Cosumnes Groundwater Authority

Projects and Management Actions Committee Meeting

Agenda

When: Tuesday, September 12, 2023 - 2:00 pm – 4:00 pm

Where: Galt Police Department Community Room
455 Industrial Way
Or via Zoom: https://us02web.zoom.us/j/81667225786
Meeting ID: 816 6722 5786

ACCESSIBILITY - If you have a disability and require a reasonable accommodation to fully participate in this event, please contact Austin Miller (CGA Secretary) before the day of the meeting via email [info@CosumnesGroundwater.org] or telephone [916-526-5447] to discuss your accessibility needs.

Committee Purpose:

The PMA Committee for the Cosumnes Subbasin, as established by the CGA Board of Directors, is convened to provide a productive venue for input from and information-sharing among the subbasin's groundwater sustainability agencies (GSAs). The Committee will serve an advisory role to the CGA Board, to inform the Board's implementation of the Cosumnes Subbasin GSP.

Agenda Items

1. Call to Order and Introductions

2. Monitoring Network *(25 min)*
    a. Overview Monitoring Requirements and Representative Networks
    b. Fall 2023 and Spring 2024 Monitoring Workplan
    c. Fall 2023 Monitoring Next Steps

3. Groundwater Sustainability Fee Study Development, PMA/Data Gaps Budget *(45 min)*

4. Farmer Survey and Outreach Next Steps *(15 min)*

5. Upcoming Meetings and Committee Report Out

6. Committee Member and Staff Updates

Adjourn Meeting

Cosumnes Groundwater Authority
PMA Committee Meeting

Agenda Date: September 12, 2023
Agenda Item: #2 – Monitoring Network

To: PMA Committee
From: CGA Staff

Background

As required by the Sustainable Groundwater Management Act (SGMA), we are required to perform annual/semiannual monitoring of our Representative Monitoring Networks.

- § 354.32. Introduction to Monitoring Networks: This Subarticle describes the monitoring network that shall be developed for each basin, including monitoring objectives, monitoring protocols, and data reporting requirements. The monitoring network shall promote the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan.

At their August 2023 meeting, the Cosumnes Groundwater Authority approved a contract with EKI Environment & Water to assist with performing the regular monitoring and data collection. EKI has developed the attached presentation to highlight the monitoring requirements, provide an overview of our monitoring networks, and to articulate EKI and CGA's work plan for the Fall 2023 monitoring event.

CGA Staff is developing a physical binder to house all monitoring protocols, access agreements/contact information from well owners, and other key information to ensure the monitoring events are completed successfully and efficiently.

Those interested in learning more about SGMA Monitoring Networks should review these documents:

- Cosumnes Groundwater Sustainability Plan (GSP) Monitoring Network Section
- CA DWR Monitoring Network Best Practices #1
- CA DWR Monitoring Network Best Practices #2
- SGMA Portal – Cosumnes Subbasin

Recommendations

- Assist CGA Staff with contacting well owners in your GSA area.

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EKI TECHNICAL PRESENTATION #40

COSUMNES SUBBASIN GSP IMPLEMENTATION

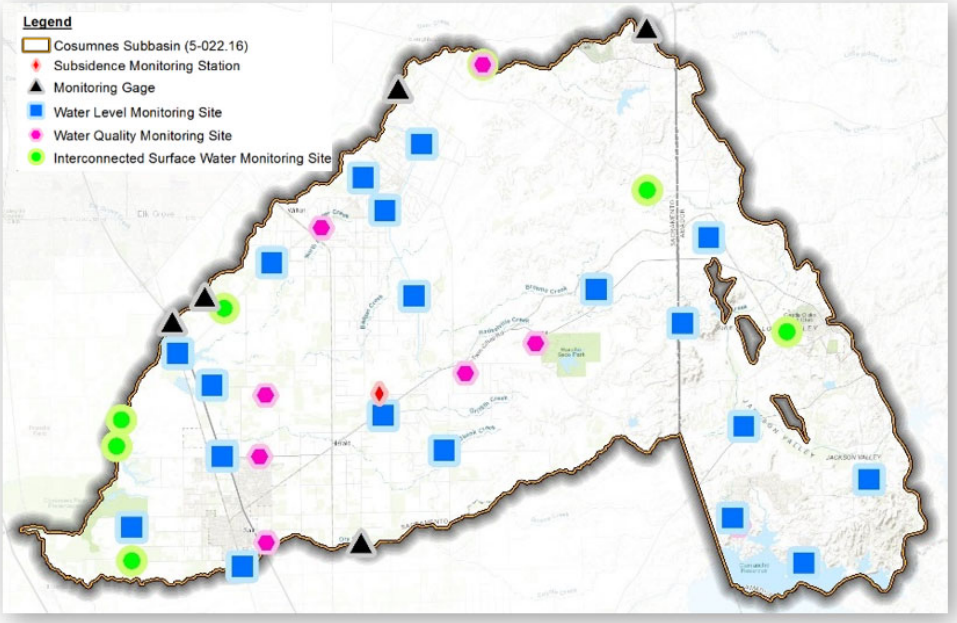
12 SEPTEMBER 2023

COSUMNES GROUNDWATER AUTHORITY PMA MEETING

eki environment & water

OUTLINE

- Cosumnes Subbasin SGMA Monitoring
  - Monitoring Requirements
  - Monitoring Networks
  - Fall 2023 and Spring 2024 Monitoring
  - Next Steps



SGMA Monitoring Networks

MONITORING REQUIREMENTS

- **RMW-WL:** Water levels semiannually
  - Fall (October) & Spring (March)
- **RMW-ISW:** Water levels measured daily (at a minimum semiannually)
  - Fall (October) & Spring (March)
  - Daily if equipped with a transducer
- **RMW-WQ:** Sampled annually
  - Ideally in the Fall (October)
  - Analyzed for the following Constituents of Concerns:
    - Total Dissolved Solids (TDS) in milligrams per liter (mg/L),
    - Arsenic (As) in micrograms per liter (ug/l), and
    - NO3 in mg/L as N (nitrogen)

