

Stanislaus & Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency 1231 11th Street | Modesto, CA 95354

231 11th Street | Modesto, CA 95354 Email: strgba@mid.org

STRGBA GSA AGENDA

Wednesday, March 12, 2025, 1:30 p.m. https://us02web.zoom.us/j/82844864384 By phone: 1-669-900-9128 Webinar ID: 828 4486 4384

PUBLIC PARTICIPATION The public may participate in this meeting in the three ways described below.

Instructions for Participating in the Workshop via Zoom Webinar or Phone

On your desktop/iPad or tablet/laptop:

- 1. To join the webinar, click the link published in the Agenda for the current meeting about 5 minutes before the webinar begins.
- 2. Follow the on-screen instructions to install and/or launch the Zoom application.
- 3. If prompted, enter the Webinar ID published in the Agenda.
- 4. All public attendees will enter the meeting muted.
- 5. If you wish to speak under Business from the Public, or after the Chairman calls for Public Comment, click on the "Raise Hand" button to request to speak.

On your phone:

- 1. To attend the meeting by phone, call the number published in the Agenda for the meeting.
- 2. Enter the Webinar ID published in the Agenda, then hit the # symbol.
- 3. All public attendees will enter the meeting muted.
- 4. If you wish to speak under Business from the Public, or after the Chairman calls for Public Comment, press
 *9 on your phone to "Raise Hand" or simply request to speak.

In person: Oakdale Irrigation District, 1205 East F Street, Oakdale

To view a physical copy of the agenda, please visit the Oakdale Irrigation District office at 1205 East F Street, Oakdale. A complete copy of the agenda packet is also available on <u>www.strgba.org</u>

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



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- 1. Call to Order/Welcome and Introductions (Four agencies are needed for a quorum)
- 2. Business from the Public Who: Public

Expected Outcome: Interested persons are welcome to introduce any topic within the GSA's jurisdiction. Matters presented under this heading may be discussed but no action will be taken by the GSA at this meeting. It is not required, but speakers may provide their name and address. Public Comments will be limited to five minutes per speaker.

- Topic: Approve 12/18/2024 Meeting Minutes Who: Eric Thorburn, Committee Expected Outcome: Approval
- Topic: Elect 2025 STRGBA GSA Chairman and Vice Chairman Who: Eric Thorburn. Committee Expected Outcome: Approval
- 5. Topic: 2024 Water Year Annual Report Presentation & Schedule Who: Todd Groundwater & Woodard Curran, Committee Expected Outcome: Discussion
- Next meeting March 26, 2025, at 1:30 p.m.
 *In-person offered at Oakdale Irrigation District
- 7. Committee Comments/Reports



MEETING MINUTES

December 18, 2024 (1:30 p.m. - 3:00 p.m.)

The meeting was called to order at 1:31 p.m.

1. Welcome and Introductions

The following members of the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency (STRGBA GSA) attended either in-person or via Zoom.

In-Person Member Agency Attendees:

Modesto Irrigation District (MID):	Jesse Franco
Oakdale Irrigation District (OID):	Eric Thorburn
Stanislaus County:	Christy McKinnon
City of Oakdale:	Ian Sather
City of Modesto:	Tim Barahona
City of Riverbank:	Darin Smallen
City of Waterford:	Mike Pitcock

Other Attendees:

John Brichetto Robert Frobose Stacy Henderson Louie Brichetto Julia Berry David Cameron Williams Fogarty Louis Brichetto Anthony Ratto Mike Day Alexis Stevens Dimitri Lee Margaret Caligris Matthew Toste Sean Roddy Larry Byrd

- 2. Business from the Public N/A
- 3. Approve 11/13/2024 Meeting Minutes [Action item]

Franco moved, seconded by Barahona to approve the 11/13/2024 meeting minutes.



4. Discussion and Take Possible Action to Proceed with Well Mitigation Program and Management Actions Public Workshops in lieu of Formation of a Workgroup

McKinnon provided an update on the proposal to transition from a workgroup to a workshop structure.

