Glenn Groundwater Authority

Groundwater Sustainability Agency

225 N. Tehama Street, Willows, CA 95988 | 530.934.6540

Board of Directors Meeting Materials

July 12, 2021 | 1:30 PM

LOCATION: 225 North Tehama Street, Willows, CA 95988

And

Teleconference

The meeting can be accessed via telephone at **+1 (312) 757-3121** or by computer, smartphone, or tablet at:

https://global.gotomeeting.com/join/362729509

Meeting Access Code: 362-729-509

1. **CALL TO ORDER**

   The Chairperson will call the meeting to order and lead the flag salute.

2. **ROLL CALL**

   Roll call will be conducted.

3. **APPROVAL OF MINUTES**

   a. *Approval of meeting minutes from June 16, 2021

   Draft meeting minutes are attached.

   Attachments

   - June 16, 2021 GGA Board meeting minutes

Meeting Minutes

Glenn Groundwater Authority Board of Directors

June 16, 2021 | 1:30 pm

LOCATION: Teleconference

Pursuant to Governor Newsom's Executive Orders N-29-20 this meeting was conducted by teleconference. The meeting was accessible via telephone, computer, smartphone or tablet.

Director Members Present:		Alternate/2nd Alternate Directors		Agency Representing:
X	Grant Carmon		Tom Arnold	County of Glenn
X	Bruce Roundy		Pete Carr	City of Orland
			Ed Vonasek (2nd)	City of Orland
X	Gary Hansen (Vice Chair)		Evan Markey	City of Willows
	George Nerli	X	Leslie Nerli	Glide Water District
X	John Amaro (Chair)	X	Thad Bettner	Glenn-Colusa Irrigation District
	Charles Schonauer	X	Emil Cavagnolo	Orland-Artois Water District
		X	Andrea Jones (2nd)	Orland-Artois Water District
X	Randy Hansen		Wade Danley	Kanawha Water District
			Michael Alves (2nd)	Kanawha Water District
X	Mark Lohse		Seth Fiack	Monroeville Water District
X	Gary Enos		Lance Boyd	Princeton-Codora-Glenn Irrigation District/ Provident Irrigation District

Others in attendance:
Lisa Hunter, GGA/Glenn County; Valerie Kincaid, GGA Counsel; Brandon Davison, DWR; Donald Rust, Glenn County, Planning Director; Mary Fahey, CGA; Arne Gustafson; Holly Dawley, GCID; Ashlee Veneman, Glenn County PCDSA; Grant Davids; Holly Reimers; Leland Meibeyer; Lisa Humphreys, Glenn County Farm Bureau; George Pendell; Del Reimers; Gina Nicholls, Nossaman LLP.

1. CALL TO ORDER
   Chair Amaro called the meeting to order at 1:30 p.m.

2. ROLL CALL
   Roll call was taken as indicated above.

3. APPROVAL OF MINUTES
   a. *Approval of meeting minutes from May 10, 2021

   On motion by Director Gary Hansen, seconded by Director Roundy, the meeting minutes of May 10, 2021 were approved as presented by the following roll call vote:

   AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
   NOES: None
   ABSENT: None
   ABSTAIN: None

4. PERIOD OF PUBLIC COMMENT
   No comments were presented or heard.

5. STAFF UPDATES
   - Glenn Groundwater Authority (GGA) Program Manager, Lisa Hunter, stated a notice from the Colusa Groundwater Authority (CGA) had been received noting minor adjustments to the Colusa Subbasin boundary.

   - Ms. Hunter pointed members to the Golden State Management Authority trainings and the updates to Assembly Bill 754 relating to the possible extension of the January 2022 Groundwater Sustainability Plan (GSP) deadline contained in the Program Manger Report.

   - Ms. Hunter further stated she attended the Northern California Water Association Groundwater Taskforce meeting and the Glenn County Drought Task Force Ad Hoc Committee meeting at the invitation of the County on behalf of GGA, and encouraged board members to contact her if interested in participating in future meetings.

   - Ms. Hunter announced the next Board meeting will likely be in-person and she will reach out to Board members for coordination.

   - Ms. Hunter stated a part time employee, Brooke Davis, has been hired to assist the County's Water Resources Division, who may also in turn be assisting the GGA.

6. FINANCIAL REPORT
   a. *Review and accept Monthly Activities Report.
   b. *Review and consider approval of claims.

   - No comments or questions were heard for either item referenced above.

   On motion by Director Enos, seconded by Director Roundy, it was ordered to accept the Monthly Activities report as presented by the following roll call vote:

   AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
   NOES: None
   ABSENT: None
   ABSTAIN: None

   On motion by Director Carmon, seconded by Director Gary Hansen, it was ordered to approve the claims as presented by the following roll call vote:

   AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
   NOES: None
   ABSENT: None
   ABSTAIN: None

7. BUDGET AD HOC COMMITTEE REPORT
   a. Receive report and recommendations from Budget Ad Hoc Committee

- Director Gary Hansen stated the committee met June 2, 2021 and noted the proposed budget reduced amounts for legal services and professional services, and the committee is recommending leaving the operations fee at $1.50 per acre since the reserve budget account is healthy. Director Carmon stated the committee may not be able to keep the same fee next year, but every effort was made as a gesture of good faith to keep costs as low as possible for landowners. Director Leslie Nerli stated a new fee study would be needed once the GSP is implemented and agreed with Director G. Hansen and Director Carmon's comments.

8. GLENN GROUNDWATER AUTHORITY OPERATIONS FEE
    a. *Adopt the Glenn Groundwater Authority Operations Fee per acre for Fiscal Year 2021/2022.
    b. *Adopt Resolution 2021-001 Authorizing the County to Collect Property-Related Fees on the County Tax Roll and Indemnification of the Collecting Agency.
    c. *Authorize the Program Manger to complete or direct the completion of all tasks necessary for the completion of the submittal packet to the Glenn County Department of Finance.

- Chair Amaro introduced the item. Gina Nicholls spoke on behalf of western Glenn County residents that she represents who oppose the Glenn Groundwater Authority Operations Fee per Acre, stating it is excessive, against the California Constitution, and opposed the structure of the fee being based on a per acre basis as unfair. Ms. Nicholls further stated these concerns have been presented for more than a year and requested the Board vote not to approve the fee. No further comments were heard.

On motion by Director Gary Hansen, seconded by Director Randy Hansen, it was ordered to **adopt the Glenn Groundwater Authority Operations Fee of $1.50 per acre** for Fiscal Year 2021/2022 by the following roll call vote:

AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
NOES: None
ABSENT: None
ABSTAIN: None

On motion by Director Enos, seconded by Director Cavagnolo, it was ordered to **adopt Resolution 2021-001 Authorizing the County to Collect Property – Related Fees on the County Tax Roll and Indemnification of the Collecting Agency** by the following roll call vote:

AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
NOES: None
ABSENT: None
ABSTAIN: None

On motion by Director Carmon, seconded by Director Leslie Nerli, it was ordered to **authorize the Program Manager to complete or direct the completion of all tasks necessary for the completion of the submittal packet to the Glenn County Department of Finance** by the following roll call vote:

AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
NOES: None
ABSENT: None
ABSTAIN: None

9. FISCAL YEAR 2020/2021 BUDGET
    a. *Consider approval of the Fiscal Year 2021/2022 Glenn Groundwater Authority Budget

    - No comments or questions were heard for this item.

    On motion by Director Leslie Nerli, seconded by Director Enos, it was ordered to approve the Fiscal Year 2021/2022 Glenn Groundwater Authority Budget as presented by the following roll call vote:

    AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
    NOES: None
    ABSENT: None
    ABSTAIN: None

10. FISCAL YEAR 2019/2020 ANNUAL AUDIT
    a. *Consider approval of the CliftonLarsonAllen LLP Engagement Letter to provide services to complete the Fiscal Year 2020-2021 Annual Audit following Counsel review and authorize the Program Manager or Chairman to execute the agreement.

    - Ms. Hunter stated CliftonLarsonAllen (CLA) conducted the GGA's first audit and this would be the third year thereafter and, though another vendor may be chosen, staff recommends continuing to work with the current vendor for consistency purposes. Director Roundy asked what the metric was for the $500 increase for services from last year, whereby Ms. Hunter stated the fee for service was provided in the initial proposal and the engagement letter is consistent with the proposal.

    On motion by Director Gary Hansen, seconded by Director Roundy, it was ordered to approve the CliftonLarsonAllen LLP Engagement Letter following Counsel review and authorize the Program Manager or Chairman to execute the agreement by the following roll call vote:

    AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
    NOES: None
    ABSENT: None
    ABSTAIN: None

11. COLUSA SUBBASIN GROUNDWATER SUSTAINABILTY PLAN
    a. Receive update on Plan development, activities, and outreach.
    b. Receive update on GSP Development Grants (Proposition 1 and Proposition 68).
    c. Receive update on Project Agreements.
    d. *Consider CGA/GGA Joint TAC recommendations on Sustainable Management Criteria for Groundwater Levels
    e. *Consider CGA/GGA Joint TAC recommendations on Sustainable Management Criteria for Water Quality
    f. *Consider CGA/GGA Joint TAC recommendations on Sustainable Management Criteria for Depletions of Interconnected Surface Waters
    g. Discussion on Management Areas

    - Ms. Hunter directed members to the GSP Development Status Update memo provided by Davids Engineering and the Administrative Record spreadsheet with comments relating to GSP development (no new general comments) and GSP chapter review.

- Ms. Hunter stated draft chapters 5 and 6 of the Groundwater Sustainability **Plan** will be released July 16, 2021 and a public workshop will be hosted in late July or early August. This will likely be an in-person workshop and staff is researching possible venues.

- Ms. Hunter encouraged continued communication with member agencies to facilitate the GSP adoption process late this year.

- Ms. Hunter reviewed the funds expended and funds remaining for the **GSP Development Grants (Proposition 1 and Proposition 68)**

- Ms. Hunter provided updates on the **Project agreements**, stating a contract amendment will be required in the Davids Engineering agreement to correct an error and to adjust the task budgets to more adequately represent where the funds are needed.

- Ms. Hunter announced six sites for the **Well Monitoring Pilot Program** have been selected, three of which are in the GGA area. The technical team is conducting site analysis to ensure each well is appropriate for the program; five have been inspected and are moving forward with one final inspection pending.

- Ms. Hunter reviewed the **Projects and Management Actions** solicitation deadlines and submittal process moving forward.

- Chair Amaro introduced Item 11-d. Ms. Hunter and Ms. Kincaid thanked the TAC members and consultant team for all of their efforts and engagement. Chair Amaro encouraged the Board to review as many TAC meetings as possible.

A motion was made by Director Leslie Nerli to adopt **Sustainable Management Criteria for Groundwater Levels** as recommended by the CGA/GGA TAC as presented. The motion was seconded by Director Randy Hansen and passed by the following roll call vote:

AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
NOES: None
ABSENT: None
ABSTAIN: None

- Chair Amaro introduced Item 11-e.

A motion was made by Director Enos to adopt the **Sustainable Management Criteria for Water Quality** as recommended by the CGA/GGA TAC as presented. The motion was seconded by Director Gary Hansen and passed by the following roll call vote:

AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
NOES: None
ABSENT: None
ABSTAIN: None

- Chair Amaro introduced the Item 11-f. Director Nerli spoke in appreciation of the TAC and the amount of time and level of engagement.

A motion was made by Director Randy Hansen to adopt the **Sustainable Management Criteria for Depletions of Interconnected Surface Waters** as recommended by the CGA/GGA TAC as presented. The motion was seconded by Director Enos and passed by the following roll call vote:

AYES: Carmon, Roundy, G. Hansen, Amaro, R. Hansen, Lohse, Enos, L. Nerli, Cavagnolo
NOES: None
ABSENT: None
ABSTAIN: None

- Ms. Hunter stated there are no new updates for **Item 11.g Management Areas** and recommended removing this topic as a standing agenda item. Directors Nerli, Carmon, Enos, Roundy and Gary Hansen spoke in favor of removing this item from future agendas.

12. INTER-BASIN COORDINATION
    a. Receive an update and provide input on Inter-basin Coordination effort in the Northern Sacramento Valley

- Ms. Hunter shared a presentation and stated the importance of inter-basin coordination as certain issues in one basin may affect others and that there may be joint projects of shared interest such as new wells and monitoring networks. Ms. Hunter reviewed the eleven subbasins that are part of the Northern Sacramento Valley coordination effort and what the coordination efforts have been to date. She further stated that long term efforts are being strategized to assist in the GSP implementation process, and reviewed the draft coordination framework pillars/options.

- Director Randy Hansen asked if the GGA has to have agreements in place before plan submission to DWR, whereby Ms. Hunter stated an official coordination agreement is not required since the GGA is working on a single GSP for the Colusa Subbasin with the CGA, which Valerie Kincaid clarified and also discussed.

- Directors Carmon, Roundy and Gary Hansen spoke complimentarily of the inter-basin coordination efforts to date.

13. COMMITTEE UPDATES
    a. 2021/2022 Budget Ad Hoc Committee
    b. Executive Committee
        i. CGA/GGA Joint Executive Committee
    c. Multi-Benefit Recharge Pilot Project Ad Hoc Committee
    d. Stakeholder Engagement Committee
    e. Technical Advisory Committee (TAC)

- The Budget Ad Hoc Committee provided their report during Item 7 and no further information was shared.

- Chair Amaro stated the Executive Committee, Multi-Benefit Recharge Pilot Project Ad Hoc Committee and the Stakeholder Engagement Committee have not met and have no reportable updates.

- Director Cavagnolo reviewed the forethought and decision criteria used by the TAC and how this year has impacted the decision making. He also thanked the consultant team for their hard work and recommendations.

14. MEMBER REPORTS AND COMMENTS

- Director Roundy stated the City of Orland has received reports of wells running dry within the City's limits and sphere of influence, and is now offering water to affected residents ($10 per 1,000 gallons). Director Gary Hansen stated he submitted an agenda item for the next Willows City Council meeting for the Council to consider a similar plan of action.

- Director Carmon spoke in appreciation of the City of Orland's water distribution efforts and stated the County Office of Emergency Services is working with the State to try to find solutions such as tanks as well as find revenue streams to assist residents with the drought impacts. Director Carmon also noted that the Glenn County Board of Supervisors will be conducting a special meeting on June 22, 2021 to consider a well moratorium and encouraged attendance. Director L. Nerli asked if the GGA could contribute a letter of support or similar favor in support of the moratorium, whereby discussion ensued among members and GGA Counsel.