Table MN-1. Summary of Proposed SGMA Monitoring Network

Sustainability Indicator	RMS Type	Site Count	Measurement	Measurement Frequency	Spatial Density (# sites/100 mi^2)
Chronic Lowering of Groundwater Levels	RMW-WL	19	Water Level	Semiannually	6
Reduction of Groundwater Storage	RMW-WL	19	Water Level	Semiannually	6
Degraded Water Quality	RMW-WQ	14	See constituent list in *Section 17.1.4*	Annually	4
Land Subsidence	Stationary GPS	1	Ground Surface Elevation	Daily	NA
	RMW-WL	19	Water Level	Semiannually	6
Depletions of Interconnected Surface Water	RMW-ISW	9	Water Level	Daily	NA[1]
	RMG	5	Stage and/or Streamflow	Daily	NA[1]

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MONITORING NETWORK (1 OF 6)

Chronic Lowering of GW Levels

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Table MN-2. Proposed SGMA Monitoring Network for Chronic Lowering of Groundwater Levels

Network ID	DMS ID	State Well Number	State Plane Zone 2 (ft NAD 83)		Ground Surface Elevation	Reference Point Elevation	GSA	Basin Subarea	CASGEM ID	Use	Well Depth	Well Screen	Formation	Water Level Record	Notes
			X Coordinate	Y Coordinate	(ft amsl NAVD 88)						ft bgs				
Representative Monitoring Wells															
RMW-WL1	05N06E10P001M	05N06E10P001M	6,758,821	1,868,652	43.5	44.8	Sacramento County	Plain	4824	Irrigation	384	169-361	Laguna	Monthly/semiannually 1963-2021	SCGA monitoring well
RMW-WL2	City of Galt_MW 1654	--	6,762,433	1,848,924	53	54.08	City of Galt	Plain	52075	Monitoring	1654	1614-1644	Valley Springs	Quarterly 2015-2021	
RMW-WL3	Gallo North Well	--	6,742,615	1,855,948	24.5	--	Sacramento County	Plain	--	Irrigation	--	--	Laguna	Annual 2020	
RMW-WL4	06N06E29K001M	06N06E29K001M	6,750,851	1,887,130	35.4	36.40	Sacramento County	Plain	5610	Irrigation	600	--	Mehrten	Semiannually 1965-2003; Monthly 2015-2017	
RMW-WL5	SH_Mulrooney	--	6,787,661	1,876,013	70.3	--	Galt Irrigation District	Plain	--	Irrigation	--	--	Mehrten	None	
RMW-WL6	USGS-381737121102501	05N07E11R002M	6,798,594	1,869,723	117.3	117.29	Galt Irrigation District	Plain	--	Public Supply	228	187-228	Laguna	1968, 1982, Semiannually 2017-2018	
RMW-WL7	06N06E33J002M	06N06E33J002M	6,757,003	1,881,421	48.1	48.50	SRCD	Plain	27447	Domestic	167	80-167	Laguna	Monthly 1966-2018	
RMW-WL8	06N06E11J003M	06N06E11J003M	6,767,685	1,903,413	69.4	71.36	SRCD	Plain	27151 (V)	Domestic	215		Laguna	Monthly 2012-2016	
RMW-WL9	75 HP Wohle	--	6,793,193	1,897,420	105.6	--	Clay Water District	Plain	--	Irrigation	725	--	Mehrten, Valley Springs	Annualy 1980-1985, 1990-1997, 2002-2005, 2019 & 2021	Meter installed on well
RMW-WL10	OHWD TSS Grant Well mid	--	6,784,078	1,918,666	75.9	85.41	OHWD	Plain	--	Monitoring	325	250-325	Mehrten	Daily 8/2020-Current	TSS Grant well site
RMW-WL11	SH_Washburn	--	6,794,567	1,924,705	106.2	--	SRCD	Plain	--	Domestic	165	110-165	Mehrten	Annually 2000, 2004, 2020 & 2021	Meter installed on well
RMW-WL12	06N08E15J001M	06N08E15J001M	6,825,884	1,898,636	216.3	217.34	SRCD	Plain	28352	Irrigation	150	--	Valley Springs	Semiannually 1953 - 2020	
RMW-WL13	USGS-382444121123301	07N07E33Q001M	6,787,967	1,912,796	134	134.00	SRCD	Plain	51651	Domestic	280	250-280	Mehrten	Weekly 1987-2018	
RMW-WL14	AWA ARM-5	--	6,841,323	1,892,564	363.0	366.86	ACGMA	Foothills	50498	Irrigation	184	84-184	Valley Springs	Monthly/quarterly 2014-2018	
RMW-WL15	AWA MW-1D	--	6,850,283	1,857,597	274.0	274.71	ACGMA	Plain	48615	Monitoring	505	420-495	Valley Springs	Monthly/quarterly 2012-2018	
RMW-WL16	BVR_MW-01	--	6,874,750	1,864,520	287.2	318.21	ACGMA	Foothills	--	Monitoring	200	160-190	Ione	Monthly/quarterly 2009-2019	
RMW-WL17	Camanche North Shore_Well 2	05N09E35Q001M	6,863,055	1,849,572	232.9	232.94	ACGMA	Foothills	--	Public Supply	366	150-350	Valley Springs	Monthly 2012-2019	
RMW-WL18	ACGMA Carbondale	--	6,846,025	1,907,916	222.2	--	ACGMA	Foothills	--	Monitoring	215	--	Ione	2020-2021	TSS Grant well site
RMW-WL19	ACGMA Bamert Rd MW D	--	6,852,295	1,874,075	184.2	--	ACGMA	Foothills	--	Monitoring	163	148-153	Ione	2020-2021	TSS Grant well site