- > Fogarty expressed concern about the lack of structure.
- Anthony Ratto inquired about the workshop communications and how to get feedback and GSA recommendation from the workshop to GSA.
- Sean Roddy inquired how we are going to develop technical data for the public to be able to understand.
- Henderson asked who wrote Christy's statement from the 11/13/2024 meeting. Christy stated staff in Stanislaus County Environment Resources.
- Cameron asked about the structure of the proposed workshop. Inquired about how the committee will take comments from the workshop.
- Brichetto asked if Woodard Curran contract was posted online. Franco advised we don't typically post the contract but will post the scope of work.
- Day asked about wells going dry and how the GSA will pay for those and what are the management actions we need to do as a subbasin, and projects triggered when we can't meet our thresholds.

Pitcock moved, seconded by Smallen to approve action to proceed with well mitigation program and management actions public workshops in lieu of formation of a workgroup.

- 5. Approve Cancellation of the Regularly Scheduled January 8, 2025, STRGBA GSA Meeting
 - Pitcock moved, seconded by Franco, to cancel the regularly scheduled January 8, 2025 STRGBA GSA Meeting.

6. Next Meeting

February 12, 2025, at 1:30 p.m.

7. Committee Comments/Reports

- A reminder was issued to member agencies to submit data for the Water Year 2024 Annual Report.
- Paul Peschel will be replacing Jesse Franco as the primary representative, with Franco continuing as the alternate.
- Ian Sather informed the group that Jeff Roberts will replace him as the representative for the City of Oakdale.

MODESTO ANNUAL REPORT WY 2024 Schedule

Annual Report deliverable TAC Planning Group meeting GSA meeting

February 2025



Report

- February 28: Admin Draft to GSA
- March 7: GSA comments due
- March 13: Provide Draft for Public Review
- March 18: Public comments due
- March 25: Final Report to GSA
- Submit to DWR after the March 26th GSA meeting

Meetings

- February 3: TAC Planning Group (discuss available draft results)
- March 3: TAC Planning Group (discuss model results, draft annual report)
- March 12: GSA meeting (discuss model results, draft annual report)
- March 19: TAC Planning Group if necessary (review public comments)
- March 26: GSA meeting (final report approval)



MODESTO SUBBASIN GSP WY 2024 ANNUAL REPORT – DRAFT RESULTS

STRGBA GSA Meeting March 12, 2025



Agenda

- Groundwater Level Summary
- Water Quality Analysis
- Reported Dry Wells
- Subsidence Analysis
- Progress toward Sustainability





GROUNDWATER LEVEL ANALYSIS, WY 2024

- Summary of monitoring program and uploads (59 RMWs)
- SMC analysis and contour maps
- Hydrographs documenting trends
- At most wells, water levels in Fall 2023 and Spring 2024 higher than Fall 2022





DEFINITION OF UNDESIRABLE RESULTS

Chronic Lowering of Groundwater Levels



An undesirable result will occur when at least 33% of representative monitoring wells exceed the MT for a principal aquifer in three (3) consecutive Fall monitoring events.

Interconnected Surface Water



An undesirable result will occur on one of the rivers when 33% to 50% of the representative monitoring wells for that river exceed the MT in three (3) consecutive <u>Fall</u> monitoring events. (33% on Stanislaus and Tuolumne rivers, 50% on San Joaquin River) T

WY 2024 MINIMUM THRESHOLDS (MTS)

Chronic Lowering of Water Levels

	Fall 2023	Spring 2024	
Western Upper Principal Aquifer			
Above MT	17	17	
Below MT	0	0	
Not Measured	0	0	
% Below (includes measured wells)	0%	0%	
Western Lower Principal Aquifer			
Above	4	5	
Below	1	0	
Not Measured	0	0	
% Below (includes measured wells)	20%	0%	
Eastern Principal Aquifer			
Above	26	30	
Below	11	7	
Not Measured	2	2	
% Below (includes measured wells)	30%	19%	



