30		
Lisa Beutler	Senior Facilitator			3	3
Marisa Perez-Reyes	Associate Facilitator			9	9

V. TERM

Work will occur in the period of *February 1, 2020 – June 30, 2022 ~~December 31, 2021~~*

VI. BUDGET ASSUMPTIONS

- 1. The SLDMWA District and/or participating agencies will provide for all other direct expenses including photocopies, meeting rooms, refreshments and other related items.
- 2. All materials will be transmitted electronically.
- 3. The ISP Budget Worksheet, Appendix A provides the budgeted cost breakdown for DWR.

VII. CONTRACTOR STAFFING

Contractor will assign the individuals listed below to perform the professional-level services required in this Project. If for some reason anyone listed is unable or unavailable to perform as planned, any replacements or substitutes will be subject to prior approval by DWR.

Job Classification	Assigned Staff
Lead Facilitator	Christy Clark
Associate Facilitator	Kirsten Pringle
Senior Facilitator	Lisa Beutler
Associate Facilitator	Marisa Perez-Reyes

VIII. SIGNATURES

Approved by signature.



Keith Wallace, Supervising Engineer, DWR



Gail Eaton, Contractor



Craig Moyle, Contractor

John Brodie

From: Moyle, Craig <craig.moyle@stantec.com>
Sent: Monday, July 3, 2023 10:30 AM
To: John Brodie
Cc: J. Scott Petersen; Lauren D. Layne; Beutler, Lisa; Clark, Christy
Subject: RE: Revised Redline MOA
Attachments: Delta-Mendota Subbasin MOA (Draft clean 6-5-2023)(3282109.7).docx; Delta-Mendota_191119.pdf

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi John, Scott and Lauren

Just wrapped up a call with FSS Program Manager Heather Shannon and Deputy Program Manager Balraj Tammali. Heather said they have checked with their counterparts at the Board and both have agreed that FSS Program support is available to subbasins as long as it doesn't overlap with a related activity by the Board (e.g. no dueling facilitators). So, we're good to go to submit an application (select the [Facilitation Support tab on this link](#)). Attached for your use is the original FSS Program application for Delta-Mendota support. Feel free to use as much of this as you see applicable. Lisa can help you frame out the initial ask in the application; she will reach out to you. Once DWR receives, reviews and approves the request, we will follow-up with you to finalize the task order. A few items to know going in:

- Since the basin has begun the probationary process, DWR will require a schedule driven scope and specific deliverables. The duration of the task order may be shorter or may have tasks that are subject to completion of a related task.
- DWR will have periodic status meetings with the facilitator to review the schedule and status of deliverables. We already do this, but I anticipate these meetings will be more frequent with a summary provided to DWR. I would anticipate that summary would be referenced by DWR when they meet with Board staff.

Here is the initial list of activities we discussed:

- Communication and Engagement Plan. Anticipated elements:
 - Mini-assessment to inform the coordination and collaboration processes
 - Audit of subbasin websites for consistency and conformity with the Act
- Public outreach meetings
- Committee meeting facilitation (ex: funding, technical and coordination)

Have a great July 4.

Craig

Craig Moyle, PMP

Senior Principal - Public Affairs and Strategic Communication

Stantec

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Craig.Moyle@stantec.com

 Please consider the environment before printing this email.



WaterSMART Applied Science Grants

Through WaterSMART Applied Science Grants, Reclamation provides cost-shared financial assistance for projects to develop hydrologic information and water management tools and improve modeling and forecasting capabilities. Increased access to information and improved modeling and forecasting capabilities will meet a variety of water management objectives, including: support for water supply reliability, management of water deliveries, water marketing activities, drought management activities, conjunctive use of ground and surface water, water rights administration, ability to meet endangered species requirements, watershed health, conservation and efficiency, and other water management objectives.



WSR-88D Doppler radar at New Underwood, SD. Courtesy NASA.

In August 2022, Reclamation announced eight successful projects under the Applied Science program and will provide approximately \$1.2 million to improve water modeling, forecasting, and information to support water management decisions. Some of the successful projects are: Verde River basin integrated hydrologic modeling project, geospatial data platform to assess and manage tribal water resources, well asset and groundwater management and forecasting tool project, and the Mission Creek subbasin water quality model.

Funding Levels & Eligibility

The Applied Science Program funding is allocated through a competitive processes. Applicants for Applied Science Grants may request federal funding up to \$200,000 for projects to be completed within two years; with a non-Federal cost share of 50% or more of the total project cost.

Eligible applicants include States, Indian tribes, irrigation districts, water districts, universities, nonprofit research institutions, and nonprofit organizations, or other organizations with water or power delivery authority. The eligible project types include:

- Improved Hydrologic Modeling
- Improved Forecasting Tools
- Improved GIS and Data Management

For more information: Please visit www.usbr.gov/watersmart/appliedscience/index.html or contact Avra Morgan at (303) 445-2906 or aomorgan@usbr.gov.