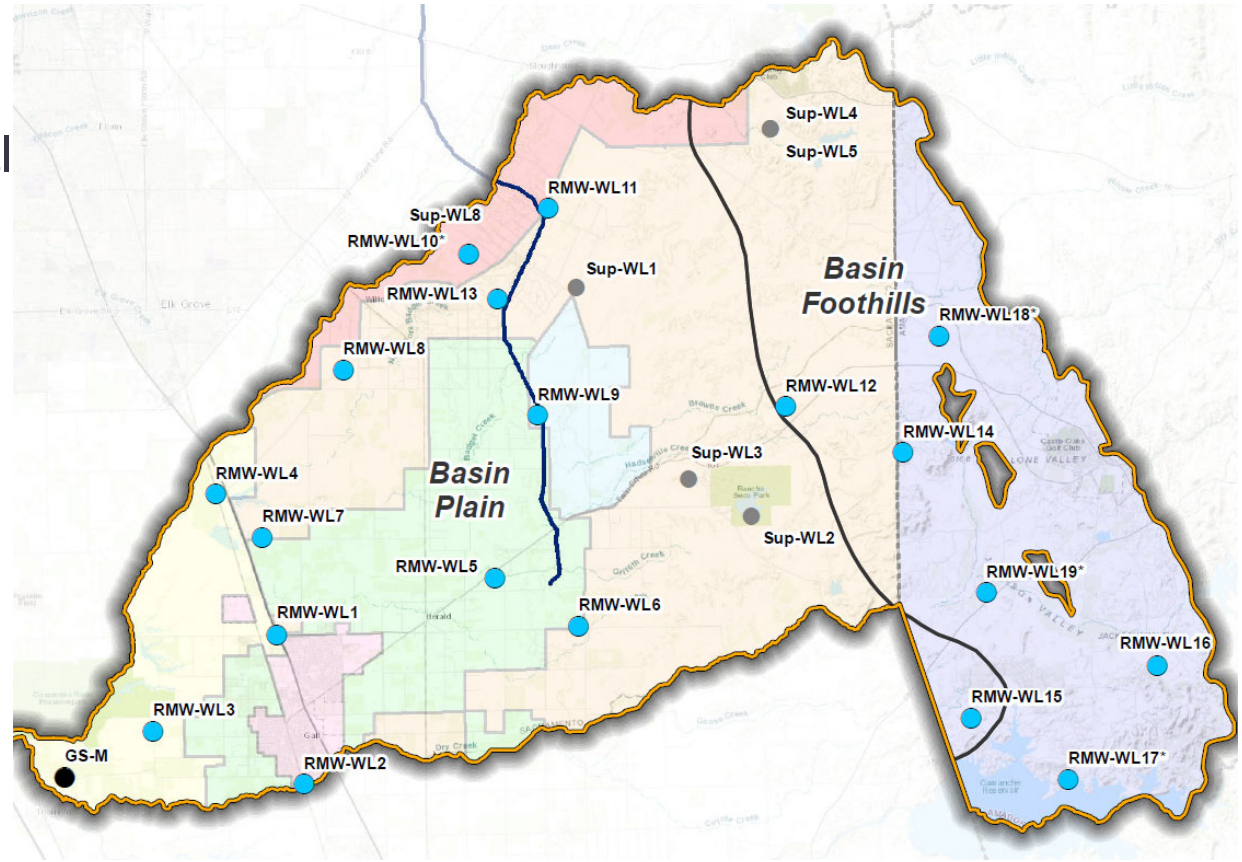
MONITORING NETWORK (2 OF 6)

Chronic Lowering of GW Levels

- **19 RMW-WL wells**
- Access to monitor 6 supplemental wells: 1 public supply, 1 domestic, 1 monitoring, 3 irrigation
- Plans to construct additional well (GS-M)

Well Use Type	# of Wells[a]
Public Water System	2
Domestic	4
Irrigation	7
Monitoring	6

a: well depths range from 150 to 1,654 ft.



Cosumnes GSP Figure MN-1 (Revised to show supplemental wells)

MONITORING NETWORK (3 OF 6)

Interconnected Surface Water

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Table MN-4. Proposed SGMA Monitoring Network for Depletions of Interconnected Surface Water

Network ID	DMS ID	State Well Number	StatePlane Zone 2 (feet NAD 83)		Ground Surface Elevation	Reference Point Elevation	GSA	Basin Subarea	CASGEM ID	Use	Well Depth	Well Screen	Formation	Water Level Record / Flow or Stage Record	Accessibility	Notes
			X Coordinate	Y Coordinate	(ft amsl NAVD 88)						ft bgs					
Representative Monitoring Wells																
RMW-ISW1	05N06E31E003M	05N06E31E003M	6,742,619	1,849,924	22.26	24.76	Sacramento County	Plain	4830 (V)	Unknown	105	--	Victor	Semiannual 1990-1999	Confirmed	
RMW-ISW2	UCW_MW-19	--	6,739,893	1,870,482	18	--	Sacramento County	Plain	--	Monitoring	60	55-60	Victor	Daily 2012-2019	Confirmed	
RMW-ISW3	UCW_MW-5	--	6,740,722	1,875,204	26	--	Sacramento County	Plain	--	Monitoring	64	54-64	Victor	Daily 2012-2019	Confirmed	
RMW-ISW4	06N06E22C001M	06N06E22C001M	6,759,136	1,895,204	52.36	53.36	SRCD	Plain	5607 (V)	Irrigation	141	--	Victor, Laguna	Semiannual 1963-1997	Confirmed	
RMW-ISW5	07N08E06N001M	07N08E06N001M	6,805,551	1,938,936	119.89	119.89	OHWD	Plain	--	Irrigation	135	--	Mehrten	Semiannual 1990-1999	Confirmed	
RMW-ISW6	OHWD TSS Shallow	--	6,784,078	1,918,666	75.9	85.353	OHWD	Plain	--	Monitoring	175	125-175	Laguna	Daily 2020-2021	Confirmed	
RMW-ISW7	AWA Col MW-4	--	6,860,055	1,890,990	267	268.77	ACGMA	Foothills	50500	Monitoring	27	--	Ione	Semiannual 2014-2018	Confirmed	
RMW-ISW8	07N08E36B001M	07N08E36B001M	6,835,016	1,916,394	187.4	189.35	SRCD	Foothills	29338	Monitoring	15	--	Valley Springs	Semiannually 1953-2018	Confirmed	
RMW-ISW9	ACGMA Bamert Rd MW S	--	6,852,295	1,874,075	184.2	--	ACGMA	Foothills	--	Monitoring	78	58-68	Ione	2020-2021	Confirmed	
Representative Monitoring Stream Gauges																
RMG-1	Dry C NR Galt CA	NA	6783708	1853088	--	52.83	SRCD	Plain	NA	NA	NA	NA	NA	Flow: Daily 1926-1997 Stage: Bi-monthly/Quarterly 1995-1997	Uncertain	Inactive
RMG-2	Cosumnes River at McConnell	NA	6749854	1892755	5	5.75	Sacramento County	Plain	NA	NA	NA	NA	NA	Flow: Monthly 1941-1982 Stage: Daily 1982-2019	Uncertain	
RMG-3	Mahon Dam	NA	6755673	1897249	--	--	OHWD	Plain	NA	NA	NA	NA	NA	Flow: Daily 2003-2009 Stage: Daily 2004-2012	Confirmed	
RMG-4	Rooney Dam	NA	6790359	1934592	--	--	OHWD	Plain	NA	NA	NA	NA	NA	Flow: Daily 2003-2011 Stage: Daily 2004-2011	Confirmed	
RMG-5	Cosumnes River at Michigan Bar	NA	6834905	1945415	--	170.48	SRCD	Foothills	NA	NA	NA	NA	NA	Flow: Daily/monthly 1907-2019 Stage: Monthly/quarterly 1936-2019	Uncertain	