WY 2024 MINIMUM THRESHOLDS (MTS)

Interconnected Surface Water

	Fall 2023	Spring 2024	
San Joaquin River			
Above	2	2	
Below	0	0	
Not Measured	0	0	
% Below (includes measured wells)	0%	0%	
Stanislaus River			
Above	6	7	
Below	2	1	
Not Measured	0	0	
% Below (includes measured wells)	25%	13%	
Tuolumne River			
Above	8	9	
Below	1	0	
Not Measured	1	1	
% Below (includes measured wells)	11%	0%	



SUMMARY OF GSP MONITORING EVENTS

		Percent of Measured RMWs Below MT				
Undesirable Results Definition	Principal Aquifer/River	WY 2022	WY 2023		WY 2024	
		Spring 2022	Fall 2022	Spring 2023	Fall 2023	Spring 2024
Chronic Lowering of Groundwater Levels						
At least 33% of RMWs exceed the MT for that Principal Aquifer in three (3) consecutive Fall monitoring events.	Western Upper	0%	6%	0%	0%	0%
	Western Lower	20%	20%	0%	20%	0%
	Eastern	28%	57%	32%	30%	19%
Interconnected Surface Waters						
At least 33% (Stanislaus and Tuolumne) or 50% (San Joaquin) of RMWs for a river exceed the MT in three (3) consecutive Fall monitoring events	San Joaquin River	0%	50%	0%	0%	0%
	Stanislaus River	25%	75%	25%	25%	13%
	Tuolumne River	11%	56%	22%	11%	0%



Fall GSP Monitoring Event - below threshold Fall GSP Monitoring Event - above threshold

Fall 2023 Eastern Principal Aquifer



30% of RMWs below MT

- 26 wells > MT
- II wells < MT</p>
- 2 wells not monitored
- I4 RMWs have IMs (I3 above and I NM)



GROUNDWATER LEVEL TRENDS

- Small recovery in many wells in WY2024
- Eastern Subbasin still characterized by decline and levels below MTs



Water Quality Undesirable Results



from the Modesto Subbasin GSP:

"An undesirable result will occur when a Subbasin potable water supply well in the defined monitoring network reports a new (first-time) exceedance of an MT or an increase in concentration above the MT for a Modesto Subbasin constituent of concern that results in increased operational costs and is caused by GSA management activities as listed above."

Baseline monitoring network established in WY 2021 Annual Report

- 361 wells
- 7 constituents of concern: As, NO₃, U, TDS, I,2,3-TCP, PCE, and DBCP
- Identified maximum concentration from WY 1991 to WY 2021
- Compared data to baseline wells, which were monitored for each constituent of concern in WY 2021

WATER QUALITY ANALYSIS

- WY 2024 water quality data downloaded from GAMA database (GeoTracker)
- Compared to the WY 1991 to 2023 historical maximum to identify any new MCL exceedances or increases above the MCLs
- Potable water supply wells individually examined to determine if increased concentrations could be related to GSA management
- 7 maps for 7 constituents wells with data during WY 2024



WATER QUALITY ANALYSIS



260 wells in WY 2024 monitoring network

- I62 municipal
- I domestic
- 97 monitoring wells at regulated facilities

(101 baseline wells not monitored during WY2024)



WATER QUALITY ANALYSIS

 I0 potable supply wells had first-time MCL exceedances or increases above the MCLs

Chemical	First-time above MCL	Further increase above MCL
Nitrate	2	4
Uranium	I	1
I,2,3-TPC	0	2

Contaminant increases not due to GSA water management



NITRATE

- Nitrate measured in 114 RMWs during WY 2024
- 2 potable water supply well reported firsttime MCL exceedance (red)
- 4 potable water supply wells reported further MCL exceedances (orange)



Nitrate (MCL = 10 mg/L)

Above MCL - First-Time (3)
Above MCL - Above Historical Maximum (4)
Above MCL - Equal to or Below Historical Maximum
Detection - Equal to or Below MCL (160)
Non-Detect (5)