15. NEXT MEETING

The next regular meeting is scheduled for July 12, 2021 at 1:30 pm.

16. ADJOURN

The meeting was adjourned at 3:11 p.m.

4. PERIOD OF PUBLIC COMMENT

Members of the public are encouraged to address the GGA Board of Directors on items relevant to the GGA. Public comments are limited to no more than 5 minutes. No action may be taken on public comments.

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5. STAFF UPDATES

The program manager will provide brief status updates. Reminders and/or clarifications may also be made at this time.

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6. FINANCIAL REPORT

a. *Review and accept Monthly Activities Report.
b. *Review and consider approval of claims.

The Monthly Activities Report and Claims Summary are attached.

Attachments

- Monthly Activities Report
- Claims Summary
- Budget to Actuals

Monthly Activities Report

Glenn Groundwater Authority
Monthly Activities Report
May 2021

	Description	Amount
Beginning Balance		$ 1,032,978.76
Revenue		
Total Revenue		$ -
Expenses		
	A-87 COST	$ 220.75
Total Expenses		$ 220.75
Ending Balance		$ 1,032,758.01

Monthly Activities Report

Glenn Groundwater Authority
Monthly Activities Report
June 2021 DRAFT

	Description	Amount
Beginning Balance		$ 1,032,758.01
Revenue		
	PENALTIES/COST DELQ TAXES- PY SEC DIRECT ASMTS 6/17/21	$ 9.26
	PENALTIES/COST DELQ TAXES- PY SEC DIRECT ASMTS 6/17/21	$ 16.70
	CORR SPEC ASSESSMENTS DEPOSITS	$ (5,562.12)
	DP COLUSA GROUNDWATER AUTHORITY INV 21-GGA-15	$ 236,012.10
	CORR SPEC ASSESSMENTS DEPOSITS	$ 5,562.12
	PY DELINQ SPECIAL ASSESSMENT- PY SEC DIRECT ASMTS 6/17/21	$ 92.80
Total Revenue		$ 236,130.86
Expenses		
	Glenn County Inv 21-WR-03	$ 19,101.18
	David's Engineering Inv 1178.03-4526	$ 119,867.50
	David's Engineering Inv 1178.01-4525	$ 15,359.85
	Olauglin & Paris Inv 1441	$ 1,365.00
	A-87 COST	$ 220.75
Total Expenses		$ 155,914.28
Ending Balance		$ 1,112,974.59

Monthly Activities Report

Glenn Groundwater Authority
Monthly Activities Report
July 2021 DRAFT

	Description	Amount
Beginning Balance		$ 1,112,974.59
Revenue		
Total Revenue		$ -
Expenses		
	Olauglin & Paris Inv 1441	$ 3,855.00
	Davids Engineering Inv 1178.03-4632	$ 264,655.00
	Golden State Risk Management Authority GS2107100579	$ 1,754.00
Total Expenses		$ 270,264.00
Ending Balance		$ 842,710.59

Claims Summary

Glenn Groundwater Authority
Invoices to be paid
Meeting Date: July 12, 2021

Invoice Date	Invoice Number	Description	Amount
7/1/2021	1496	O'Laughlin & Paris LLP	$ 1,505.00
6/30/2021	21-WR-05	Glenn County- Admin Support (Apr-Jun 2021)	$ 18,964.53
Total			$ 20,469.53

Glenn Groundwater Authority Budget
FY 2020/2021 FINAL APPROVED 6/15/20

	Current Approved	Actual through June 2021	Remaining Budget	% Budget Remaining
REVENUES				
Grant Revenue				
Other		$ -	$ -	
Total Grants	-	$ -	$ -	
Other Government Agencies				
Colusa Groundwater Authority*	1,024,401	$ 578,086.56	$ 446,314.40	44%
Other		$ -	$ -	
Total Other Government Agencies	1,024,401	$ 578,086.56	$ 446,314.40	44%
Assessments				
Property Related Fee Per Acre ($1.50/ac)	427,786	$ 416,228.80	$ 11,557.20	3%
Well Head Fee	-	$ -	$ -	
Extraction Fee	-	$ -	$ -	
Other	-	$ -	$ -	
Total Assessments	427,786	$ 416,228.80	$ 11,557.20	3%
Other				
Interest	3,000	$ 9,059.02	$ (6,059.02)	-202%
Total Other	$ 3,000	$ 9,059.02	$ (6,059.02)	-202%
TOTAL REVENUES	**1,455,187**	**$ 1,003,374.38**	**$ 451,812.58**	**31%**
EXPENSES				
Administration- Contracted County Services	120,000	$ 55,008.13	$ 64,991.87	54%
Program Administration Support	-	$ -	$ -	
Legal Services	120,000	$ 21,185.00	$ 98,815.00	82%
Certified Public Accountant (Yearly Audits)	10,000	$ 10,000.00	$ -	0%
JPA Insurance	1,800	$ 1,761.75	$ 38.25	2%
County Bookkeeper	5,000	$ 2,649.00	$ 2,351.00	47%
GSP Development/Implementation	960,000	$ 424,613.85	$ 535,386.15	56%
Long Term Funding Options	-	$ -	$ -	
Professional Services	35,000	$ 2,340.90	$ 32,659.10	93%
Board Expenses	2,000	$ -	$ 2,000.00	100%
Special Department Expenses	25,000	$ -	$ 25,000.00	100%
Legal Notices	1,000	$ -	$ 1,000.00	100%
County Tax Roll Fee	5,000	$ 2,609.72	$ 2,390.28	48%
Contingency/Reserve	57,986	$ -	$ 57,986.00	100%
TOTAL EXPENSES	**1,342,786**	**$ 520,168.35**	**$ 822,617.65**	**61%**

Note: A-87 Cost allocated to County Bookkeeper line item

* Includes deferred inflow (adopted budget $912,000)

7. *CONSIDER RESPONDING TO THE REQUEST FOR COMMENTS FROM BUTTE LAFCO REGARDING THE TUSCAN WATER DISTRICT FORMATION

The Butte Local Agency Formation Commission (LAFCO) received a new application for the formation of a California Water District. The proposed Tuscan Water District (TWD) would be a landowner voter district comprised of 3,136 parcels accounting for approximately 102,237 acres. The District is located in solely in Butte County in the Vina and Butte Subbasins. One primary purpose of the TWD is to work cooperatively with Groundwater Sustainability Agencies in the development of Groundwater Sustainability Plans. The Butte LAFCO sent a request for comments with a requested return date of July 15, 2021, although all comments will be accepted regardless.

The GGA considered a similar request in July 2020 and sent a letter on August 1, 2020 in support of the formation of the TWD to represent landowners within its jurisdiction.

Attachments

- Email from Butte LAFCO- Request for Comments dated June 30, 2021
- Butte LAFCO Request for Comments Form
- Tuscan Water District application (available separately due to size)
- GGA letter of support dated August 1, 2020

Lisa Hunter

From: Stover, Joy <JStover@buttecounty.net>
Sent: Wednesday, June 30, 2021 3:04 PM
To: Lisa Hunter
Subject: 21-06 - Tuscan Water District Formation
Attachments: TWD App Final.pdf; Comments Form - Glenn County Water Authority.pdf

Good afternoon Lisa-
Attached please find the new application for the Tuscan Water District Formation. I have also attached the LAFCO comment form.

Thank you,

Joy Stover
Commission Clerk
Butte Local Agency Formation Commission
1453 Downer St., Suite C
Oroville, CA 95965
(530) 538-7784
www.buttelafco.org

Butte Local Agency Formation Commission

Request for Comments Form

To: **Glenn County Water Authority c/o Lisa Hunter, Water Resource Coordinator**
Sent via email to: **lhunter@countyofglenn.net**
P.O. Box 351, Willows, CA 95988

From: **Stephen Lucas, Executive Officer**

LAFCo Project File: **21-06 – Tuscan Water District Formation** APN(s): **Various (see map)**

Date Mailed: **June 30, 2021**

Requested Return Date: **July 15, 2021 – All comments will be accepted regardless**

IF NO COMMENTS OR COMMUNICATIONS ARE RECEIVED BY THE RETURN DATE, THE ASSUMPTION WILL BE MADE THAT YOUR AGENCY HAS NO COMMENTS.

The Butte Local Agency Formation Commission has received an application (*attached*) for the formation of a California Water District (Water Code 34000) which is a landowner voter district, initiated through a landowner petition and to be called the Tuscan Water District (TWD).

The proposed TWD is to be approximately 102,237 acres in size and contains 3,136 individual parcels that are primarily used for agricultural production. The purpose of the TWD is to organize the landowners into a public agency with the overarching purpose of working cooperatively with the County of Butte, Butte County Water Commission, Vina, Butte and Rock Creek Reclamation District Groundwater Sustainability Agencies (GSA's) and other state and local agencies in the development of Groundwater Sustainability Plans (GSP) for the Vina and Butte sub-basins that will ensure adequate water is available to continue the existing agricultural uses of the affected land. The proposed TWD is initially focused on developing its organizational/administrative capacity that will allow it to provide meaningful representation to its landowners as the process of developing groundwater sustainability plans is completed. The proposed TWD has presented no plans to develop or implement any particular projects, facilities or infrastructure and any such ideas would require great speculation at this time and would ultimately be determined by the yet to be developed groundwater sustainability plans.

The Butte LAFCo requests your agency respond to the following questions/inquiries and welcomes all comments your agency believes are relevant to the Commission's deliberations.

1. What affect, if any, will this proposal have on the operations and functions of your agency?

2. Does your agency believe the formation of the proposed TWD will help or hinder the overall management of surface irrigation water and groundwater resources within Butte County and the region?

3. Should the TWD be approved and formed, would your agency be capable and willing to enter into cooperative agreements or studies with the TWD to consider potential intra-sub basin water transfers?

4. Would you *agree* or *disagree*, that the proposed formation of the TWD would be a threat to the overall agricultural water supply in Butte or Glenn County or otherwise compromise the ability of existing local water agencies to protect the current water supply available to the residents and irrigation water users in Butte or Glenn County?

5. Other comments:

Prepared by: _____ Date: _____

Glenn Groundwater Authority

Groundwater Sustainability Agency

PO Box 351, Willows, CA 95988 | 530.934.6501

August 1, 2020

Stephen Lucas, Executive Officer
Butte Local Agency Formation Commission
1453 Downer Street, Suite C
Oroville, CA 95965

RE: Formation of the Tuscan Water District

Dear Mr. Lucas,

The Glenn Groundwater Authority (Authority) is the Groundwater Sustainability Agency for the Glenn County portion of the Colusa Subbasin, which neighbors portions of the proposed TWD. The Authority supports the formation of the Tuscan Water District (TWD) to represent landowners within its jurisdiction. It is the Authority's understanding that the proposed TWD plans to support and participate collaboratively with existing Groundwater Sustainability Agencies and other state and local agencies in groundwater management activities, specifically Groundwater Sustainability Plan development in the Vina and Butte Subbasins. Landowner outreach is required by the Sustainable Groundwater Management Act (SGMA) and landowner participation is important to the successful development and implementation of plans affecting groundwater management in our region.

Sincerely,

John Amaro
Glenn Groundwater Authority, Chairman

8. *CONSIDER RECOMMENDATION FROM THE MULTI-BENEFIT RECHARGE AD HOC COMMITTEE TO APPROVE THE SACRAMENTO VALLEY FLOODMAR PILOT PROGRAM IN GLENN COUNTY WORK PLAN

The Multi-Benefit Recharge Pilot Project Ad Hoc Committee was formed on March 9, 2021 to coordinate the partnership with The Nature Conservancy (TNC) and Department of Water Resources (DWR) on the Flood-MAR Multi-Benefit Recharge Pilot Project and to guide the outreach process, develop he scope of work for the program, and develop the NOE, which would be brought to the GGA Board for approval. Gary Enos, Bruce Roundy, and John Amaro are members of the committee. The committee met on June 28, 2021 and coordinated via email to review and provide a recommendation to the GGA Board on the draft work plan.

Attachments

- Multi-Benefit Recharge Ad Hoc Committee Report

Multi-Benefit Recharge Pilot Project Ad Hoc Committee Report
July 12, 2021

The Multi-Benefit Recharge Pilot Project Ad Hoc Committee was formed on March 9, 2021 in response to the partnership with The Nature Conservancy and Department of Water Resources on the Flood-MAR Multi-Benefit Recharge Pilot Project. The purpose of the committee is to the to guide the outreach process, develop the scope of work for the program, and develop the NOE, which would be brought to the Board for approval.

The Nature Conservancy provided a draft work plan for the committee to review and provide input. The work plan outlines program goals and roles of the participating agencies. The committee reviewed the draft work plan at a meeting held on June 28 and through email communication. The committee agreed the draft work plan is appropriate and adequately describes the program and responsibilities and is consistent with the goals of the GGA.

Recommendations:

- Approve the Sacramento Valley FloodMAR Pilot Program in Glenn County Work Plan

Attachments:

- Draft Work Plan: Sacramento Valley FloodMAR Pilot Program in Glenn County

DRAFT

Work Plan
Sacramento Valley FloodMAR Pilot Program in Glenn County

Program Description

The Glenn Groundwater Authority (GGA), the Department of Water Resources (DWR), and The Nature Conservancy (TNC) (collectively, the Partners) have agreed to cooperatively implement a multi-benefit groundwater recharge pilot program (the Program) in calendar years 2021 and 2022. The purpose of the Program is to test the feasibility of creating and implementing a multi-benefit groundwater recharge program within GGA's jurisdiction. The multi-benefits to potentially be achieved by the Program are groundwater recharge, creating temporary shallow flooded habitat for migrating shorebirds, and reducing flood risk.

The Program is intended to be carried out in calendar years 2021 and 2022 with implementation in two potential timeframes:

- July 15 – October 15, 2021 and 2022
- March 15 – April 30, 2022

Task 1. Glenn GWA-DWR-TNC Coordination

The Partners will work cooperatively throughout the life of the Program by participating in phone calls, email exchange, and online meetings as necessary to scope and design the Program (Task 2), conduct stakeholder outreach, coordination, engagement, and site selection (Task 3), and implement the program (Task 4).

Task 2. Program Scoping and Design

The Partners shall identify areas suitable for the Program based on soil recharge suitability, compatible crop types, water availability, level of groundwater depletion, bird habitat suitability, potential willingness of landowners to participate, among other factors. Once potential areas and associated landowners are identified for participation, Task 3 shall begin.