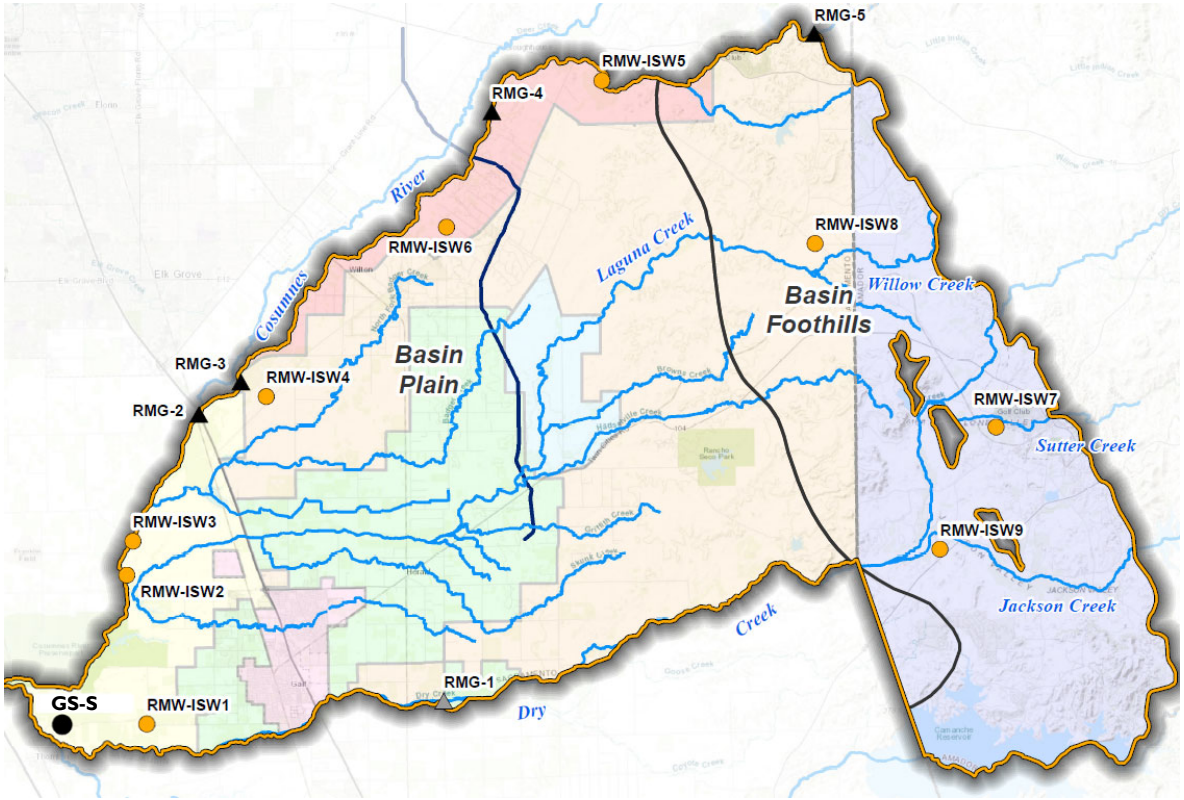
MONITORING NETWORK (4 OF 6)

Interconnected Surface Water

- **9 RMW-ISW wells.**
- Four active gaging stations (one inactive station).
- Plans to construct additional well (GS-S) and recommending re-activating Dry Creek gauging station to fill data gaps.

Well Use Type	# of Wells[a]
Irrigation	2
Monitoring	6
Unknown	1

a: well depths range from 15 to 175 ft.



Cosumnes GSP Figure MN-4

MONITORING NETWORK (5 OF 6)

Degraded Water Quality

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Table MN-3. Proposed SGMA Monitoring Network for Degraded Water Quality

Network ID	DMS ID	State Well Number	State Plane Zone 2 (feet NAD 83)		Ground Surface Elevation	Reference Point Elevation	GSA	Basin Subarea	CASGEM ID	Use	Well Depth	Well Screen	Formation	Water Quality Record	Notes
			X Coordinate	Y Coordinate	(ft amsl NAVD 88)						ft bgs				
Representative Monitoring Wells															
RMW-WQ1	City of Galt_Well 14	--	6,766,737	1,853,177	44	44	City of Galt	Plain	--	Public Supply	750	270-740	Mehrten	As 1992-2015, NO3 1992-2014, TDS 1992-2012	
RMW-WQ2	City of Galt_Well 20	--	6,765,535	1,868,622	51	51	City of Galt	Plain	--	Public Supply	890	355-850	Mehrten	As & TDS 2009-2018, NO3 2009-2016	
RMW-WQ3	SH_Mulrooney	--	6,787,661	1,876,013		--	Galt Irrigation District	Plain	--	Irrigation	--	--	Mehrten	None	
RMW-WQ4	SH_Garcia	--	6,802,422	1,883,578		--				Domestic	--	--	Mehrten	None	
RMW-WQ5	Rancho Seco NGS_MAIN WELL	--	6,815,008	1,888,933	--	--	SRCD	Plain	--	Public Supply	--	--	Mehrten, Valley Springs	As 2004-2018, NO3 1999-2018, TDS 1998	
RMW-WQ6	Dillard Elementary_Dom Well	--	6,776,611	1,909,654	--	--	SRCD	Plain	--	Public Supply	--	--	Laguna, Valley Springs	As, NO3 2001-2018, TDS 2007	
RMW-WQ7*	OHWD TSS Grant Well Mid	--	6,784,078	1,918,666		85.412	OHWD	Plain	--	Monitoring	325	250-325	Mehrten	None, proposed well	TSS Grant well site
RMW-WQ8	07N08E06N001M	07N08E06N001M	6,805,551	1,938,936	119.89	119.89	OHWD	Plain	--	Irrigation	135	--	Valley Springs	--	
RMW-WQ9*	ACGMA Carbondale	--	6,846,025	1,907,916	--	--	ACGMA	Foothills	--	Monitoring	215	--	Ione	None, new well	TSS Grant well site
RMW-WQ10*	ACGMA Bamert Rd MW D	--	6,852,295	1,874,075	--	--	ACGMA	Foothills	--	Monitoring	163	148-153	Ione	None, new well	TSS Grant well site
RMW-WQ11*	Camanche North Shore_Well 2	05N09E35Q001M	6,863,055	849,572	232.94	232.94	ACGMA	Foothills	--	Public Supply	366	150-350	Valley Springs	As, NO3, TDS 1987-2017	
RMW-WQ12	Camanche Well 9	--	6,851,328	1,856,331	316	316	ACGMA	Foothills	--	Public Supply	406	118-312	Valley Springs	As 1994-2008, NO3 1994-2018, TDS 1994-2011	
RMW-WQ13	75 HP Wohle	--	6,793,193	1,897,420	105.6	--	Clay Water District	Plain	--	Irrigation	725	--	Mehrten, Valley Springs	None	Well with meter
RMW-WQ14	SH_Vanwarmerdam		6,766,594	1,879,638		--	Galt Irrigation District	Plain	--	Irrigation	700	--	Mehrten	None	