NITRATE: 5000048-002 AND 5000048-003 (EASTERN PRINCIPAL AQUIFER)

- At Mobile Home Park
- First-time exceedance of 10 mg/L MCL in 500048-002
- Further exceedance in 5000048-003









NITRATE: 5000048-002 AND 5000048-003 (EASTERN PRINCIPAL AQUIFER)

- Water levels in closest RMWs above MTs in WY 2024
- Nitrate trends don't correspond to water level trends

Nitrate (as N) Concentrations 5000048-002 and 5000048-003







Reported Dry Wells During WY 2024



- No dry wells reported in Modesto Subbasin during WY 2024
- In contrast, four reports of dry wells during WY 2023



SUBSIDENCE, WY 2024



- WY 2024 land subsidence based on DWR InSAR data
- Vertical ground displacement indicated ground surface rise up to 0.05 ft (0.6 inches)
- Localized areas in eastern Subbasin indicate as much as -0.05 ft (-0.6 inches)
- All results within 0.6 inch InSAR margin of error

SUBSIDENCE, JUNE 2015 TO SEPTEMBER 2024



- Vertical ground displacement within margin of error in most Subbasin.
- Areas in western Subbasin and north of Modesto Reservoir show cumulative vertical ground displacement of -1.2 to -0.6 inches
- Highest rates of subsidence in eastern Subbasin in areas with water level declines.



SUBSIDENCE, GPS STATION CMOD



- WY 2024: net vertical displacement of -0.1 inches
- October 2006 to Sept 2024: net vertical displacement of -0.8 inches.



SUBSIDENCE, GPS STATION P306



- WY 2024: net vertical displacement of -0.02 inches
- September 2006 to Sept 2024: net positive vertical displacement of 0.3 inches.
- Ground surface elevation relatively stable



PROGRESS TOWARD SUSTAINABILITY

Major Phase I Projects underway in WY 2024

- Oakdale Irrigation District In-lieu and Direct Recharge Project
- Oakdale Irrigation District grant-funded Paulsell Lateral Expansion
- Modesto Irrigation District Long-Term Groundwater Replenishment Program (GRP)
- City of Modesto projects to increase surface water use, to recharge stormwater, and to conserve water
- Planning for Management Actions is underway as of early WY 2025
 - Well Mitigation Plan
 - Groundwater Accounting and Reporting Program
- Revised GSP approved by DWR



DWR RECOMMENDED CORRECTIVE ACTIONS

- I. Refine well impact analysis to assess beneficial uses, including GDEs
- 2. Report on implementation of Projects and Management Actions, specifically Non-District East and pumping management/demand reduction
- 3. Discuss aquifer beneficial uses and address HCM data gaps/uncertainties
- 4. Revise definition of undesirable results for water quality, specifically account for unmanaged pumping
- 5. Estimate location, quantity, timing of stream depletion; use DWR guidance
- 6. Provide more information on monitoring network; discuss adequacy in areas with poor distribution of wells



MODESTO ANNUAL REPORT WY 2024 Schedule

Meetings

Report

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QUESTIONS?



MODESTO SUBBASIN SGMA:

2024 ANNUAL REPORT: C2VSIMTM MODEL UPDATE

STRGBA GSA MEETING

MARCH 12, 2025



MODESTO GSP: 2024 ANNUAL REPORT

Project Tasks

Compile Data

- Precipitation
- Evapotranspiration
- Stream Flow & Boundary Conditions
- Land Use & Cropping Patterns
- Surface Water Operations
- Groundwater Operations

Update C2VSimTM

- Water Use Budgets
- Groundwater Budgets
- Pumping & Change in Storage Maps
- Stream & Groundwater Hydrographs

Prepare 2024 Annual Report

MODESTO GSP: 2024 ANNUAL REPORT

- The Revised Modesto GSP was submitted to DWR in July 2024.
- The Revised Modesto GSP was APPROVED by DWR in March 2025.
- The fourth Annual Report is due to DWR on April 1, 2025.
 - Annual Reports are due to DWR "by April I of each year" (§356.2).
 - The fourth Annual Report covers the 2024 water year (Oct 2023 Sept 2024).
 - Annual Report regulations require that water budget analyses (i.e., change in storage) use "historical data to the greatest extent available, including from January I, 2015, to the current reporting year" (§356.2 (b)(1)(B) and §356.2 (b)(5)(B)).