GGA's Role

- Identify areas with the GGA's jurisdiction where the Program will be most useful for recharging groundwater.
- Help coordinate among the various water districts within GGA's jurisdiction for the purposes of identifying potential sources of water for the Program.
- Help identify potential willing Program participants.

DWR's Role

- Provide data on groundwater depletion, crop type, soil recharge potential, among other factors for determining the location of Program implementation.

TNC's Role

- Provide technical requirements for Program design and implementation necessary for identifying potential implementation sites.

Task 3. Stakeholder Outreach, Coordination, Engagement, and Site Selection

The Partners will conduct outreach and engage participants with suitable sites.

GGA's Role

- Recruit water districts to carry out initial outreach to district growers and introduce these potential water district participants to TNC.
- Provide input on site selection in alignment with GGA's groundwater management goals.

DWR's Role

- Provide input on site selection.

TNC's Role

- Provide Program description materials to GGA.
- Coordinate with GGA and local water districts to identify and review suitability of potential agricultural sites to be enrolled in the Program.
- Select program sites in coordination with DWR and GGA.
- Work with potential participants to determine program costs.

Task 4. Program Implementation

Once potential implementation sites are identified in Task 3, Task 4 shall begin. However, water availability and available funding from TNC each year will dictate the final number of Program participants and acres to be enrolled in the Program in 2021 and 2022.

GGA's Role

- Participate in Program updates through implementation via email and/or virtual meetings with TNC and DWR.

DWR's Role

- Participate in Program updates through implementation via email and/or virtual meetings with TNC and GGA.

TNC's Role

- Contract directly with each Program participant and pay all costs associated with their participation through a contract directly with TNC.

- Field Verification.
  Enrolled participants will complete post-harvest management practices to prepare fields for the program. TNC will complete a site visit to verify field conditions and examine infrastructure for measuring water delivery.

- Technical Assistance.
  TNC and engineering contractor will work with each participant to determine what is needed at their fields to measure water application, and how to record and manage the water delivery in an irrigation log during the Program.

- Equipment Installation.
  TNC and its contractor will install flow meters, as needed, to quantify rates and volume of applied water. Pressure transducers to measure infiltration rates will be installed temporarily

within monitoring wells four weeks before flooding begins, then removed after the flooding period as negotiated between TNC and the participants.

- Field Set up.
  TNC will install stakes to monitor water depth and will conduct additional wildlife surveys in the flooded fields.

- Water Spreading.
  Participants begin flood up after the monitoring equipment is installed. Water is consistently applied to maintain a shallow depth (4-inch maximum) throughout the Program enrollment

Task 5. Program Evaluation

Evaluate groundwater recharge benefits at each enrolled site by first quantifying total infiltration volumes using a mass balance and an infiltration rate approach. The mass balance approach will estimate the total volume (in acre-feet) of infiltrated water for each field using information on inputs (precipitation and applied water) and outputs (evapotranspiration) at each field.

GGA's Role

- Review annual report produced by TNC.

DWR's Role

- Review annual report produced by TNC.

TNC's Role

- TNC will oversee the data analysis and interpretation conducted by its engineering contractor and provide a brief annual report of activities for GGA and DWR.

9. COLUSA SUBBASIN GROUNDWATER SUSTAINABILTY PLAN

a. Receive update on Plan development, activities, and outreach
b. Receive update on GSP Development Grants (Proposition 1 and Proposition 68)
c. Receive update on Project Agreements
d. *Consider approval of amended Sustainable Management Criteria for Water Quality

GSP Development, Activities, and Outreach

The Davids Engineering GSP Development Status Update Memo describing activities during the month of June 2021 will be distributed when available.

The Well Monitoring Pilot Project continues to make progress. Site visits have been conducted and all six wells met the requirements to participate in the program. Agreements have been sent to the well owners to be executed prior to installation of the equipment, which is tentatively scheduled for the week of July 12.

The Consultant Team has been focused on the development of draft Chapter 5 Sustainable Management Criteria (SMC) and draft Chapter 6 Projects and Management Actions (PMAs). The GGA Board has approved the SMC for the five applicable sustainability indicators, pending the correction that will be discussed in Item 9.d. The CGA Board and GGA Board took action to confirm the sixth indicator relating to seawater intrusion was determined to be not applicable to the Colusa Subbasin. The CGA Board has approved the SMC for four of the five applicable sustainability indicators. The CGA Board met on July 8, 2021 to consider the CGA/GGA Joint TAC recommendation on the Groundwater Quality SMC.

The facilitation team is continuing to update the social media as appropriate. New outreach materials are being developed to support connecting the importance of SGMA and drought planning, especially in light of the current drought conditions. The team is also developing materials for the upcoming public meetings focused on the release of Chapter 5 and 6.

An important component of GSP development is the collection and consideration of public comments and input relating to the GSP. Public input is being tracked by the outreach team and is currently being compiled in an Administrative Record spreadsheet in order to provide regular updates to the Colusa Subbasin GSAs to consider during GSP development. Updates to the Administrative Record spreadsheet will be provided at Board meetings and Board feedback on these items will be documented as part of the GSP. The spreadsheet is being maintained and updated regularly and is housed online in a "Box" account which can be viewed at the following link in its entirety: https://app.box.com/s/2w5ewrd7qmw3b8ngcslbg9wlsithey40

There was a formatting error for the GSP Chapter Comments records provided at the June 16, 2021 meeting. All comments in that section are being provided this month to correct any previous errors. No new general comments were compiled this month.

Another key consideration is informing and receiving input from Member Agencies. Each Member Agency will need to decide how best to present the draft chapters to their Boards and Councils for review and discussion. Once the final draft GSP is compiled and released for public comment in August/September, there will be a short window of time to receive additional comments, receive CGA and GGA Member Agency approvals, make any necessary revisions to the document, and submit the final GSP online to DWR by the January 31, 2022 deadline. The Draft GSP Chapter release and review schedule is included below.

GSP Chapters	Draft Completion Date	Review Start Date	Review End Date	Review Duration (days)	Outreach
Chapter 1 - Introduction	4/7/2021	4/7/2021	5/5/2021	28	April 22 Joint CGA/GGA Board Mtg
Chapter 2 - Plan Area	4/7/2021	4/7/2021	5/5/2021	28	
Chapter 3 - Basin Setting	4/7/2021	4/7/2021	5/5/2021	28	
Chapter 4 - Monitoring Network	4/7/2021	4/7/2021	5/5/2021	28	
Chapter 5 - Sustainable Management Criteria	7/16/2021	7/16/2021	8/13/2021	28	Tentatively July 28, July 29
Chapter 6 - Projects and Management Actions	7/16/2021	7/16/2021	8/13/2021	28	
Chapter 7 - Plan Implementation	8/31/2021	8/31/2021	10/31/2021	61	TBD
Chapter 8 - References and Technical Studies	8/31/2021	8/31/2021	10/31/2021	61	
Complete Draft GSP	8/31/2021	8/31/2021	10/31/2021	61	

GSP Development Grants

(No new updates) The Proposition 1 and Proposition 68 GSP development grants are managed by the CGA. GGA staff coordinates regularly with CGA staff on grant processes and to complete necessary documentation. Progress report and invoice 10 were submitted to DWR. The Proposition 1 invoice totaled $231,205.35. The Proposition 68 invoice totaled $4,806.75

Proposition 1 Grant Funds: $1,000,000.00
Expended: $715,625.67 (through March 2021- Invoice 10)
Remaining: $284,374.33

Proposition 68 Grant Funds: $999,600.00
Expended: $10,474.50 (through March 2021- Invoice 10)
Remaining: $989,125.50

Project Agreements

(No new updates) The GGA holds the agreements with Davids Engineering for two projects. Work from these projects is invoiced to CGA to include in the grant reimbursement requests (grant invoices). CGA reimburses the GGA after payment from DWR is received. Highlights of project work are generally included in the Davids Engineering GSP Development Status Update Memo, which will be distributed when available.

The Hydrogeologic Conceptual Model & Water Budget Project
Contract Amount: $378,000.00
Expended: $378,000.00
Remaining: $0

Note: CGA and GGA Staff and the consulting team will review the agreement to ensure all deliverables have been met and the agreement will be closed out.

Colusa Subbasin GSP Development Project
Contract Amount: $1,261,400.00
Expended: $612,883.52
Remaining: $648,516.48

Note: Staff is working with Davids Engineering to bring forward a contract amendment due to a mistake that was made in the calculations for the agreement and to re-allocate funds within the subtasks of the project to more accurately reflect where funds are spent. This will be discussed more fully in Item 10.

Sustainable Management Criteria for Water Quality

The SMC for Water Quality was approved at the June 16, 2021 GGA Board meeting. It is necessary to consider an amendment to the currently approved SMC to correct an error that was presented in the meeting materials on June 16, 2021. The corrected version is consistent with the CGA/GGA TAC recommendation. The changes are incorporated in strike-out text below.

At their joint meeting on April 9, 2021, the Colusa Groundwater Authority (CGA) Technical Advisory Committee (TAC) and Glenn Groundwater Authority TAC each voted to recommend to their respective boards to adopt a policy not to adopt quantitative Sustainable Management Criteria (SMCs) for groundwater Sustainability Indicator #4: Degraded Water Quality, and instead to improve the water quality monitoring network and adopt quantitative SMCs in the 2027 Groundwater Sustainability Plan (GSP) update.

Subsequent to the April 9 meeting, additional information became available causing the Consultant Team to reconsider its earlier advice to the TACs. The new information included an opinion provided by GGA counsel and results of the Department of Water Resources evaluations of GSPs prepared for other groundwater subbasins. Based on this additional information, the Consultant Team changed its approach and recommended to the TACs at their June 11, 2021, meeting that quantitative SMCs for water quality be developed for Sustainability Indicator #4.

At the June 11, 2021, Joint TAC meeting, each TAC voted unanimously to recommend to their respective boards the criteria listed below for setting quantitative SMCs for Sustainability Indicator #4. These actions were taken in relation to Agenda Item 4.a.i. with the roll call vote documented in the meeting minutes.

The SMCs for Degraded Water Quality pertain to salinity only, applicable to each of 23 representative monitoring wells, are as follows:

1) The Minimum Threshold will be 900 µS/cm (the recommended California Secondary Maximum Contaminant Level) OR the pre-2015 historical maximum measured salinity.
2) The Measurable Objective will be 700 µS/cm (corresponding to an agricultural water quality objective providing for no ~~crop~~ yield reduction for crops commonly grown in the Colusa Subbasin).
3) An Undesirable Result will be detected when salinity (as indicated by electrical conductivity) ~~water levels~~ in 25 percent of the representative monitoring wells (6 of 23 monitoring wells) ~~fall below their respective~~ exceeds the Minimum Threshold~~s~~ for two (2) consecutive years.

The foregoing SMCs were established with the TACs' understanding that 23 representative monitoring wells are not sufficient for long-term, sustainable management of the Colusa Subbasin and that additional new or existing wells will need to be added to the monitoring network over time. Additionally, the TACs acknowledge that the SMCs will need to be reviewed and evaluated, and potentially refined, as additional wells are added, and additional data is collected and analyzed.

Note: µS/cm stands for micro Siemens per centimeter, a measure of the electrical conductivity of water. 1,000 µS/cm is equal to approximately 640 parts per million of total dissolved solids in water.

The CGA will considered this recommendation at their June 22, 2021 meeting, at which time they requested additional information from the Consultant Team. A special meeting was held July 8, 2021 to receive the

requested information and consider the recommendation. The outcome of the July 8 meeting was unknown at the time of meeting packet development. Staff will provide a verbal update if available.

Attachments

- Comments Received on Draft Chapters 1-4 (comments 1-185)

Colusa Basin Groundwater Sustainability Plan

Section/Chapter Name

Comment Tracking Table

#	Commenter Name (if available)	Commenter Organization (if applicable)	Chapter	Section	Page Number	Paragraph Number (from top of page)	Figure/ Table Number (If Applicable)	Comment	Categorized Comment
1	Emil Cavagnolo	GGA/OAWD	2	2.1.2	2-4			Monroeville is a Groundwater District	
2	Emil Cavagnolo	GGA/OAWD	2				2-3	OAWD's service area is currently just under 30,000 acres	
3	Emil Cavagnolo	GGA/OAWD	2	2.2.1.1	2-16	4		OAWD's latest WMP I 2020	
4	Emil Cavagnolo	GGA/OAWD	2	2.5.1.2	2-29	1		Cousa Subbasin now Chowchilla	
5	Emil Cavagnolo	GGA/OAWD	2	2.5.1.3	2-32	5		The public meeting in Orland was at the Glenn County Fairgrounds	
6	Emil Cavagnolo	GGA/OAWD	2	2.5.1.3	2-33	6		I do not remember this type of meeting in Glenn County	
7	Emil Cavagnolo	GGA/OAWD	3	3.3.3.3	3-83	last		Agricultural Water Deman is a heading and should be Bold Print	
8	Leslie Nerli	GGA Board	2	2.1.2	Plan Area	1	2	The obvious and probably already corrected is….primary urban….Colusa & William in Glenn Co…wrongly printed for both counties	
9	Leslie Nerli	GGA Board	2	2.4	23		3	Water purveyors along TC Canal Re: 0%-100% depending on available water - truly dependent on what Bureau feels to allow each year and is announced very early in year.	