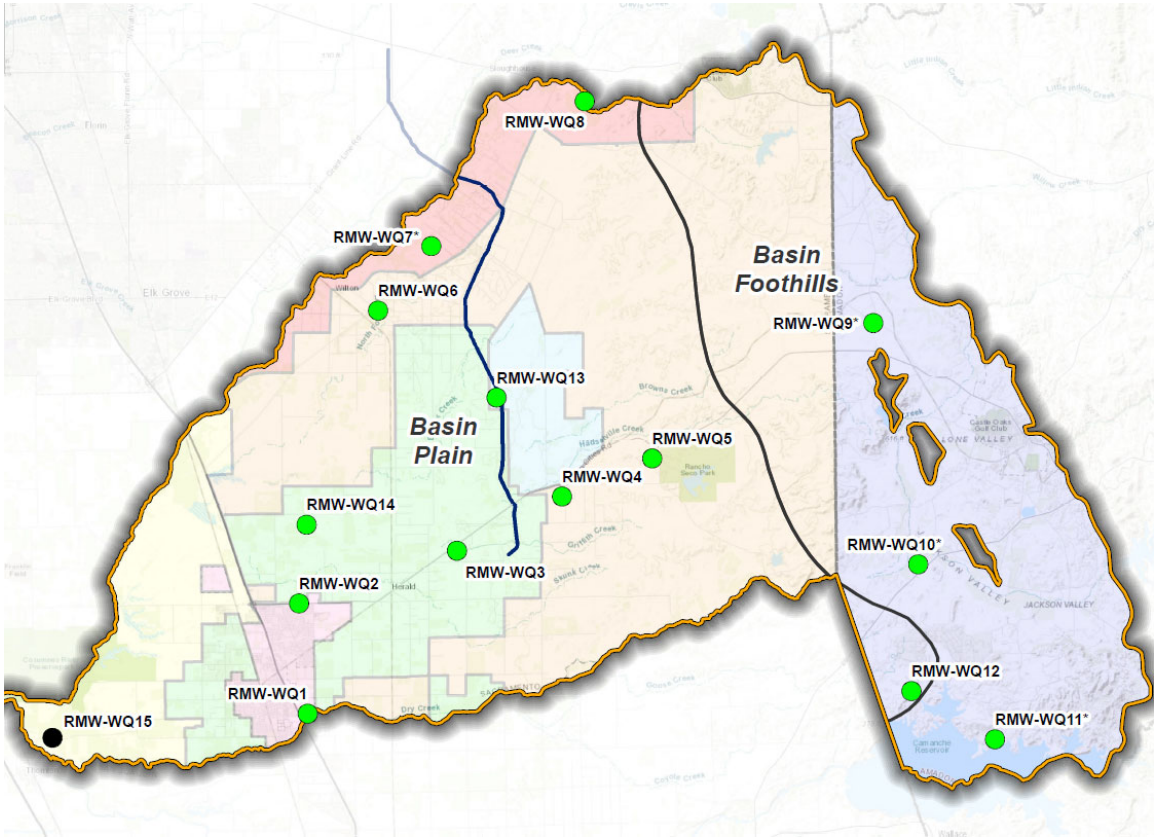
MONITORING NETWORK (6 OF 6)

Degraded Water Quality

- 14 RMW-WQ wells

Well Use Type	# of Wells[a]
Public Water System	6
Domestic	1
Irrigation	4
Monitoring	3

a: well depths range from 135 to 890 feet.



Cosumnes GSP Figure MN-2

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FALL 2023 MONITORING CHECKLIST (1 OF 3)

Network ID	DMS ID	Fall Monitoring Needs		Responsible Sampling Entity
RMW-WL1	05N06E10P001M; CASGEM: 4824; SCGA #25	❑ Water level		Publicly available
RMW-WL2	City of Galt_MW 1654; CASGEM: 52075	❑ Water level		City of Galt
RMW-WL3	Gallo North Well	❑ Water level		CGA
RMW-WL4	06N06E29K001M; CASGEM: 5610	❑ Water level		CGA
RMW-WL5 & RMW-WQ3	SH_Mulrooney	❑ Water level	❑ Water Quality	CGA
RMW-WL6	USGS-381737121102501; SGMA dataviewer: 05N07E11R002M	❑ Water level		Publicly available
RMW-WL7	06N06E33J002M; CASGEM: 27447	❑ Water level		CGA
RMW-WL8	06N06E11J003M; CASGEM: 27151 (V)	❑ Water level		CGA
RMW-WL9 & RMW-WQ13	75 HP Wohle	❑ Water level	❑ Water Quality	CGA
RMW-WL10 & RMW-WQ7	OHWD TSS Mid; SDP: ACR_175_2	❑ Water level	❑ Water Quality	CGA
RMW-WL11	SH_Washburn	❑ Water level		CGA
RMW-WL12	06N08E15J001M; CASGEM: 28352	❑ Water level		CGA
RMW-WL13	USGS-382444121123301; CASGEM: 51651; SGMA dataviewer: 07N07E33Q001M	❑ Water level		Publicly available
RMW-WL14	AWA ARM-5; CASGEM: 50498	❑ Water level		ACGMA
RMW-WL15	AWA MW-1D; CASGEM: 48615	❑ Water level		ACGMA
RMW-WL16	BVR_MW-01	❑ Water level		ACGMA