MODEL UPDATE

Goals: Support the Annual Report by developing:

- Subbasin-wide water budgets
- Temporal and spatial estimates of groundwater production
- Temporal and spatial estimates of change in storage by aquifer

Approach: Update the Modesto Groundwater Model for WY 2024

- Extend all time-series input files with the best available data.
- A verification of the model performance will be performed.
- No changes to the model structure or parameters will be made.

PUBLICLY AVAILABLE DATA

State, Federal, & Other Resources:

- Precipitation
- Evapotranspiration
- Land Use Data
- Riparian Diversions
- Stream Flow Data
- Groundwater Levels

on CIMIS DWR DWR ons eWRIMS ta CDEC & USGS evels CASGEM & WDL DWR SGMA Data Viewer

PRISM



GMA Data Viewer

2 < 1 / 0

Current Conditions

Groundwater Levels

Groundwater Storage
 Water Quality
 Land Subsidence

📷 Interconnected Surface Wate

LOCAL DATA

Agricultural Operations

- River diversions
- Farm-gate deliveries
- Municipal deliveries
- Reservoir seepage
- Conveyance seepage
- Groundwater production

Agricultural Agencies:

Modesto Irrigation District Oakdale Irrigation District

Urban/Municipal Operations

- Population of service area
- Groundwater production
- Recycled water deliveries

Municipal Agencies:

City of Modesto City of Riverbank City of Oakdale City of Waterford
Precipitation



PRECIPITATION



Data Source: PRISM

2016 (D)	17.01 in
2017 (W)	20.73 in
2018 (BN)	9.88 in
2019 (W)	18.19 in
2020 (D)	10.23 in
2021 (C)	8.51 in
2022 (C)	11.41 in
2023 (W)	25.15 in
2024 (AN)	16.67 in
Average	15.31 in

TEMPERATURE



Data Source: CIMIS

- #71 (Modesto)
- #168 (Denair)
- #206 (Denair II)
- #194 (Oakdale)



Evapotranspiration



Data Source: CIMIS

- #71 (Modesto)
- #168 (Denair)
- #206 (Denair II)
- #194 (Oakdale)



Observed Streamflow and GWL Data



Data Source:

- Stanislaus
 - CDEC: Goodwin Dam
 - USGS: at Ripon
 - CDEC: at Koetitz Ranch
- Tuolumne
 - MID: La Grange Dam
 - USGS: at Modesto
- San Joaquin River
 - USGS: near Newman
 - USGS: at Vernalis
 - CDEC: near Patterson

Land Use & Cropping Patterns



Data Source: DWR

Urban	35,000
Native Veg.	68,000
Riparian Veg.	13,000
Idle	6,000
Other Ag.	2,000
Grains	3,000
Alfalfa	2,000
Vineyards	3,000
Pasture	13,000
Corn	13,000
Other Orchards	21,000
Almonds & Pistachios	67,000
Total	246.000

246,000 Units: acres

Land Use & Cropping Patterns



Data Source: DWR

	Urban	35,000
	Native Veg.	68,000
	Riparian Veg.	13,000
	Idle	6,000
	Other Ag.	2,000
	Grains	3,000
	Alfalfa	2,000
	Vineyards	3,000
	Pasture	13,000
	Corn	13,000
	Other Orchards	21,000
	Almonds & Pistachios	67,000
•	Total	246,000
		Units: acres

SURFACE WATER OPERATIONS



Data Source:

- Modesto ID
 - Ag Deliveries
 - M&I Deliveries
 - Modesto Res. Recharge
 - Conveyance Recharge
- Oakdale ID
 - Southern Deliveries
 - Out of District Sales
 - Conveyance Recharge
- Riparian Diversions