10	Leslie Nerli	GGA Board			32			Glide Water District Please see attached MAP of what I believe to be an excellent area of land to recharge. First off, the land owner of the property has changed hands from Pete Galaya to: RD 45 , LLC , 1380 East Ave, Ste 124, Chico, CA, Parcel number 020-240-0140 There is 41.5 acres of Glide water district in the block of Habitatt. Not sure what plain ole Habitat is but definitely good percolation in this area. Of course this is a statement made only by experience and not as a geologist/hydrologist which would have to be confirmed by science. A rice farmer to the west of the proposed property for recharge used almost 10 acre feet one year for his crop. Again, the cost of water and other crop costs combined with returns have forced this farmer to sell part of his land using the sale of his land from many generations in his family to develop orchards so that he can keep some of the remaining 4rth or 5th generation family farm. From what I was told by Mike Alves regarding there are 41.5 acres of glide district land within the 300+/- acres of Habitat. When available from the Bureau, water can be surface water that can be purchased at each year's allocation rate for the only the 41.5, but not more than the allocation for each year. In addition to the glide surface water yearly allocation, any Bureau excess flow water could be captured in the 41.5 acres and remaining property acres as well. So using the Glide means of transportation from the TC canal, possible surface water available year to year could increase throughout the year time to time as the Bureau sees fit to call	
11	Leslie Nerli	GGA Board			32			in "excess flows available" Of course, they still charge a fee and Glide a fee as well, but usually at a more reasonable price. Because this property lies between the 2 creeks, it does flood during wet years. So, maybe some improvements could be made to capture more of the flood water that flows so quickly away and allow for more time to capture excess flood water to our groundwater storage. Maybe it will be so simple and cost effective as placing Check damns? and/or doesn't need them just some drainage management.I do not know who the RD 45 LLc people are or if they would even consider working with the ground water recharge project. Even to the north of Wilson Creek is land in the habitat. It is a very large piece of property. 300 +/- acres.	
12	Mary Fahey	CGA	1	Cover Page	Cover Page	N/A	N/A	1. Title: Change to Colusa Subbasin Groundwater Sustainability Plan. 2.Add Logoto page 3.Under “Prepared for”, change Colusa GSA and Glenn GSA to: Colusa Groundwater Authority and Glenn Groundwater Authority 4.Make these same changes on the second page	

13	Mary Fahey	CGA	All Chapters	Entire Document – footer				Change footer to read: Colusa Groundwater Authority and Glenn Groundwater AuthorityColusa Subbasin Groundwater Sustainability Plan	
14	Mary Fahey	CGA	1	1.3.1	1-3	1		Please specify that there are **two** Private Pumper Representatives from the Colusa County Groundwater Commission, **appointed by the Colusa County Board of Supervisors**	
15	Mary Fahey	CGA	1	1.3.1	1-3	4		Second Sentence, please edit as follows: **Except for the Private Pumper representatives**, Board members are chosen in public meetings by the respective governing boards of the Member Agencies…. **Private Pumper representatives on the CGA Board are recommended by the Colusa County Groundwater Commission and appointed by the Colusa County Board of Supervisors**.	
16	Mary Fahey	CGA	2	2.1.1	2-1	4		Glenn and Yolo County boundary should be **Colusa** and Yolo County boundary	
17	Mary Fahey	CGA	2	2.1.2	2-4	1		Fourth line – Change water pumpers to groundwater pumpers: …and two appointed private groundwater pumpers…	
18	Mary Fahey	CGA	2	2.1.2	2-4	2		Orland and Willows are in Glenn County. Colusa and Williams are in Colusa County.	
19	Mary Fahey	CGA	2		2-4		Table 2-2	Grimes water district should be: Colusa County waterworks district #1 – Grimes Also in Colusa County: Colusa County waterworks district #2 - Princeton	
20	Mary Fahey	CGA	2				Fig. 2-3	The map is titled Colusa Subbasin GSA Member Agencies but does not show/list Colusa County or Glenn County Under Note 1: There are two private pumpers from the Colusa County Groundwater Commission on the CGA Board There are no private pumpers on the GGA Board	
21	Mary Fahey	CGA	2	2.2.1.1	2-15	6		(NSV IRWM) last sentence, add year that the update was adopted. In March, 2021….	
22	Mary Fahey	CGA	2	2.2.1.1	2-18	2		Second bullet states "The following GSAs have readily available MSRs:" Don't you mean "The following GSA Member agencies…"?	
23	Mary Fahey	CGA	2	2.2.1.2	2-19	1		I believe CCWD has a SCADA system. There may be other districts as well that are not listed.	
24	Mary Fahey	CGA	3	3.1.7.3.1	3-32	5		Faults: Second to last sentence, Zamora Fault should be listed along with the others that were analyzed.	
25	Mary Fahey	CGA	3	3.1.10.2	3-42	1		Primary Users, first sentence – can this be re-worded. It sounds like there are only 20 Stakeholders in the basin.	
26	Mary Fahey	CGA	3	3.1.11.2.3	3-45	2		– The TNC project is better described as an on-farm multi-benefit managed aquifer recharge and shorebird habitat program. Where it says migratory birds, please specify migratory shorebirds.	
27	Mary Fahey	CGA	3				3-19	Water source layer missing for Colusa County portion	

28	Mary Fahey	CGA	4	4.1	4-1	1+		Should monitoring for GDEs be mentioned in the discussion about the monitoring networks?	
29	Mary Fahey	CGA	4	4.2.2.2	4-4	1		Will this section be expanded to include more details?	
30	Mary Fahey	CGA	4	4.2.3.3	4-17	1		Suggest spelling out Irrigated Lands Regulatory Program (ILRP) in first sentence	
31	Mary Fahey	CGA	4					based on recent activities/discussions/decisions, especially regarding monitoring and filling data gaps for stream interactions and GDEs. Also, information about the coordination efforts taking place along basin boundaries between the neighboring subbasin GSAs should be expanded. Overall, this chapter reads light on describing the Colusa Subbasin monitoring network and heavy on listing excerpts from the regulations.	
32	Evan Markey/Michael Bolzowski	GGA/Cal Water	2	2.1.2.1	8	4	-	The plan states Willows used 1.6 MGD. Our records show and average of 1.2 MGD for the same time.	
33	Evan Markey/Michael Bolzowski	GGA/Cal Water	Appendix	2.7.3	121	-	2-4	Table shows Willows average per capita as 231 Gallons per Capita Per Day from 1990 to 2015. Our current average 2015 to 2020 is much lower, 143 Gallons per Capita Per Day. The model maybe overestimating our demands for the basin.	
34	Lester Messina	Colusa Glenn Subwatershed Program (SVWQC)	2	2.2.1.2	2-20	2		Recommended Change: Irrigated Lands Regulatory Program The Central Valley Regional Water Quality Control Board (CVRWQB) has adopted waste discharge requirements (WDRs) for discharges from irrigated commercial croplands to protect both surface water and groundwater supplies. When land is in agricultural production it is irrigated and fertilized. It is assumed that portions of the soil amendments, particularly fertilizer, is converted to nitrate which has the potential to percolate into groundwater The ILRP regulates such discharges, growers can minimize the percolation of nitrate to groundwater through the implementation of effective management practices. Commercial irrigated lands, including managed wetlands are required to obtain regulatory coverage.	
35	Ben King	Land Owner	2	2.1.1				How were the vertical boundaries of the annexed area of the previous West Butte Subbasin determined since the HCM did not cover this area during previous data collection?	
36	Ben King	Land Owner	2	2.1.1				The lateral extent is not bounded by the Sacramento River to the east but it is bounded by the western boundary of RD 1004.	
37	Ben King	Land Owner	2	2.1.2.1				How many wells and what is the volume for Del Oro Arbuckle?	
38	Ben King	Land Owner	2	2.3				Why is Colusa Drain Mutual Water Company only on the map in Yolo County? All of Colusa County CDMWC is missing from the Map.	

39	Ben King	Land Owner	2		2-9		Table 2-3	There are no entries for Surface Water Supply or Volume Descriptions for CDMWC or RD479. If there is some valid reason for the omission it should be explained in a footnote rather than just omitted.	
40	Ben King	Land Owner	2	2.8	2-21		Table 2-6	Relating to Table 2-3 above there are no diversions cited for Model Input as Diversions attributable to CDMWC acreage. What is the impact of this omission?	
41	Ben King	Land Owner	2		2-21		Table 2-6	The USEPA SDWIS system reports violations and maintains a log of monitoring events. This monitoring data and time line of violations does not seem accessible on the Waterboards site. The EPA link should be included.Why isn't the Drinking Water Open Data Portal referenced as it is in 2.6?	
42	Ben King	Land Owner	2		2-21			The CV Salt information is not online? How do stakeholders access this data. Where can Stakeholders access GAMA data? Where is the Sacramento Valley Water Coalition Data? Where is the groundwater quality data relating to wells used for groundwater substitution accessible? It is part of the Appendix of the Environmental Assessment for Tehama-Colusa Canal Authority In-Basin Water Transfers.	
43	Ben King	Land Owner	2					According to the City of Colusa Policy PRC –9.2-The City will prepare a Water Resources bi-annual report to the City Council. The Public Works Department will analyze the quality of drinking water in the City. The description of the General Plan is incomplete because it does not mention that water quality is addressed and included in this bi-annual report to the City Council for the City of Colusa.	
44	Ben King	Land Owner	2					The Human Right to Fresh Water should be addressed somewhere in 2.3 or 2.4. Ultimately this will affect the priority of beneficial use, management actions and minimum thresholds to comply with the requirements of this Law.	
45	Ben King	Land Owner	2		2-30			Don't understand the reference to Human Right to Water as described. Doesn't this Right apply to all residents in the Colusa Subbasin and all water systems?	
46	Ben King	Land Owner	Table 3-1					What change in Data Sources were used to incorporate the annexed area from the West Butte Basin? What sources were used for Geochemistry and water quality?	
47	Ben King	Land Owner	3.1.5		3-7			The Hydrology of the Colusa Subbasin is also influenced by the Geochemisty and underlying Faults. Since the Subbasin water quality is influence by the volcanic rock of the Sutter Buttes and influences from the marine and lacustrine geologic history of the Subbasin – can Hydrology be determined without Geochemistry? Faults are known to influence Geochemistry and water quality since there may be anoxic water upwhelling and lateral movement of naturally occurring contaminants via faults like the Willows Fault.	

48	Ben King	Land Owner	3.1.5		3-11		Figure 3-6	Why is part of the CDMWC delivery area included in ColGGWS? The CDMWC on the west side of Colusa Basin Drain south of Hahn Road receives surface water deliveries as the rest of the CDMWC. There are CDMWC subarea components on multiple sides of this area but for some reason this jurisdictional area of the CDMWC is treated differently. This area is also part of the flood zone and receives significant seepage during seasonal winter flows.	
49	Ben King	Land Owner			3-16		Table 3-2	What assumptions are included in Model Diversion ID 113? As mentioned above a portion withing the jurisdictional boundaries of the CDMWC and a CDMWC surface water delivery area is left out of the CDMWC budget subarea.	
50	Ben King	Land Owner	3.1.7				3-3	See Springhorn Page 22 – Table 2.1 and Page 93 Table 3.3, Need to incorporate Turlock Lake Lacustrine influence to document Corcoran like clay components to the Lithology and also need to incorporate the formation of the Sutter Buttes Rampart and Geomorphic influence of the Sutter Buttes volcanic structure. Both Springhorn and Harwood and Helly differentiate the lithology of the Pilocene and Pleistocene periods this way. Water quality and subsidence issues are related to this geologic history. Figure 3-10 is probably the most complete Geologic Map I have seen for the region – excellent!	
51	Ben King	Land Owner					3.11, 3.14 &3.15	See Springhorn Page 113 Figure 4.4. This Geologic Crossection needs to be incorporated in Cross Section C-C on Figure 3-11. Otherwise the Cross section leaves out the influence of the most unique Geomorphic Unit in the Sacramento Valley which is the Sutter Buttes. Also there is a critical need to address the Cross Section next to the City of Colusa because of the interrelationships of the Willows Fault, Sutter Buttes Rampart, Colusa Dome and Sacramento River. As it now stands Cross Section C-C is not consistent with the robust Geology set out in Figure 3-10 which seems to be a recent update since it references Springhorn. Regarding 3.14 how can you have a 3 Dimensional Model that omits the geology of the Sutter Buttes? Regarding 3.15 – it is important to map the area of the Corcoran like clays deposited by the Turlock Formation to know the potential area of impact for future subsidence.	
52	Ben King	Land Owner	3.1.9.2					See USGS Circular 1358 "Water Quality in Basin-Fill Aquifers of the Southwestern United States: Arizona, California, Colorado, Nevada, New Mexico and Utah, 1993-2009. Thiros,Paul, Bexfield and Anning 2014.(USGS Thiros et al 2014) See Page 56 – it is clear that arsenic contamination occurs and translocates along fault zones like the Willows Fault as is currently is the case in the Middle Rio Grande Basin. The water system for the City of Colusa could have the same fate as the water system for the City of Albuquerque.	

53	Ben King	Land Owner	3.1.8.2		3-35	2nd and 3rd		The base of freshwater should not include brackish water which is defined by the USGS and others at 1000 ug/L. Water quality definitions should be consistent with the California Human Right to Fresh Water. Brackish water is not potable. The reference to brackish water in the Upper Princeton Valley is inconsistent with the outdated Olmstead and Davis referenced in paragraph 2 . See Springhorn Page 149 for additional references.	
54	Ben King	Land Owner			3.37		3.17	The Base of Freshwater Depths in the annexed area from the old West Butte Basin seem incorrect based on the vertical depths included in Springhorn's Cross Section work. Also the area west of Colusa on Lurline near Roberts Ditch is known to have lower fresh water base levels. Levels are probably in the 300 to 400 ft levels or less in both areas.	
55	Ben King	Land Owner	3.1.10.2		3-39			The potential for vertical movement via abandoned gas wells and faults needs to be mention since it most likely will lead to aquifer degradidation in areas where the subsurface groundwater have elevated TDS levels and/or anoxic conditions.	
56	Ben King	Land Owner	3.1.10.3		3-42			Arsenic contamination at the abandoned Del Oro Walnut Ranch well and the well at the CIP site which was cited by SWRCB show arsenic contamination has been found in the Colusa City limits. The USEPA reports also show arsenic contamination in the Princeton water supply system.	

57	Ben King	Land Owner	3.1.12.1		3-50			Additional Areas of Uncertainty: 1. See Springhorn Page 165 Figure 6.1 Areas where subsurface information is needed regarding the area outlined west of the Sutter Buttes, 2. Research regarding the vertical and lateral movement of saline water within and across the Willows Fault as generally described on Page 56 of USGS Thiros et al 2014, 3 The predicted desorption of arsenic from a volcanic structure like the Sutter Buttes in Figure 6-5 of Thiros on Page 58, 3. The breadth and depth of the Corcoran type clays from the Turlock Lake formation highlighting the potential for future subsidence, 4 – the water quality issues near the Freshwater area west of Williams as described in the Colusa County Groundwater Management Plan.	
58	Ben King	Land Owner	3.1.12.1				3-5	The C2VSimFG Model has to incorporate the saline and anoxic seawater around and south of the Sutter Buttes. According to the Sutter- Yuba investigations (SWRB Bulletin No. 6, 1952) a TDS level as high as 10,000 was observed near Robbins. Others including the DWR and Curtin have observed TDS levels from 4,000 to 6,000 south of the Sutter Buttes.	
59	Ben King	Land Owner	3.1.12.3				3-51	What are the statutory obligations to address the Human Right to Fresh Water in the HCM?	
60	Ben King	Land Owner	3.2.5				3-64	The worst reported arsenic contamination for any public water system in the Sacramento Valley water supply system is in Grimes. The USEPA has documented arsenic contamination in the Princeton public supply system. There has been two incidences of arsenic contamination in supply wells within the boundaries of the City of Colusa. The wide scope of arsenic contamination around the extent of the Sutter Buttes Rampart and south of the Sutter Buttes in the Colusa Basin needs to be disclosed as an area of grave concern. See Springhorn Page 164 highlighting the need for more research about the need for more work regarding the relationship of arsenic contamination and the health risks from arsenic.	
61	Ben King	Land Owner	3.2.5.1.1				Figure 3-30	What is the source for this data? Is there a time series? Stakeholders should have access to time series for water quality data and it should be included in the Appendix like the hydrograph data concerning water levels. Arguably water quality data should have a higher level of access and transparency due to the Human Right to Fresh Water.	