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FALL 2023 MONITORING CHECKLIST (2 OF 3)

Network ID	DMS ID	Fall Monitoring Needs		Responsible Sampling Entity
RMW-WL17 & RMW-WQ11	Camanche North Shore_Well 2	❑ Water level	❑ Water Quality	ACGMA
RMW-WL18 & RMW-WQ9	ACGMA Carbondale	❑ Water level	❑ Water Quality	ACGMA
RMW-WL19 & RMW-WQ10	ACGMA Bamert Rd MW D	❑ Water level	❑ Water Quality	ACGMA
RMW-ISW1	05N06E31E003M; CASGEM: 4830 (V)	❑ Water level		Publicly available
RMW-ISW2	UCW_MW-19; UC obs_X284214	❑ Water level		CGA
RMW-ISW3	UCW_MW-5; UC obs_X283687	❑ Water level		CGA
RMW-ISW4	06N06E22C001M; CASGEM: 5607 (V)	❑ Water level		Publicly available
RMW-ISW5 & RMW-WQ8	07N08E06N001M	❑ Water level	❑ Water Quality	CGA
RMW-ISW6	OHWD TSS Shallow; SDP: ACR_175_3	❑ Water level		CGA
RMW-ISW7	AWA Col MW-4; CASGEM: 50500	❑ Water level		ACGMA
RMW-ISW8	07N08E36B001M; CASGEM: 29338	❑ Water level		Publicly available
RMW-ISW9	ACGMA Bamert Rd MW S	❑ Water level		ACGMA
RMW-WQ1	City of Galt_Well 14		❑ Water Quality	City of Galt
RMW-WQ2	City of Galt_Well 20		❑ Water Quality	City of Galt
RMW-WQ5 & Sup-WL6	Rancho Seco NGS_MAIN WELL	❑ Water level	❑ Water Quality	CGA
RMW-WQ4 & Sup-WL7	SH_Garcia	❑ Water level	❑ Water Quality	CGA

FALL 2023 MONITORING CHECKLIST (3 OF 3)

Network ID	DMS ID	Fall Monitoring Needs		Responsible Sampling Entity
RMW-WQ14 & Sup-WL9	SH_Vanwarmerdam	❑ Water Level	❑ Water Quality	CGA
RMW-WQ6	Dillard Elementary_Dom Well; SDP: ACR_175_1		❑ Water Quality	CGA
RMW-WQ12	Camanche Well 9		❑ Water Quality	ACGMA
Sup-WL1	SH_Maureen Lamb	❑ Water level		CGA
Sup-WL2	USGS-381956121053401	❑ Water level		CGA
Sup-WL3	USGS-382047121072501	❑ Water level		CGA
Sup-WL4	07N08E10K001M	❑ Water level		CGA
Sup-WL5	07N08E10K002M	❑ Water level		CGA
Sup-WL8	OHWD TSS Grant Well-Deep; SDP: ACR_175_1	❑ Water level		CGA
GS-S	New Hope Road Prop 68 shallow	❑ Water level		CGA
GS-M	New Hope Road Prop 68 mid	❑ Water level		CGA

FALL 2023 MONITORING SUMMARY

- **CGA Fall Monitoring:**
  - **Samplers:**
    - **Confluence: $3,000-$5,000 (2 days – 4 days)**
    - Fruit Growers Lab: $4,000-$6,000 (2 days – 4 days)
  - **Lab WQ Analysis**
    - Pace Labs: $1,048
    - **California Lab Services: $759**
    - Torrent Laboratory, Inc: $2,817
    - Fruit Growers Lab: $648
  - **EKI Support:**
    - Coordination with samplers & CGA; Download publicly available data; QA/QC data and field sheets; Process data: **$2,000-$4,000** (10 hrs – 20 hrs)

Responsible Monitoring Entity	Water Levels	Water Quality
ACGMA	8	4
City of Galt	1	2
CGA Samplers	25	8
Publicly available	6	
TOTAL	**40**	**14**

Sampling:	$5,000
WQ Analysis:	$759
Technical Support:	$4,000
TOTAL	**$9,759**

SPRING 2024 MONITORING SUMMARY

- **CGA Spring Monitoring:**
  - **Samplers:**
    - **Confluence: $3,000-$5,000 (2 days – 4 days)**
  - **EKI Support:**
    - Coordination with samplers & CGA; Download publicly available data; QA/QC data and field sheets; Process data: **$2,000-$4,000** (10 hrs – 20 hrs)
- **Monitoring, scheduling and coordination should be more efficient this event**

Responsible Monitoring Entity	Water Levels	Water Quality
ACGMA	8	--
City of Galt	1	--
CGA Samplers	25	--
Publicly available	6	--

Sampling:	$5,000
Technical Support:	$4,000
TOTAL	**$9,000**

NEXT STEPS

- EKI contract with Confluence & California Lab Services
- EKI support CGA with scheduling Fall 2023 Monitoring Event
- CGA coordinate with each well owner
- CGA develop Monitoring Network Binder with EKI's support as needed
- Pre-monitoring meeting with CGA, EKI & Confluence
- Confluence perform Fall 2023 Monitoring event, accompanied by CGA, in October
- Post-monitoring meeting with CGA, EKI & Confluence
- EKI presents draft data at November CGA Board of Directors meeting
- CGA uploads monitoring data to DWR by end of year

Cosumnes Groundwater Authority
PMA Committee Meeting

Agenda Date:	September 12, 2023
Agenda Item :	#3 – Groundwater Sustainability Fee Study Development, PMA and Data Gaps Budget Review/Recommendations
To:	PMA Committee
From:	CGA Staff

Background

The Cosumnes Groundwater Authority (CGA) Board of Directors has engaged SCI Consulting to draft an updated groundwater sustainability fee study which depicts anticipated operational and project expenses required to implement the Cosumnes Subbasin Groundwater Sustainability Plan (GSP). The current draft fee study budget has a placeholder of $442,000 for GSP Update, Projects & Management Actions, and Data Gap Filling.

Before the fee study is finalized, this budget needs further clarity. EKI and CGA Staff have extracted the components/tasks from CGA's CA DWR Sustainable Groundwater Management Grant Application (submitted December 2022) that was not funded to serve as a tool for making recommendations on which activities to include in the fee study.

Recommendations

- Develop recommendations for the Fee Study Budget.