For more information on selected projects, visit www.usbr.gov/watersmart.

Funding Opportunities – Updated 7/3/2023

Biologically Integrated Farming Systems (BIOS)

Projects from this program should demonstrate IPM-based alternative pest management options that focus on economical and efficacious biological and cultural pest management techniques that allow growers to maintain yields and quality. Up to \$1 Million available per project. California Dept. of Pesticide Regulation. Deadline: 7/31/23

Natural Communities Conservation Planning Local Assistance Grant Program

A total of more than \$29 Million for NCCP implementation and NCCP and/or HCP planning and implementation, targeted at highest priority projects. California Dept. of Fish and Wildlife. Deadline: 8/4/23

Healthy Soils Demonstration Program

This program funds on-farm demonstration projects to promote statewide implementation of conservation management practices that sequester carbon, reduce GHGs and improve soil health. Up to \$4 million available for the total program. California Dept. of Food and Agriculture. Deadline: 8/28/23

Integrated Climate Adaptation and Resiliency Program's Regional Resilience Planning and Implementation Grant Program

The Regional Resilience Grant Program (RRGP) funds planning and implementation projects that strengthen climate change resilience at a regional scale. The RRGP funds projects led by partnerships that involve multiple jurisdictions working together to address the most significant climate change risks in their regions, especially in communities that are most vulnerable to climate change impacts. Up to \$3 Million per project, \$9.4 Million total available. Governor's Office of Planning and Research. Deadline: 8/29/23

Instream Flow Water Purchase Program

The Instream Flow Water Purchase Program (WPP) establishes financial instruments and agreements necessary to ensure water for beneficial instream flows are made available from those with legal rights to use or dedicate water. Projects must measurably enhance streamflow at a time and location necessary to provide fisheries or ecosystem benefits or that improve upon existing flow conditions. Minimum qualifications will require applicants to provide at least 2,000 acre-feet of water through sale, lease, license, dedication or other binding mechanism, including forbearance, for purposes of instream flow enhancement between January 1st and June 30th in every water year type in which the water right holder proposes to provide water. These flows must be provided in the Sacramento-San Joaquin Delta Watershed for at least 10 water years (subject to negotiation if only provided in specific water year types). Up to \$360 Million available. Department of Water Resources. Deadline: 10/1/23

Water Resilience Infrastructure-Water Recycling

The purpose of the grant is to provide technical and financial assistance to local agencies for the planning and construction of water recycling projects that promote the beneficial use of treated municipal wastewater in order to augment fresh water supplies in California. Up to \$15 million available per project and a total of more than \$232 Million. State Water Resources Control Board. Deadline: 6/30/25

Emergency Community Water Assistance Program

This program helps eligible communities prepare, or recover from, an emergency that threatens the availability of safe, reliable drinking water and is targeted at small communities and rural areas (DACs, SDACs, and EDAs). \$150,000 available for leak repair and maintenance to existing water lines and construct water line extensions; up to \$1,000,000 for construction of new wells, transmission lines, treatment plants, or other sources of water. USDA Rural Development. Applications accepted on a continuous basis.

County-Wide and Regional Funding Program

Funding for regional programs that address drought-related and contamination issues for small water systems and domestic wells serving DACs. No deadline. Funding is from the State Water Board.

Restoration Grant Program

Multiple funding programs including wetland restoration, wildlife corridors, and addressing climate impacts. Project categories include: planning, implementation, acquisition, monitoring, and scientific studies. Applications accepted on rolling basis. Funding from CA Dept. of Fish and Wildlife.

Riparian Habitat Conservation Program

The Wildlife Conservation Board is accepting concept proposals for projects that provide meaningful and sustainable improvements to riparian habitats. \$3 Million available on a rolling basis.

Fertilizer Research and Education Program

Total of \$225,000 available for projects on: improving input management, understanding plant-soil processes, and evaluating loss pathways. They are focused on nutrients in general with nitrogen/nitrates as a particular focus. It is a rolling deadline with funding awarded as projects are approved. CA Dept. of Food and Agriculture.

Building Resilient Infrastructure and Communities (BRIC) and Flood Mitigation Assistance (FMA) Programs

Applications accepted through the Governor's Office of Emergency Services. BRIC is prioritizing the following types of projects: infrastructure projects, projects that benefit disadvantaged communities as referenced in EO 14008, and projects that incorporate nature-based solutions including those designed to reduce carbon emissions, climate change adaptation and resilience projects. 25% Match required. Applications accepted on a rolling deadline.