62	Ben King	Land Owner			3-66			According to the 2020 Tehama-Colusa Canal Water Authority Initial Study/Environmental Assessment there were several wells used for Groundwater Substitution with elevated Specific Conductance. As reported in the Appendix for the report GCID, 7 of the 16 reported wells had a consistent annual reported level of Specific Conductance greater than 1000 ug/L. Three of these wells had levels greater than 1500 and the other 4 were between 1000 and 1500. Are these wells included in the data points of Figure 3-30 and the discussion on page 3-66?	
63	Ben King	Land Owner	3.2.5.2.1		3-67			Where is the location of the well near Grimes with Arsenic at 200 ug/L.? Grimes arsenic levels are reported to be approximately 25 ug/L. The USGS publication by Thiros et al has an extensive discussion of the desorption process of arsenic for volcanic rocks in saline groundwater with PH greater than 8. The USGS predictive model predicts the occurrence of arsenic in basin discharge areas like Robbins and the areas south of Grimes. This USGS publication also highlights how arsenic had moved into the groundwater of Albuquerque via a fault. The Willow fault crosses the Sacramento River at Colusa and runs south towards Grimes and the area where the two arsenic contaminated wells were found at the Del Oro Walnut Ranch site and CIP which is now in the boundary of the City of Colusa. The Sutter GMP includes a Figure showing elevated areas of TDS and Arsenic with levels as high as 370 ug/L. There is discussion of a biotic response that coincides with anoxic groundwater becoming oxidated from soil microbial activity that release arsenic as a bi-product. Arsenic contamination of the Colusa public water supply would be disastrous and a violation of the Human Right to Fresh Water.	
64	Ben King	Land Owner	3.2.6				Figure 3.31	Figure 3.31 should overlay the area of the Corcoran like clays from the Turlock Lake geological formation to show a potential relationship of subsidence and the presence of this clay formation	
65	Ben King	Land Owner			3-72			The relationship between the Corcoran like clay formation and the presence of inelastic subsidence should be discussed based off the history in the San Joaquin Valley.	
66	Ben King	Land Owner	3.3.3	3-80			Table 3-9	Using only 2013 and 2015 water diversion data would lead to a wrong outcome if the diverter did not use surface water available during those years. It is an extremely small and not representative data set. Landowners could have not diverted during those years because they were trying to help other landowners out with their surface water allocations since they had wells or the landowner could have been converting land for orchard development with a new filter system.	
67	Ben King	Land Owner		3-81,2				Using Land Use data only for the years of 2003,2009 and 2014 is not representative if there was a conversion from rice to row crops or row crops to orchards. The impact of this narrow assumption set could lead to incorrect Budget Subareas.	

68	Ben King	Land Owner	3-4	3-102				Management Areas should not be set until the GSP is approved and implemented for several years. The history and genesis of the Colusa Groundwater Authority JPS was for collective management of the Subbasin and there is no basis to change the jurisdictional management of the Subbasin in contravention of those principals. Stakeholders and property owners who are paying Prop 218 Assessments must know there is a rational basis for any changes in jurisdictional oversight within the Basin to maintain confidence in the GCA's governance. What should not happen are actions which may lead to a perception that a few powerful members have manipulated the process for their own benefit.	
69	Ben King	Land Owner	4.2.3.3		4-17		Table 4-4	The Monitoring Network is woefully inadequate to protect against groundwater quality degradation and to protect the Human Right to Fresh Water. All wells used for Groundwater Substitution should be used to collect water quality samples and to preserve public accountability against over pumping. There is an incentive for quantity rather than quality and Stakeholders should be entitled to publicly available water quality data from groundwater substitution wells. In order to protect Colusa County Resident's Human Right to Fresh Water Monitoring Wells should be placed in the study area suggested by Springhorn as referenced in the Comments on Section 3. Springhorn raised concerns about high Saline TDS levels and arsenic levels in a large area west and southwest of the Sutter Buttes. Several monitoring wells should be placed in this area. Monitoring wells may also need to be placed around the City of Williams to provide a historical time series to monitor TDS levels over time. If water banking activities start with the development of Sites, this enhanced Monitoring Network and time series will become critical to protect the water supply for the City of Williams.	
70	Ben King	Land Owner	4.2.3.4		4-19			Springhorn highlighted a wide area where there are water quality monitoring data gaps. Monitoring wells should be placed in this area in consultation with the DWR and Springhorn's personal input since he highlighted this concern in the first place. Additional monitoring wells may be needed around the City of Williams and any potential water banking sites that could cause degradation of drinking water supplies for on the west side of the Subbasin.	
71	Ben King	Land Owner	4.2.4.4		4-20			One or two Extensometers need to be installed near Arbuckle and Dunnigan. One site should be near the intersection of Bailey Road and Hwy 99 since it is the site of greatest subsidence and because the infrastructure of I-5 is there in addition to the Arbuckle Cemetery and old railroad tracks. The other Extensometer should be installed near Dunnigan working with the Yolo County GSA to choose a site. There are approximately 500 residences in the area and an evergrowing commercial infrastructure.	

72	Donald Bills	GGA-TAC	1	1.2	1.2	2		1.—Sustainable groundwater resources not only preserve, and enhance the economic viability, social well-being and culture of all beneficial uses and users, but also insure the sustainability of water for natural and environmental needs. Especially those of at risk or critical resource value (i.e. springs, wetlands, riparian habitat, and baseflow reached of perennial and/or intermittent streams). I would suggest adding something like this to the stated goal of the Colusa Subbasin GSP. 2.—there is no such thing as sustainable/safe yield. At best the term means planned depletion. I suggest you replace it with sustainable goal.	
73	Donald Bills	GGA-TAC	1	1.2	1.2	3		1.—Sustainable/safe yield is no longer considered to be a valid term in the context of hydrogeology. The term was originally developed as a legal term to characterize a water budget in balance by relating recharge (from precipitation) with discharge, two terms that are not related. I suggest that you replace it here with sustainable goal.	
74	Donald Bills	GGA-TAC	1	1.3	1.2	3		1.—Suggest that you modify Both GSAs in the last sentence to "Both the Colusa and Glenn GSAs…" for clarity.	
75	Donald Bills	GGA-TAC	1	1.4	1.4	1, bullet 5		1.—Suggest that you add to seawater intrusion, brackish or saline groundwater intrusion. As discussed during TAC meetings, as freshwater is removed from storage in the regional aquifer. The reduced hydraulic head will allow brackish and/or saline water at depth to seep upward into the regional aquifer. Unless monitoring of water quality at depth in the regional is intended to be the monitoring tool for this.	
76	Donald Bills	GGA-TAC	1	1.4	4 of 7	Article 5 sub-article 2	1-1, GSP regulation section 354.18, bullet 3	Suggest replacing estimate of sustainable yield with estimate of sustainable goals.	
77	Donald Bills	GGA-TAC	1	1.4	4 of 7	Article 5 sub-article 2	1-1 GSP regulation section 354.18, surface water supply	Shouldn't this also include reclaimed water and/or	
78	Donald Bills	GGA-TAC	1	1.4	6 of 7	Article 5 sub-article 4	1-1, GSP regulation section 354.36, representative monitoring.	Remote-sensing data was discussed as an additional proxy in addition to groundwater elevations for other sustainable indicators. Should it be mentioned here?	

79	Donald Bills	GGA-TAC	1	1.4	6 of 7	Article 5 sub-article 4	1-1, GSP regulation section 354.36, Assessment and Improvement of Monitoring Network	Again remote-sensing methods and data are another tool that seems suited for filling data gaps by improving monitoring frequency, accuracy, and density of data sites. Discussion of DWR INSAR and gravity data as possibilities.	
80	Donald Bills	GGA-TAC	3	3.1	3-1	1, first sentence		First occurrence of abbrev. Should be spelled out in text. I.E. This section describes the hydrologic conceptual model (HCM) of the Colusa Subbasin.	
81	Donald Bills	GGA-TAC	3	3.1.3	3-6		3-3. Note in upper left of plot. Second sentence.	There appears to be missing or jumbled text at the start of sentence 2. “ at r y ars missing more that 30 days…”. Suggest that it be fixed is needed.	
82	Donald Bills	GGA-TAC		3.1.4	3-8		3-4	Since land surface elevation is color coded on the Topography map, it might help to identify the very light shade of blue as surface water as it can be easily confused with the very light green (greenish-blue?) that is land surface less than 30 ft.	
83	Donald Bills	GGA-TAC		3.1.5	3-7	Paragraph2, 1st sentence	3-5	“The regional watersheds and natural waterways are shown on Figure 3-5.” Figure 3-5 also shows principal water infrastructure. I suggest it be added to the sentence and the fig. 3-5 title.	
84	Donald Bills	GGA-TAC		3.1.5	3-10	First paragraph, last sentence		“These streams are intermittent and drain the foothills that border the Coast Ranges to the west.” Perennial streams are connected to the regional groundwater table and get most of their base flow by groundwater discharge. Intermittent streams are only seasonally connected to the regional groundwater table and flow seasonally or in response to runoff. Ephemeral streams are not connected to the regional groundwater table and only flow in response to seasonal runoff. Are Foothill streams of the Coast range truly intermittent?	
85	Donald Bills	GGA-TAC	3	3.1.5.1.1	3-10			Is there no range of flow data for Stony Creek pre-Black Butte Dam (and even Stony Gorge Dam)? This would give some context to the releases from Black Butte Dam since 1996.	
86	Donald Bills	GGA-TAC		3.1.5.1.2	3-13			“Sacramento River stream flows measured at the Ord Ferry-Main Channel stream gauge, in the northern part of the Subbasin, varied between 200 and 160,000 cfs during the 1984 to 2020 time period, with extreme low flows measured in the spring of 1990.” Why is the time p3.1.5.1.3eriod limited to 1984 to 2020? If the intent here is to describe natural surface waters, there are documented (USGS) periods of extreme flows greater that this range extending back to the 1920 from stream-flow gaging stations in or adjacent to the Colusa subbasin.	

87	Donald Bills	GGA-TAC		3.1.5.1.3	3-13			3.1.5.1.4 Glenn Colusa Canal lists acres serviced. Wouldn't it be appropriate to do the same for the Tehama-Colusa Canal? Also the length of the canal and diversions? I watched the Tehama-Colusa Canal being built less that a quarter-mile away from where I grew up on Co. Rd. 21 south of Orland. I even rode my bike in the bottom of the canal once it was cemented in. I noticed at the time there was a line of one-way valves on the bottom of the canal. I later learned they were there to relieve stress on the canal by allow rising groundwater to move into the canal. Is this something you are accounting for in your groundwater models during those wet years when WLS are very close to the surface?	
88	Donald Bills	GGA-TAC		3.1.5.1.6	3-15	1		"These foothill drainages and their tributaries are classified as part of the Sacramento-Stone Corral Watershed…". I think you mean the Upper Stony Watershed.	
89	Donald Bills	GGA-TAC		3.1.5.1.6	3-15	2		"Runoff in these ephemeral and intermittent streams generally begins in late fall when the rainy season starts and may continue until late spring." Intermittent streams suggest some seasonal contact with the regional groundwater table. Probably not true for many of these streams in the north part of the subbasin. I do not know about those in the southern part of the subbasin. Springs are overlooked in this discussion (or elsewhere). Many of these smaller streams have springs at or near their headwaters that issue from either the Tehama (exposures of pre-Paleogene, would have a QW signature), Riverbank or Modesto Formations. Discuss here?... High elevation areas to the west of Orland/Willows. GW contours do not extend that far west. 3.1.11.3 does not address springs. Black butte Lake overlies mostly Tehama formation. Is there ant possibility of Reservoir water seeping into Tehama and showing up in springs to the south? QW signature, spring flow related to lake level not climate, etc.	
90	Donald Bills	GGA-TAC	3	3.1.6	3-18		3-9	The color for soil type C and water bodies on fig. 3-9 (light blue) are so similar it is hard to tell them apart. I suggest you consider using more contrasting colors and adding waterbodies to the explanation to make them easier to tell apart.	
91	Donald Bills	GGA-TAC			3-27		3-16	Top of Cretaceous rocks contours are in meters MSL, and tops of Cretaceous rocks elevation are in feet MSL. Using both metric and SI units makes them a little difficult to compare. Can they both be in the same units? Also, there are places where the contours do not match the elevations (SE of Black Butte, Artois, Princeton, etc.). I assume this is related to structural offsets. I suggest you consider adding the principal structures (faults) to this map to help with the interpretation.	

92	Donald Bills	GGA-TAC		3.1.7.2.3	3-31	4		During a review of USGS topographic maps that cover the area west of Orland and Willows, I found about 24 marked springs, a few with actual names. Based on their location, these springs appear to be discharging from either the Tehama, Riverbank or Modesto Formations in the northwest part of the Colusa Subbasin, There is little hydrogeologic information shown on the maps of this report for this area owing to a lack or well data. Springs represent a source of hydrogeologic information that can be used in the absence of well data to extend water level contours and improve understanding of groundwater conditions in the area. Any information about these springs from land owners or site inventories by DWR or the USGS will improve the hydrogeologic characterization of this area of the subbasin. Some mention of spring discharge from the Tehama, Riverbank, and Modesto Formations might be appropriate here, with a more complete discussion in groundwater discharge.	
93	Donald Bills	GGA-TAC		3.1.8.2	3-36	2-3		?... Base of the Tehama and Tuscan Formation and (or, and/or?) Base of freshwater excluding those areas where post-Cretaceous sediments contain brackish water. Freshwater is defined as 3,000, 2,000, and 1,000 mg/L depending on which reference is used (USGS, DWR, of C2VSim). Which is it? I would also suggest that you define brackish water here as its related freshwater and the freshwater boundary. The vertical extent of these boundaries shown on fig. 3-11 to 3-13 while approximate do not appear to consistently align with either of these definitions. Perhaps it would be appropriate to add queries ("?") where the degree of uncertainty is highest.	
94	Donald Bills	GGA-TAC		3.1.9.2	3-38	1		"These basin faults may act as barriers or conduits to fresh groundwater flows." I think it is also important to mention that, if the faults are deep seated, they can also provide conduits for poorer quality (brackish) water from the marine sediments below to migrate up into the freshwater layer. This is particularly true if the hydraulic head of the freshwater layer is consistently reduced owing to groundwater withdrawal.	
95	Donald Bills	GGA-TAC	3	3.1.10, Principal aquifers	3-39			Some text edits for clarity.	
96	Donald Bills	GGA-TAC		3.1.10.3, water Quality	3-42	1		Electrical conductivity (EC) is not a measure of the quality of the water. It is a measure of how electrically conductive the water is. As a result, there is a nearly direct relationship between EC and total dissolved solids (TDS) in the water. TDS is one general measure of water quality. The more dissolved solids in the water, the more electrically conductive it is and, as a result, the quality of the water is generally poorer. For this reason, I suggest you delete reference to EC in the first sentence of the paragraph.	