Grant Component	#	Tasks	Assumptions	Reason for Task	Anticipated Timeline	Cost Estimate	Component Total
Groundwater Monitoring Improvement	1	Installation of Representative Monitoring Wells (RMWs)	1-4 RMWs; Includes well siting, well design & permitting, well installation & development	Data Gap Filling: Multi-depth monitoring sites are needed to evaluate possible perched groundwater conditions that likely support GDEs and/or single wells are needed to improve the representation of groundwater conditions in high interest areas (beneath the area overlying the mapped cone of depression, etc.).	3 years	$ 585,000	$ 1,090,000
	2	Geophysics of clay layer		Data Gap Filling: Geophysical surveys will be conducted to increase the understanding of the inferred clay bed, thought to be present beneath the western third of the Basin, to identify areas that need additional monitoring and to help inform optimal recharge sites.	1-2 year	$ 130,000	
	3	Installation of streamgauges	1-3 streamgauges	Data Gap Filling: There are inactive surface water gauges or inactive measurement and recording of flow and/or stage on Dry Creek and no surface water gauges on other streams of interest in the Basin.	1-2 years	$ 140,000	
	4	Downhole video logging	16 RMWs that have missing construction information	Data Gap Filling: Well construction information should be known in order to utilize water level or other data collected from RMWs.	1 year	$ 40,000	
	5	Well Survey	35 RMWs with existing data that does not meet SGMA-compliant accuracy	Data Gap Filling: Surveying measurement point elevations and location coordinates to increase accuracy.	1 year	$ 85,000	
	6	Water level instrumentation	1-4 RMWs	Data Gap Filling: Water level instrumentation will be installed in the RMW-ISWs without instrumentation (per the GSP RMW-ISWs should be collecting data on a daily basis) or any new RMS cluster sites. The resulting data will be integrated into the Basin DMS to support GSP implementation and refinement of the numerical model.	1-2 years	$ 40,000	
	7	Expansion of Supplemental Well Network		Data Gap Filling: Solicit volunteers to include their wells in the monitoring network, specifically domestic wells that are shallowest and more vulnerable to declining water levels; Additional data will be used to confirm representativeness of each RMS, to support the wider understanding of the Basin hydrology, response to PMAs and to ensure all stakeholders are being represented.	1-3 years	$ 20,000	
	8	DMS update	Develop a more user friendly DMS	Data Gap Filling: Develop a user-friendly DMS that can build off the existing DMS to increase its effectiveness for groundwater management and will allow CGA to more readily review and visualize data, assist GSP implementation, and provide effective materials for public outreach.	1-2 years	$ 50,000	

Conservation Demonstration Projects	9	Update Land Use	Land IQ update and refine land use data	Data Gap Filling: Agricultural pumpage is calculated based off of land use, ET, soil properties, curve numbers for runoff, and root depths. Routine field-verification and updating of mapped land uses utilized by the model will improve the future reliability of the Basin's water budget.	1-2 years	$ 65,000	**$ 1,072,000**
	13	Installing Monitoring Equipment: Weather Stations	2 Eddy Covariance stations + 4 Water IQ stations	Data Gap Filling: The local ET data provided from the weather stations will be utilized to refine input data sets relied upon by the Basin's numerical model to calculate ET and estimate groundwater pumpage. As noted in the GSP, up to 70% of applied water is consumed as ET, but the uncertainty associated with ET estimates could be as large as 20%, representing significant uncertainty in the model-calculated water budget.	1-2 years	$ 200,000	
	10	Identify, Rank, Select & Design Project Sites	A site screening GIS-based tool will be developed that utilizes a scoring framework to identify and rank land areas for demostration projects. Select 1-4 project sites.	Groundwater Reduction/Data Gap Filling: Project Sites will help clarify questions on implementation costs; potential economic impacts on farmers, including the need for compensation and or incentives to inspire voluntary participation; and how to quantify the benefits associated with conservation strategies. Demonstration project results will be utilized to develop BMPs, or modify existing BMPs, for inclusion in the GSP to help direct policy decisions that incentivize water savings and guide implementation by participating landowners.	1-2 years	$ 50,000	
	11	Voluntary Land Repurposing Program plan	A site screening GIS-based tool will be developed that utilizes a scoring framework to identify and rank land areas for different alternative uses. The screening tool paired with the scoring criteria will identify potential land repurposing opportunities, and the most promising alternatives will be selected based on landowner interest. The results will be summarized in the Plan which will guide decisions and the next steps in repurposing the candidate lands during GSP implementation.	Groundwater Reduction: Reductions in groundwater use through land repurposing (voluntary changes in land use) is identified in the GSP as a PMA that can be implemented during the first five-year phase (Phase 1) of the GSP.	1-2 years	$ 50,000	
	12	Construction infrastructure at Project Sites	Includes environmental compliance; 1-4 demonstration sites	Groundwater Reduction: Construct any needed infrastructure at the Demonstration Sites (e.g., weirs, field modifications, supply and return ditch modifications, etc.) to develop guidance for conservation activities that can implemented throughout the Basin.	2-3 years	$ 77,000	