SURFACE WATER OPERATIONS



Data Source:

- Modesto ID
 - Ag Deliveries
 - M&I Deliveries
 - Modesto Res. Recharge
 - Conveyance Recharge

Oakdale ID

- Southern Deliveries
- Conveyance Recharge
- Out of District Sales

Riparian Diversions

GROUNDWATER OPERATIONS



Data Source:

- Modesto ID
- Oakdale ID
- Modesto, City of
- Oakdale, City of
- Riverbank, City of
- Waterford, City of

GROUNDWATER OPERATIONS







MODEL RESULTS

WATER BUDGETS



Modesto Subbasin: Land and Water Use



Modesto Subbasin: Operational Budget





Net Recharge

Modesto Area: Land and Water Use



MODESTO AREA: OPERATIONAL BUDGET



■ Groundwater Pumping ■ Deep Percolation ■ Canal and Reservoir Recharge

Net Recharge

OAKDALE AREA: LAND AND WATER USE



OAKDALE AREA: OPERATIONAL BUDGET



■ Groundwater Pumping ■ Deep Percolation ■ Canal and Reservoir Recharge

Net Recharge

NON-DISTRICT WEST: LAND AND WATER USE



NON-DISTRICT WEST: OPERATIONAL BUDGET



■ Groundwater Pumping ■ Deep Percolation ■ Canal and Reservoir Recharge

Net Recharge

NON-DISTRICT EAST: LAND AND WATER USE



NON-DISTRICT EAST: OPERATIONAL BUDGET



■ Groundwater Pumping ■ Deep Percolation ■ Canal and Reservoir Recharge

Net Recharge

GROUNDWATER PUMPING – SUBBASIN



Water Year 2024

Pumping

- Ag Agency I0,000 AF
- Ag Private 201,000 AF
- Urban Agency 35,500 AF
- Urban Private 14,300 AF
- Total 260,800 AF

I.I ft



MODEL RESULTS

CHANGE IN STORAGE



Modesto Subbasin: Groundwater Budget



Water Year 2024 Groundwater Budget Pumping -260,800 Deep percolation 186,700 Canal recharge 46,600 Gain from stream 47,700

- Subsurface inflow -17,200
- Foothill inflow 4,800

• Δ Storage +7,800

Change in Storage – Subbasin



Water Year 2024

Change in Storage (AF)Subbasin+7,800Western Upper+3,500Western Lower+11,700Eastern-7,400

Change in Storage (ft)

- Subbasin 0.0
- Western Upper +0.1
- Western Lower +0.2
- Eastern 0.0

CHANGE IN STORAGE – WESTERN UPPER PRINCIPAL AQUIFER



Water Year 2024

Change in Storage	(AF)
Subbasin	+7,800
Western Upper	+3,500
Western Lower	+11,700
Eastern	-7,400

Change in Storage (ft)

- Subbasin 0.0
- Western Upper +0.1
- Western Lower +0.2
- Eastern 0.0

CHANGE IN STORAGE – WESTERN LOWER PRINCIPAL AQUIFER



Water Year 2024

Change in Storage (AF) Subbasin +7,800 Western Upper +3,500 Western Lower +11,700 Eastern -7,400

Change in Storage (ft)

- Subbasin 0.0
- Western Upper +0.1
- Western Lower +0.2
- Eastern 0.0

CHANGE IN STORAGE – EASTERN PRINCIPAL AQUIFER



Water Year 2024

Change in Storage (AF) Subbasin +7,800 Western Upper +3,500

- Western Lower +11,700
- Eastern -7,400

Change in Storage (ft)

- Subbasin 0.0
- Western Upper +0.1
- Western Lower +0.2
- Eastern 0.0



MODEL RESULTS

HYDROGRAPHS














GROUNDWATER LEVEL HYDROGRAPHS



GROUNDWATER LEVEL HYDROGRAPHS



QUESTIONS?