97	Donald Bills	GGA-TAC		3.1.10.3	3-42			Fire retardant used to be manufactured in Orland and included boron with other chemicals known for both their fire suppression properties and as chemical fertilizer. Currently, fire retardant is a mix of ammonium polyphosphate, diammonium phosphate, diammonium sulfate, monoammonium phosphate, attapulgus clay, guar gum known as Phos Chek. Over time, after a fire, this material gets watered into a watershed and may be a concern for the water quality of an aquifer. It is also highly concentrated where manufactured and distributed (Airports like Orland, Willows, and USFS and CDF fire bases).	
98	Donald Bills	GGA-TAC		3.1.10.3	3-42	3		Most drycleaners use both Trichloroethylene (TCE) and Tetrachloroethylene (PCE) (as did the one in Orland). The studies I have seen on this issue for the Orland area refer mostly to TCE.	
99	Donald Bills	GGA-TAC		3.1.11, Groundwater Inflows and Outflows	3-42 to 48	1		The section heading is groundwater inflows and outflows. The lead sentence begins “Groundwater underflows between the Colusa Subbasin and neighboring groundwater subbasins…”. Groundwater underflow is a specific type of inflow or underflow. I would suggest that a better use of this introductory paragraph would be to list all the relevant GW inflows and outflows to the Colusa Subbasin as discussed in the following subsections. I would also add the Corning Subbasin in the first sentence in relation to groundwater underflow. As water-level contours indicate (fig. 3-19), Stony Creek is not a barrier to groundwater flow.	
100	Donald Bills	GGA-TAC		3.1.11.2.2, GW banking?	3-43			Groundwater banking. Not in the glossary of terms and it appears to mean something different here (recharge) as opposed to the most common definition (water management mechanism designed to increase water supply reliability through the buying, selling, and storage of surface water and groundwater rights for later use). I would suggest artificial recharge as a alternate term since the main heading (2.1.11.2) is Groundwater Recharge Areas.	
101	Donald Bills	GGA-TAC		3.1.11.3, Groundwater discharge areas	3-45	2		I suggest that you consider adding a few sentences about springs in the Colusa Basin to this paragraph. Something like: “Most springs in the Colusa Subbasin occur near the western boundary and discharge from the Tehama, Riverbank, or Modesto Formations and stream channel alluvium. About 25 springs can be identified from USGS topographic maps of the subbasin. A number of these springs have been developed for agricultural use by landowners locally (apparent on satellite imagery). The flow, and water quality of these springs may exist in DWR or USGS databases based on past historical inventories.” If properly inventoried these springs would represent significant additional information about the occurrence, movement, and quality of ground water in the regional aquifer of the Colusa Subbasin, especially where this information is poorly defined.	

102	Donald Bills	GGA-TAC	3	3.1.11.3	3-48	2, 4th sentence		"There are also many unmetered domestic wells located throughout the study area." I suggest adding unmetered small ag wells also: "…unmetered domestic and small agricultural wells…"	
103	Donald Bills	GGA-TAC				2, 5th sentence		It might be appropriate to add a sentence or two here to briefly explain how the annual rate of withdrawal from domestic wells was determined (estimated). Average pump capacity of all domestic wells, seasonal domestic water use estimates, or other. Adding small unmetered ag. wells to this total would increase significantly I imagine.	
104	Donald Bills	GGA-TAC		3.1.11.3	3-48	3		I would also add a comment to this paragraph that during years when surface water deliveries are significantly cut back (drought), agricultural lands rely heavily on wells to make up the difference.	
105	Donald Bills	GGA-TAC	3	3.1.12.1	3-51	4		other methods or data sources: I'd like to suggest passive seismic. The method uses seismic signals already available in the environment, either anthropogenic (i.e. freeway traffic), or natural (i.e earthquakes, ocean waves, etc). the seismic signals are processed similar to standard reflection and/or refraction surveys but for much larger areas and depths. Ground-based, non-invasive CSAMT (Controlled Source Audio-frequency Magnetotellurics) and TEM (transient electromagnetic or alternately called time-domain EM (TDEM)) surveys can provide detailed subsurface information on stratigraphy, structure, depth to water and water quality in localized areas of interest. Survey lines that pass over or by existing wells provide ground-truth.	
106	Donald Bills	GGA-TAC	3	3.1.12.1	3-52	1		Different TDS thresholds to define base of freshwater. Part of the problem may also be that water use type has a lot to do with whether water is considered fresh or not. MCL for safe drinking water is 500 mg/L, Livestock can tolerate about 1,500 mg/l. A lot of commercial ag. plants can tolerate 2,000 to 3,000 mg/L. There is also not broad agreement on what constitutes fresh, saline, or brackish water. It seems to me that the standard for what constitutes freshwater should be the same for all subbasins in the Sacramento Valley, if not the entire Central Valley.	
107	Donald Bills	GGA-TAC		3.2.2.1	3-53	2, second sentence		"The most notable recovery period occurred around 1983, which was both a wet year and when water users added more surface water to their supply portfolios." The recovery after the 1987 to 1991 drought seems at least as great if not greater.	
108	Donald Bills	GGA-TAC			3-53		3-22	It is hard to evaluate temporal trends on this plot referring back to the average annual precipitation plot at the beginning of this chapter. To help understand and evaluate this temporal data it would seem appropriate to add a plot of the annual average precipitation to this graph.	

109	Donald Bills	GGA-TAC		3.2.2.1	3-55	1		Besides showing the general direction of flow to the SE, Figure 2 appendix 3-B appears to show Walker Creek to be a gaining stream (i.e. perennial, groundwater contours point up stream) from the NW part of the subbasin to Artois. Comparing land surface contours (fig 3-4) to the groundwater contours for this area seems to indicate that the depth to water is from -10 to -30 ft below the streambed throughout. Is there a discrepancy here that needs to be resolved?	
110	Donald Bills	GGA-TAC	3	3.2.2.1	3-55	4		"Current groundwater levels are similar to those measured in 2017, indicating that regional groundwater levels have been relatively stable since the end of the previous multiple-year drought." I find this statement a little misleading. What it overlooks is the fact that the combined effect of the 2007-09 and 2012-16 droughts was an average depth to water decline of over 30 ft (fig 3-22) from which the principal aquifer has yet to recover. In addition the 2019 and 2020 wls appear to continue trending down, not stable, as cones of depression continue to expand (fig 3-24 and 3-25).	
111	Donald Bills	GGA-TAC		3.2.2.1	3-55	1,3rd sentence		"Impacts due to pumping are the exception to the typical gradients and disrupt both local and regional gradients." I suggest that you add to this sentence or the first sentence of the paragraph a comment on the effects of changing hydraulic parameters on the lateral groundwater gradient.	
112	Donald Bills	GGA-TAC		3.2.5	2-64	Second		Delete EC. It is not a water quality parameter.	
113	Donald Bills	GGA-TAC				third		Who monitors and regulates the water quality of municipal supply systems? Worth mentioning here? Regional water quality control boards? Saline connate water? Connate water is water trapped within the pores of sedimentary rocks. For that to happen it would have to be fully confined laterally and vertically and not be faulted or fractured. In the geologic discussion it states that pre-Cretaceous rocks are faulted and fractured. Groundwater is almost always in motion and always flows in response to gravity and/or the hydraulic gradient. The flow rates can be very slow, ft per hundreds to thousands of years or more. The connate water would be in pre-Cretaceous sediments. Has anyone dated the water to see if it is, in fact, greater than 145 million years old, give or take?	
114	Donald Bills	GGA-TAC		3.2.5.1.1	3-64	1		End of first sentence add "…and/or EC value (EC is a surrogate [estimate of] for TDS because it is more easily measured on site)." There appears to be a discrepancy in the Secondary MCL for TDS; 500mg/L in sentence 2 and 500 mg/L in sentence 4. Fix?	

115	Donald Bills	GGA-TAC		3.2.5.1.1	3-66	1		"Wells screened in the unconfined to semi-confined zone of the aquifer (i.e. in wells less than 200 feet deep) had the highest number of wells with elevated TDS concentrations." I suggest adding "in thew central and southern part of the subbasin" to the end of this sentence.	
116	Donald Bills	GGA-TAC		3.2.5.1.1	3-66	2		First sentence, …In these areas…. What areas? Suggest replacing with …southwest of Colusa…	
117	Donald Bills	GGA-TAC		3.2.5.1.2	3-67	1		Anthropogenic source for increasing chloride and sulfide concentrations? Septic systems, landfills, other?	
118	Donald Bills	GGA-TAC		3.2.5.2.2	3-67	1		Boron. Pre, late 1970's Boron was a component of fire retardant for its fire suppression characteristics. Fire retardant was manufactured in a plant in Orland and stored at firebases (airports) in Glenn and Colusa counties. Is saw wide use in suppressing forest, brush, and grass (at lower elevations) fires in Glenn and Colusa Counties.	
119	Donald Bills	GGA-TAC		3.2.5.2.3	3-68	1		Known or suspected cause for increases in iron and manganese worth mentioning here? Natural or human caused? Landfill west of Artois? Junk yards? Suggest adding if appropriate.	
120	Donald Bills	GGA-TAC		3.2.5.2.3	3-68	1		Known or suspected cause for anthropogenic increases in hexavalent chromium worth mentioning here? Landfill west of Artois? Suggest adding if appropriate.	
121	Donald Bills	GGA-TAC		3.2.7	3-73	2 and 3 paragraphs		The second paragraph is misleading ("While Stony Creek, Sacramento River, and the Colusa Basin Drain all experience gaining and losing conditions throughout the year,…") and appears to contradict the information provided in the 3rd paragraph. I would suggest deleting the second paragraph entirely and moving the table references to the 3rd paragraph.	

122	Donald Bills	GGA-TAC		3.2.8	3-74	2nd paragraph	3-34	I do not follow the scoring criteria for GDE. A GDE where groundwater is near the surface has a score of 1; least likely to be GDE when it should be more likely to be a GDE. If a GDE is not near surface water OR crop land it scores a 4; most likely to be a GDE when it should be least likely to be a GDE. How the 30 ft DTW line was derived is explained in paragraph 1 on page 3-75. But I could not find or estimate the 30 ft DTW on any or the other figures in the text or appendix. An approximated 30 ft DTW line for 2006 data on figure 3-19 would run from between Arbuckle and College City, to near the boundary of the subbasin west of Williams, to just west of Artois, ending at Stony Creek just N/NW of Orland. This is nowhere near the line shown on figure 3-35. Using figure 5 in appx 3B I can approximate a 30 ft contour to the 2017 data. But it also does not compare to the 30 ft DTW contour on figure 3-35. The explanation table on figure 3-35 does not reference a time period (2014 to 2018?) for the 30 ft DTW line or any of the other features shown. Finally, there is no reference to springs and the riparian habitat they support at headwater streams in the NW part of the subbasin between Willows and Orland. These would represent some of the most important and species diverse habitat in the subbasin. I would suggest that the entire GDE section be revised so it more clearly and plainly represents GDE's that occur within the subbasin.	
123	Donald Bills	GGA-TAC	3	3.3 Water budget information	3-77	1		This section describes water budget components in detail but, I did not see a clear statement of what the water budget was for. Water budgets can be used for many things (i.e. GW gains or losses, basin gains or losses, etc). Is there a statement of the purpose of the water budget in the Groundwater Sustainability Plan Emergency Regulations §354.18 that could be added to the introduction here? The name suggests it is to determine groundwater sustainability of the principal aquifer in the subbasin. That implies that all the inflows and outflows are on onside of the equation and +/- change in storage is the result.	
124	Donald Bills	GGA-TAC	3	3.3.3	3-80		3-9	What is the Shasta non-critical and Shasta Critical, mentioned on the table? How does it relate to the Colusa Subbasin? I think it is defined two pages later under Land use. But there is still no explanation of what a Shasta critical and Shasta noncritical year is. Reservoir contents? Outflow? Both? Is there a reference for this missing? It would be worth providing a footnote to table 3-9 to define Shasta critical and Shasta non critical.	
125	Donald Bills	GGA-TAC		3.3.3.3	3-83	3, Land Use		"…modified based on planned development according to the Colusa County 2030 General Plan." Is there a 2030 Glenn County General plan worth considering here as well?	