14	Installing Monitoring Equipment: Irrigation deficit	With guidance from professional Agricultural Advisors, the GSAs will conduct a demonstration project	Groundwater Reduction/Data Gap Filling: There is a lack of information to assess potential impacts of deficit irrigation for local conditions in the Basin. To fill this data gap, a demonstration project will be conducted on a local pasture to monitor soil moisture conditions and forage value (quantity and quality) under controlled irrigation conditions.	1-3 years	$	50,000
15	Installing Monitoring Equipment: Soil moisture sensors/Irrigation Precision	Install equipment at 4-8 sites	Groundwater Reduction/Data Gap Filling: Use data from instrumentation to identify water use reduction practices that could be broadly applied throughout the Basin	1-3 years	$	80,000
17	Develop BMPs		Groundwater Reduction: Provide guidance on implementing demand reduction activities	1-2 years	$	25,000
18	Public Engagement	Grower outreach from ag advisors/Land IQ	Groundwater Reduction/Data Gap Filling: Conduct outreach to landowners within the subbasin to identify parties interested in participating in conservation demonstration projects, sharing of preliminary results, provide up-to-date status reports and education.	1-2 years	$	25,000
19	Landowner Incentives	***Not in Grant Application - Assumption is PER YEAR COST***	*Groundwater Reduction*	1 year	$	450,000
20	Data Gap Filling: Well census	Wells documented within the DMS and identified in DWR's OSWCR database will be further investigated and attempted to be located. The improved well inventory will document current well use and status, or if the well cannot be located it will be identified as abandoned. Additionally, wells that are found during the census that are not contained with the Basin's DMS will be added.	Data Gap Filling: Uncertainty about well use and status. Uncertainty regarding well use and status limits the analyses the GSA can conduct when assessing sector-specific impacts and introduces uncertainty within the tools the GSA are relying upon to manage Basin groundwater conditions. Maintaining an accurate accounting of existing well use and status is therefore critical for ongoing Basin management and GSP compliance to ensure all beneficial users of groundwater are being identified.	1-2 years	$	45,000
21	Data Gap Filling: GDEs monitoring	Includes GDEs field mapping, GDE Pulse Tool, Process & analyze Data,	Uncertainty in conditions near GDEs. As identified in the GSP, ongoing data collection to evaluate the degree of hydraulic connection between the Principal Aquifer and shallow water-bearing zones will be critical in refining the definition of Undesirable Results, preliminary Minimum Thresholds (MTs) and Measurable Objectives (MOs). This need will be met by continued high-frequency water level data collection from the three shallow monitoring wells (wells: RMW-ISW2, RMW-ISW3, and RMW-ISW6) near the Cosumnes River. Data will be used to assess GDE response to Principal Aquifer water level conditions. To better understand environmental beneficial users of groundwater specifically around these GDE units, an updated field mapping of the GDE species and conditions will be cataloged and remote sensing data (e.g., GDE Pulse) will be assessed.	1-2 years	$	45,000

GSP Update, Data Gap Filling & SGMA Compliance Activities	22	Data Gap Filling: GDEs monitoring	Rhode's proposal Ecosystem benefit & impact analysis	Data Gap Filling: Valley oak (Quercus lobata), an endemic species to California and dominant vegetation mapped across the Basin using DWR's Natural Communities Commonly Associated with Groundwater (NCCAG) Dataset, will be analyzed in the Basin to quantify ecosystem benefits and impacts using satellite imagery and groundwater level data. The results will not only benefit CGA's GSP development and implementation but will also be useful to other Central Valley groundwater basins, since valley oak is a prevalent vegetation mapped in the NCCAG dataset.	1-2 years	$ 100,000	**$ 575,000**
	23	Numerical Model Update & Re-calibration		Data Gap Filling/SGMA Compliance Activity: Update the CoSANA numerical model parameter values and calibration using new data to better represent the aquifer's water budget to improve understanding of underground geology, provide future refinements to the hydrogeologic conceptual model, and help identify potential areas for recharge. Incorporate data from DWR's airborne electromagnetic (AEM) surveys to integrate basin-specific and cross-basin geophysical data. Address potential model limitations identified in the GSP, including the need for additional hydrogeological conceptualization, and incorporating future data into model calibration.	1-2 years	$ 100,000	
	24	Modify GSP in response to DWR determination		SGMA Compliance: Under this task, the GSAs will modify the 2022 GSP, as applicable, in response to DWR's review and evaluation of the Plan. If DWR approves the GSP with recommendations, the GSAs will address and consider those recommendations in implementing the 2022 GSP. If for some reason the 2022 GSP is determined incomplete or inadequate, the GSAs will provide a comprehensive response and reasonable modifications to the Plan to successfully address DWR's concerns and will submit a modified plan within 180 days. In both cases, the GSAs will include coordination and technical support to respond to any potential DWR requests in a timely, organized, and adequate manner, including coordination calls with DWR representatives and developing written responses to any possible comments on the 2022 GSP provided by DWR.	1 year	$ 50,000	
	25	Five year GSP Update		SGMA Compliance: Assess progress in the years after the adoption of the Cosumnes Subbasin GSP and use the best available information and science to prepare the 2027 5-year amendment to the Cosumnes Subbasin GSP. The amendment will be updated to reflect progress towards achieving the Cosumnes Subbasin 2042 sustainability goals, project implementation, and SGMA regulations compliance.	1-2 years	$ 200,000	

	26	Public Engagement		SGMA Compliance: The GSAs will continue outreach and engagement efforts to the stakeholders, interested parties, and general public according to the Outreach and Engagement Plan. The GSAs will provide direct and specific engagement with key stakeholders in the form of workshops or education seminars.	1-2 years	$ 35,000	

Prepared by EKI and CGA Staff on 9/8/23 for PMA Committee Discussions.

Cosumnes Groundwater Authority
PMA Committee Meeting

Agenda Date:	September 12, 2023
Agenda Item :	#4 – Farmer Survey and Outreach Next Steps
To:	PMA Committee
From:	CGA Staff

Background

Farmer Survey:

Staff has provided an update on the Farmer's Survey that was sent out in February 2023 to the CGA Board and received feedback on how to build on these efforts. Staff incorporated that feedback into an updated survey.

View updated Farmer Survey here: Farmer's Survey

Please provide feedback on the farmer survey to Staff by September 22, 2023.

Workshop and Newsletter:

Staff and the O&E Committee will hold another round of public workshops/open house in November. In addition to inviting a variety of partner organizations (GSAs, other local agencies, etc.), CGA would prepare information on groundwater conditions and project status, similar to our February/March events. A newsletter will also be developed to highlight the farmer survey, workshops, current groundwater conditions, and other relevant info.

Tentative dates (reservations pending):

- Evening Public Workshop, Wednesday, November 1, 2023 – Herald Fire Hall
- Morning Public Workshop, Saturday, November 4, 2023 – Dillard Community Center
- Farmer Social Event, Thursday, November 9, 2023 – Herald Fire Hall

Recommendations

- Provide feedback and/or suggestions on improvements for the farmer survey and outreach tactics.

Cosumnes Groundwater Authority
O&E Committee Meeting

Agenda Date: September 12, 2023

Agenda Item : #5 – Regular Meeting Dates and Committee Report Out

To: O&E Committee
From: CGA Staff

Meeting Dates:

- Ad-hoc/Special Meetings
  - As needed.
- Regular Committee Meetings
  - **November 14, 2023**
  - February 13, 2023
  - May 14, 2024

Committee Report Out:

The CGA Board will have a standing agenda item during their regular meetings for committee reports. We ask that 1 representative from the Committee come prepared to share updates on the committee's efforts (Staff will be able to help prepare you for this!).