126	Donald Bills	GGA-TAC	3	3.3.4	3-84	1, bullet 1		Groundwater pumping and stream accretion are described as inflows here. In paragraph 2 second bullet on page 3-85 they are described as outflows. Which is it? I would suggest they are both outflows from the principal aquifer and the text needs to be fixed accordingly.	
127	Donald Bills	GGA-TAC		3.3.4	3-85	3rd bullet of first paragraph (3-84)		Change in Storage is defined as changes in soil moisture storage within the upper several feet of soil in the root zone, as well as changes in storage in surface water bodies within the basin. Neither of these are change in storage. They are either inflows or outflows components that when summed with other inflows or outflows result in a change in storage of the principal aquifer. I would suggest that the text be fixed accordingly.	
128	Donald Bills	GGA-TAC			3- 86 and 3-87		3-10 and 3-11	The tables do a much better job of representing the various SW and GW components of the water budget. Is there some way change the text so it is mere consistent with the tables? Also, In both table 3-10 and 3-11 the column headings for future conditions climate change relate to a specific date (2030 and 2070). It would be useful to the reader if the other columns (historical simulation, current baseline, and future condition no climate change base line) had the time periods they are based on as well. 1990 to 2015, 2015, and 1966 to 2015 respectively.	
129	Donald Bills	GGA-TAC		3.3.4.1	3-88	4		I would suggest that ET from the riparian corridor of the Sacramento River as well as evaporation from the rivers surface can also be significant and worth discussing here. Especially during the summer months when ET is at a maximum and daytime temperatures can exceed 100 degrees for weeks at a time. This is important to consider under future climate change scenarios where temperatures and the days per year of excessive heat are predicted to increase.	
130	Donald Bills	GGA-TAC		3.3.4.1	3-89		3-38	I would suggest that you add the change in storage (3taf.yr) to the graph. It is not apparent on the graph even though it is color coded in the legend. The columns look equal. In any case it should not be a color-coded box as inflow or outflow. It is the result of both.	
131	Donald Bills	GGA-TAC		3.3.4.1	3-90		3-39	The GW change is storage in table 3-12 is shown as a negative number (-27.5 taf/yr, a loss). So, why is it shown as an inflow in this figure? Change in storage is neither an inflow nor a outflow but the result (sum) of both. Showing it this way graphically suggests the inflows and outflows are in balance. They are not. I would suggest that you add the actual change in storage (-27.5 taf/y) to the legend and remove it from the inflow column. I suggest you make similar changes to figures 3-40 to 3-47.	

132	Donald Bills	GGA-TAC		3.3.4.1.1	3-91	1 and 2	3-12	"The primary sources of surface water in the basin are the Sacramento River and Stony Creek. Surface water supplies are relatively reliable in the basin and represent approximately 74 percent of the total water supplies." Is this statement accurate? How do Shasta critical and non-critical years affect it? I would think that during Shasta critical years SW deliveries would be much and during Shasta non-critical years would be at or near 100 percent. The second paragraph seems to support this.	
133	Donald Bills	GGA-TAC	3	3.3.4.2	3-93	2		Average annual inflows to and outflows from the groundwater system were estimated to be 997 taf/yr during the current conditions baseline simulation period on figure 3-41 are shown as 998 taf/yr not 997. Which is right?	
134	Donald Bills	GGA-TAC		3.3.4.3.1	3-95	4		"There is negligible change in groundwater storage under the future condition, no climate change baseline water budget." I suggest you add the actual change in parentheses: "…negligible change (+0.6 taf/yr)…"	
135	Donald Bills	GGA-TAC		3.3.4.3.2	3-97	1		"Average annual inflows to and outflows from the groundwater system were estimated to be 1.0 maf/yr." I suggest you add the type and time period to toe sentence so it is consistent with the title of this section and the figure referenced. "Average annual future conditions 2030 climate change baseline groundwater system inflows to and outflows from the groundwater system were estimated to be 1.0 maf/yr."	
136	Donald Bills	GGA-TAC		3.3.4.3.2	3-98		3-45	Change in storage is not an inflow as shown…. See previous comments.	
137	Donald Bills	GGA-TAC		3.3.4.3.3	3-100		3-47	Change in storage is not an inflow as shown…. See previous comments	
138	Donald Bills	GGA-TAC		3.3.5	3-101	1		"Uncertainty refers to a lack of understanding of the basin setting…" Add Water Budget to uncertainty in the first sentence to be consistent with the section title. I.E. "Water budget uncertainty refers to…"	
139	Donald Bills	GGA-TAC		3.3.6	3-102	1		"Based on the current conditions and future conditions with no climate change scenarios, which represent long-term average conditions in the subbasin, overdraft conditions are not expected to occur in the Colusa Subbasin." The rest of the paragraph appears to contradict this. I suggest you change not to expected to occur to minor or modest overdraft is expected to occur.	
140	Donald Bills	GGA-TAC		3.3.7	3-102	1		"As described previously, sustainable yield refers to the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin, and including any temporary surplus that can be withdrawn annually from a groundwater supply without causing an undesirable result." At the beginning of this chapter sustainable yield was also related to a maximum depth below lands surface, 200 ft I believe. I suggest you add that add that condition her also.	

141	Donald Bills	GGA-TAC		3.5, references				I did not attempt to check or verify references…	
142	Donald Bills	GGA-TAC	4	4.2.2.2.1	4-4	1		Groundwater levels should be measured from a pre-established and recorded reference point. — The reference point elevations (RPE) need to have been surveyed to the NAVD 88, feet and shall be accurate to within 0.5 feet, at a minimum (23 CCR §352.4(a)(4). The USGS standard is 0.1 ft. The reasoning is related to the accuracy of GW model results. If the accuracy of GWLs input to GW models are not accurately known, any errors in model results propagate over time through the model runs. As a result, GWL changes and associated changes in inflow, outflow and storage become increasing less certain. In the case of the Colusa subbasin knowing the accuracy of the MP to only 0.5 ft could result in WL changes of +/- 0.5 ft and storage changes of +/- 0.5 ft (100,000s af/y potentially). Also, Accurate to within 0.5 ft at a minimum seems a little ambiguous. Do you mean that 0.5 ft is the least accurate value acceptable but greater values (1.0 ft, 5.0 ft, etc.) are also acceptable? I would suggest you change this phrase to : " accurate to within +/- 0.5 ft (+/- 0.1 ft if you are going to use the more broadly accepted standard). If you make the change here, make it throughout the rest of the text.	
143	Donald Bills	GGA-TAC		4.2.2.2.1	4-4	1, bullet 2		"…Equipment should be operated and maintained in accordance with the manufacturer's instructions." The WL measuring equipment should be calibration checked annually to be sure it is still the same as the original manufacture calibration. In addition, if a well probe is stuck in is a well but can be removed. The calibration of the well probe should be verified before the probe is used again.	
144	Donald Bills	GGA-TAC		4.2.2.2.1	4-4	1, bullet 3		Monitoring wells developed in partially confined or confined aquifers can have a pressure gage installed in the well cap as a further indication of potential hydraulic head.	
145	Donald Bills	GGA-TAC		4.2.2.2.1	4-4	1, bullet 4		Near pumping, recently pumping nearby. Nearby stream flowing or not recently following or not, etc.	

146	Donald Bills	GGA-TAC		4.2.2.2.1	4-4	1, bullet 6		Water levels shall be measured to the nearest 0.1 foot, at a minimum (23 CCR §352.4(a)(3). Measurements to the nearest 0.01 feet are preferred and should be used if the equipment allows. — Groundwater elevations (GWE) are calculated as the RPE minus measured depth to water (DTW). See the problem here? It your RPE is only accurate to +/- 0.5 ft, your GWE is now only accurate to +/- 0.6 ft. USGS standard is to measure RPE's to +/- 0.1 ft and WLS to +/- 0.01 ft (depths less than 500 ft) and round to the nearest 0/1 ft. In addition, all depth to water measurements in wells are repeated until you can get three results within 0.1 ft of each other. The average is used.	
147	Donald Bills	GGA-TAC	4	4.2.2.2.1	4-5	2, bullet 5		"Recorded information should include:…" NOTE: The Height of the RPE can and will change over time. That is why it should be checked at least annually, and the new elevation noted if it has changes.	
148	Donald Bills	GGA-TAC		4.2.2.3	4-6		Figure 4-1	Significant cones of depression (GW withdrawal for Ag.) occur to the NW of Orland just south of Stony Creek and to the SW of Orland. Yet, there is only one monitoring well (21N04W12A001-004M) available to evaluate these drawdowns as they develop over time. I would suggest additional monitoring wells be places in these areas. The same is true in the area to the west of Artois and Willows.	
149	Donald Bills	GGA-TAC		4.2.2.3	4-12	2		"Many of the surface waters are near wells included in the current groundwater monitoring network, except for the surface waters within the Colusa National Wildlife Refuge, east of Williams." Suggest you add the following to this: "…east of Williams, N and NW of Orland near Stony Creek, NW of Artois along the middle reaches of Walker Creek, and NW of Willows along the middle reaches of Willow Creek."	
150	Donald Bills	GGA-TAC		4.2.2.3	4-12	5		Are the caved-in of casing collapsed wells going to be repaired or replaced?	
151	Donald Bills	GGA-TAC		4.2.2.4	4-12	2, item 2		Consider adding: c. Areas of active drawdowns (storage decline) with minimal monitoring well coverage.	
152	Donald Bills	GGA-TAC	4	4.2.2.5.2	4-14			I would recommend considering adding monitoring wells in the areas mentioned in my comments on page 4-6 and 4.12. Figure 4.2 already shows one well being removed from the network in the areas near Orland mentioned in comments on page 4-6.	
153	Donald Bills	GGA-TAC		4.2.3	4-14			Irrigated Ag is also known to increase salinity in shallow water-bearing zones as irrigation leaches minerals from the soil. I would also add nitrate as a constituent of concern for the Colusa subbasin. Nitrates resulting from livestock operations and areas with a high density of septic systems are known to also leach in to the subsurface.	

154	Donald Bills	GGA-TAC		4.2.3.2	4-16	1		Wilde, 2005 has been updated extensively. Newer versions od different chapters of the report were developed in 2008, 2012, 2014, 2018, 2019, 2021 The entire manual is now available online at: https://www.usgs.gov/mission-areas/water-resources/science/national-field-manual-collection-water-quality-data-nfm?qt-science_center_objects=0#qt-science_center_objects 3rd Bullet: Sample integrity, i.e. ppb protocol? Perhaps add a comment about the chain of custody (oops… bullet 14).	
155	Donald Bills	GGA-TAC		4.2.3.2	4-16	2, bullet 2		And the unique identifier should be verified to already exist in the data base so the data has a home and does not end up in a "unknown site" file.	
156	Donald Bills	GGA-TAC		4.2.3.2	4-16	2, bullet 6		During purging of the well field parameters should be monitored until stable to insure the well has been correctly purged. Easy to do with a QW multi meter.	
157	Donald Bills	GGA-TAC		4.2.3.2	4-16	2,bullet 8		Suggest adding dissolved oxygen (DO) to the list of filed parameters. GW typically has low or near zero DO. Water sitting in well casing for a period of time will accumulate concentrations of DO. Represents another good indicator of proper well purge.	
158	Donald Bills	GGA-TAC		4.2.3.2	4-16	2, bullet 9		Sample labels can be preprinted in the lab with all the appropriate info. Prevents the smearing of hand-written labels using pencil, ink and even waterproof ink (Sharpie). Also be aware that the outside of the sample bottles can "sweat" in coolers or other containers. The result is the label glue will weaken and the labels will come off. Double bag samples is one solution.	
159	Donald Bills	GGA-TAC		4.2.3.2	4-16	2, bullet 10		Field parameter DO is a good indicator of this. Laminar flow may require the use of a variable speed pump so DD is not excessive during collection of the water sample.	
160	Donald Bills	GGA-TAC		4.2.3.2	4-16	2, bullet 11		DQOs? Is this a reference to Quality assurance. If so a number of duplicates, blanks and spike samples will need to be processed either in the lab or on site, depending on the type and number of water samples being collected during an individual field run. Maybe briefly explain here?	
161	Donald Bills	GGA-TAC		4.2.3.2	4-16	2, bullet 12		In this case DQOs appears to be referring to lab detection limits for individual constituents. Correct or no? May need more explanation here.	
162	Donald Bills	GGA-TAC		4.2.3.5	4-19	1		The lead sentence suggesting the existing QW monitoring programs as sufficient contradicts 4.2.3.4 which says they are not sufficient. If the existing monitoring wells are not spatially located enough to address salinity concerns or, not deep enough to detect upwelling of brackish GW from below, they are indeed not sufficient.	

163	Donald Bills	GGA-TAC		4,2,3,5	4-19	2		Small diameter monitoring wells pose additional issues for the collection of Value QW samples. Small diameter submersible pumps (less than 2 inches) are few and far in between. Typically, they are limited to lifts of 100 ft or less, and have small pumping rates (~one gpm or less). Bailers (Teflon preferred) are another option and are readily sized to fit in 2-inch monitoring wells. Bailing a well to purge can be difficult depending on the depth. Bailers have to be pre cleaned between each water sample. Bailer sample volumes may be on the order of 1 liter or less meaning several bail volumes to collect a sample. Then there is still the issue if ant of the monitoring wells are deep enough to register upwelling of brackish water from below.	
164	Donald Bills	GGA-TAC		4.2.4.1 lands subsidence	4-20	2, bullet 8		Land subsidence should be measured at least as accurately as SWLs if not more accurate. Small changes in land subsidence (tenths of a foot, not half a foot or more) can have a significant impact on the surface and on GW storage. If you are measuring the elevation of ground surface to +/- 0.1 ft and the elevation of your RP to +/- 0.5 ft, again the accuracy of your subsidence measurement is no better than +/- 0.6 ft.	
165	Donald Bills	GGA-TAC		4.2.5.1	4-24	1, bullet 7		Benchmarks at USGS stream-flow gaging stations are surveyed to the nearest 0.01 ft. One-hundredth foot accuracy is critical to development of a good (+/- 5 percent of the actual flow) or better stage-discharge relationship. If not, you risk losing indications of GW supported base flow and any seasonal signature of gaining or losing flow to/from GW. As an aside, the USGS also requires a minimum of 10-years of continuous (every 15-minutes) record for the data to have any statistical significance.	
166	Donald Bills	GGA-TAC		4.2.5.2	4-24	3		Accuracy of stage data is +/- 0.01 ft (required).	
167	Donald Bills	GGA-TAC		4.2.5.5	4-24	1		Figure 4-4 is land subsidence. I think you mean figure 4-5. The legend for figure 4-5 does not provide adequate explanation of the different stream types shown on the map (perennial, intermittent, ephemeral, canals, or drains). The line widths and colors vary from thick to very thin and light blue to very light blue respectively. It needs to be revised.	

168	Donald Bills	GGA-TAC		4.2.5.5	4-25	2		"Additionally, existing stream and drainage reports will be evaluated for additional information on the timing, stage, and magnitude of flows in ephemeral and intermittent streams in the subbasin, if necessary to fill data gaps or support projects and management actions during GSP implementation." There used to be a stream-flow gaging station on Walker Creek at Artois. Still there? Still active? There also use to be a gage on the Glenn-Colusa Canal where it crosses Stony Creek south of Hamilton City. Still there? Still Active? I imagine there are additional discontinued stream-flow gaging stations scattered across the Colusa subbasin. If the structures for these sites are still there, they can be re-established by installing stage recorders and making periodic discharge measurements to verify the old stage discharge relationships. Besides the Colusa Drain, Willow Creek west of Willows is another intermittent/ephemeral stream that would be worth the effort to gage.	
169	Donald Bills	GGA-TAC		4.3 References	4-27			Add Wilde (2005) or most recent reference(s) available. Reference for California Rice Commission? Reference for California Statewide Groundwater Elevation Monitoring Program (CASGEM)?	
170	Holly Reimers		1	1.1	1-1	2		The priority being to halt overdraft and bring basins into balance? This is not even close to being complied with. The overdraft is far greater than the recharge with the ground water tables lowering each year.	
171	Holly Reimers		1	1.1	1-1		1, 2 & 6	Sounds good but is NOT will not work and is not doable.	
172	Holly Reimers		1	1.1	1-1	4		Achieving the groundwater management within 20 years WILL BE TOO LATE.	
173	Holly Reimers		1	1.2	1-2	1		SEE ABOVE!	
174	Holly Reimers		1	354-10	3 of 7		1-1	The whole process has been trotally lacking in "public engagement". Nor has the GGA encuraged any "active involvement". As the times we have given input we have been overridden by councel.	
175	Holly Reimers		2	2.1.2	2-4	2.1.2.1		With the Colusa Subbasin depending on ground water for their potable water the ground water for these wells should be closely watched as the number of wells are going dry or having to be lowered at an alarming rate.	
176	Holly Reimers		2				2-6	The table shows the density of Ag. wells around Orland. Is anyone reporting the number of domestic wells that are being affected by this?	

177	Holly Reimers		2	2.2	2-16	2.2.1.1		"Manage and reduce invasive plant populations" This has been one of my main talking points for many years. The Salt Ceder and the Bamboo are non native and are using more water than any other source. Especally in this dry year these plants need to be eradicated!	
178	Holly Reimers		2	2.2	2-17	2.2.1.1		"Ensure long-term Gropundwater Sustainability" At the rate this is going and where it is headed the train has left the station and we in Glenn County will have little or no ground water in the very near future. Domestic and livestock wells MUST be protceted.	
179	Holly Reimers		2	2.2	2-17	2.2.1.1		The defination of sustainable: "related to, or being a method of harvesting or using a resource so that the resource is NOT depleted or PERMANENTLY damaged". To date all that I have seen and hear coming from the GGA has been a JOKE!!!	
180	Holly Reimers		2		2-23	2.2.4		With 2021 being one of if not the dryest years on record to transfer serfice water OUT of the subbasin should be at the very least suspended. To transfer serfice water then pump ground water as a substitute should not be allowed.	
181	Holly Reimers		2		2-29	2.5.1.2		Chowchilla?????	
182	Holly Reimers		3		ALL	ALL		Anyone reading this needs a Masters degree in Geology. Anyone looking for something to put them to sleep at night can try this chapter. Most of what is contained is FAR above most people and especally those here in Nrthern California. Maybe this chapter is necessary but it is way over the top on so much detail that it loses the normal person. It certently lost me.	
183	Holly Reimers		4		ALL	ALL		There is no mention of using those locals that are drillers and or anyone that repairs pumpa and wells. It should be noted that those working in the "field" just might have a better idea as to what is happening to our groundwater than someone sitting at a computer someplace other then in the field in Glenn County.	
184	Holly Reimers							After reading through this whole draft. Witch I will have to admit was in many places very boring, I see no offers of solutions. Lots of "we will Keep lookionmg at it" but nothing to address what some are saying is a major overdraft of our gropund water. Domestic and stock wells are having to be lowered or are running out of water. The word on the street is that the ground water is dropping by over 1' per year and that was BEFORE the current very dry year.	
185	Jim Wallace		3		3-86	Table 3-10		The table lists diversions only from Stony Creek (SC) and the Sac River (SR), and not the CBD.	

10. ***CONSIDER AUTHORIZING THE CHAIRMAN TO APPROVE AND EXECUTE AGREEMENT 1178.03 COLUSA SUBBASIN GROUNDWATER SUSTAINABILITY PLAN AMENDMENT 2 WITH DAVIDS ENGINNERING, INC**

As mentioned in Item 9, a calculation mistake was made on 1178.03 Colusa Subbasin Groundwater Sustainability Plan Amendment 1, was approved on June 15, 2020 and executed on August 18, 2020. Staff has been working with the Davids Engineering staff to correct this error and to re-allocate funds within the subtasks of the project to more accurately reflect where funds are spent. The main correction is to increase the amount not to exceed because when Task 4: Funding Mechanisms was authorized the funding was not included in the calculation of Amendment 1. Additionally, Amendment 2 will also correct some typos that were made in the creation of Amendment 1. The current contract compensation amount is not to exceed $1,261,400. The current draft Amendment 2 would increase the not to exceed amount by $75,600 for a total of $1,337,000. The draft proposed changes are shown in the table below.

Staff requests the Board provide feedback and consider authorizing the Chairman to approve and execute Agreement 1178.03 Colusa Subbasin Groundwater Sustainability Plan Amendment 2 pending agreement with Davids Engineering, Inc. and review by Counsel and provided the total figure does not exceed $1,337,000.

Task	Estimated Budget Including Corrections	Estimated Budget Surplus (+) /shortfall (-)	Adjusted Estimated Budget
Task 1 - Project Management	$35,200	($10,000)	$45,200
Task 2 - Stakeholder Outreach and Coordination	$151,300	$0	$151,300
Task 3 - GSP Development	(see below)		
3.1. Data Collection and Analysis	$41,900	$16,300	$25,600
3.2. Integrated Hydrologic Modeling	$116,400	$14,200	$102,200
3.3. Monitoring Protocols	$7,400	$800	$6,600
3.4. Data and Reporting Standards	$16,500	$7,000	$9,500
3.5. Data Management System	$43,000	$0	$43,000
3.6. GSP Administrative Information	$34,400	$12,100	$22,300
3.7. Basin Setting	$55,100	$16,000	$39,100
3.8. Sustainable Management Criteria	$116,800	($125,500)	$242,300
3.9. Monitoring Network	$78,800	$5,100	$73,700
3.10. Projects and Management Actions	$95,900	($60,000)	$155,900
3.11. GSP Document Preparation and Adoption	$42,100	($25,100)	$67,200
Task 4 - Funding Mechanisms	$75,600	$28,200	$47,400
Task 5 - Hydrogeologic Investigation	$313,680	$120,900	$192,780
Task 6 - GDE Evaluation	$46,800	$0	$46,800
Task 7 - Well Monitoring Pilot Program	$66,120	$0	$66,120
Total	$1,337,000		$1,337,000

11. INTER-BASIN COORDINATION

a. Discussion on Northern Sacramento Valley Inter-basin Coordination Report

Staff from the Antelope, Bowman, Butte, Colusa, Corning, Los Molinos, Red Bluff, Sutter, Vina, Wyandotte Creek, and Yolo subbasins continue to meet to discuss inter-basin coordination. GSAs are working together to establish a framework for inter-basin coordination throughout GSP implementation. Staff began initial discussion related to desired outcomes, shared concerns, and foundational pillars for long-term inter-basin coordination. These pillars will serve as a menu of options for collaboration. A draft final Northern Sacramento Valley Inter-basin Coordination Report has been developed and is available for review.

More information can be found on a webpage hosted by Butte County at:

https://www.buttecounty.net/waterresourceconservation/Sustainable-Groundwater-Management-Act/Inter-basin-Coordination

Attachments

- Northern Sacramento Valley Inter-basin Coordination Report (Draft Final Dated July 7, 2021)

Northern Sacramento Valley Inter-basin Coordination Report

Antelope | Bowman | Butte | Colusa | Corning | Los Molinos | Red Bluff | Sutter | Vina | Wyandotte Creek | Yolo

Table of Contents

Glossary of Acronyms

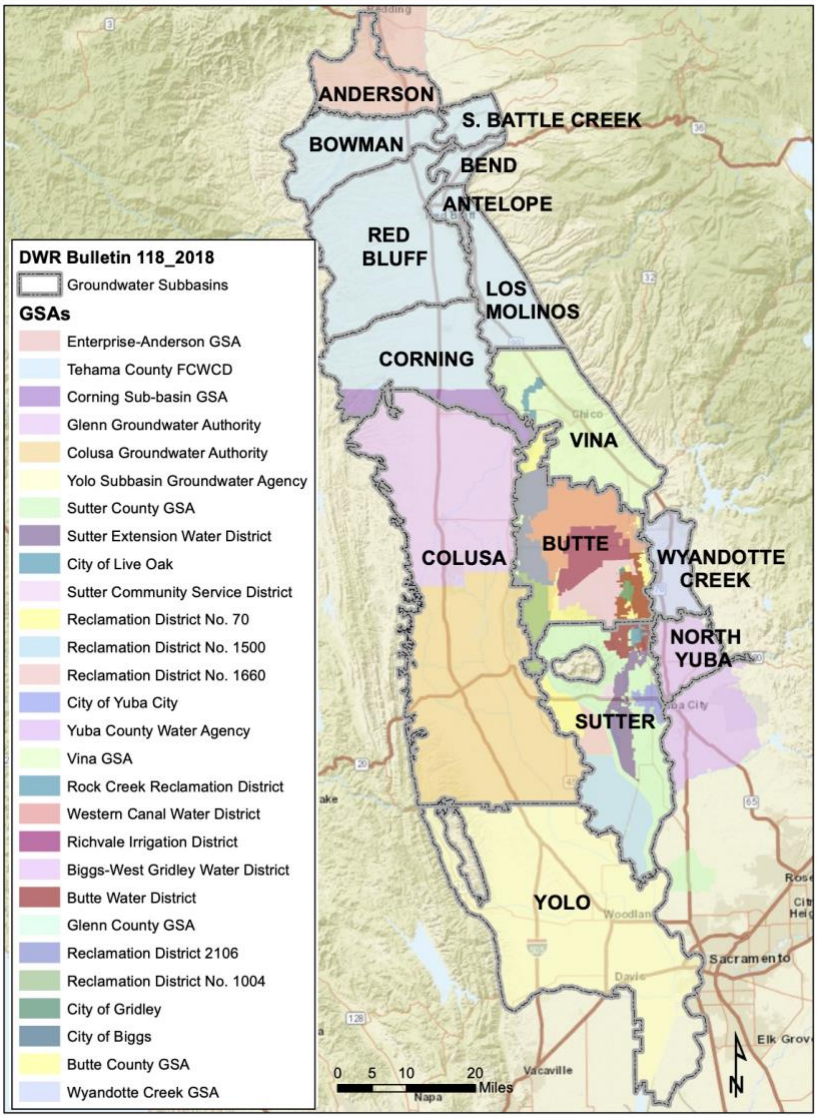
- ***CBI*** – *Consensus Building Institute [link]*
- ***DWR*** – *California Department of Water Resources*
- ***GSA*** – *Groundwater Sustainability Agency*
- ***GSP*** – *Groundwater Sustainability Plan*
- ***MOU*** – *Memorandum of Understanding*
- ***NCWA*** – *Northern California Water Association*
- ***NSV IRWM***– *Northern Sacramento Valley Integrated Regional Water Management*
- ***PMAs*** – *Projects and Management Actions*
- ***SGMA*** – *Sustainable Groundwater Management Act*
- ***SMC*** – *Sustainable Management Criteria*

1. Introduction & Background

The content of the report is the result of staff recommendations resulting from regional inter-basin coordination staff meetings in the Northern Sacramento Valley (2020-2021). The content will be presented to inform discussions among Groundwater Sustainability Agencies (GSAs) and gather public input through existing public venues, such as advisory committees, groundwater commissions, and GSA Board meetings.

Inter-basin coordination is critical in the Northern Sacramento Valley as GSAs develop and implement Groundwater Sustainability Plans (GSPs). Since groundwater subbasins in the Northern Sacramento Valley are hydrologically interconnected, water management decisions and actions in subbasins (i.e., groundwater pumping and processes affecting recharge, water demand, and supply including climate change) could change aquifer conditions. Understanding and accounting for these processes is important towards achieving sustainability in all subbasins.

Figure 1. Map of the Northern Sacramento Valley



Inter-basin coordination is described in the GSP Regulations in Article 8. Under the regulations, GSAs must describe how they coordinate with adjoining subbasins to demonstrate implementation will not adversely affect adjoining subbasins. The Department of Water Resources (DWR) is required to evaluate whether a GSP adversely affects the ability of an adjacent basin to implement their GSP or impedes achievement of sustainability goals in an adjacent basin (Water Code 17033(c)). Coordination among GSAs can be formalized in different ways and inter-basin agreements are voluntary. Appendix A describes components of Sec 357.2.

Inter-basin coordination discussions among staff representatives from 11 subbasins (Antelope, Bowman, Butte, Colusa, Corning, Los Molinos, Red Bluff, Sutter, Vina, Wyandotte Creek, and Yolo), with facilitation support from the Consensus Building Institute (CBI) began during the summer of 2020. While efforts have focused on these subbasins, coordination will occur, as warranted, with other neighboring subbasins (Anderson and North Yuba).

Initial stages of inter-basin coordination efforts (May-December 2020) were closely aligned with the GSP Regulations in Article 8 components and delineated in Section 3 *Evolution of Inter-basin Coordination Efforts*. After an initial attempt to compile technical information to better understand basin conditions at respective boundaries, staff realized differing timelines for the completion of Basin Setting content in each subbasin meant there would not be sufficient time during initial GSP development to fully characterize or address major inconsistencies. Therefore, the goal for regional inter-basin coordination shifted towards establishing a framework for long-term inter-basin coordination and dialogue (post GSP submittal in 2022). Informal coordination discussions among staff and consultants between neighboring subbasins continued during the GSP development process.

This report outlines the intent and purpose of inter-basin coordination in the Northern Sacramento Valley. It describes the process followed and materials developed throughout the process. It also outlines foundational elements, referred to as "key pillars," of a framework for sustained coordination through GSP implementation.

2. Intent & Purpose

Inter-basin coordination efforts in the Northern Sacramento Valley are focused on establishing a foundation and guidelines for sustained inter-basin coordination through GSP implementation, following the initial submittal of GSPs by January 31, 2022. GSAs intend to:

1. *Establish a framework allowing for continued dialogue and a venue to address issues and discrepancies during the implementation of the GSPs;*
2. *Coordinate on consistent messaging and communicate shared expectations at a regional level;*
3. *Demonstrate regional coordination efforts and outcomes; and*
4. *Leverage existing agreements and arrangements in the region (e.g., Northern Sacramento Valley Integrated Regional Water Management (NSV IRWM), the Six County Memorandum of Understanding among Butte, Colusa, Glenn, Tehama, Shasta, and Sutter).*

The proposed deliverable from this effort is the development of a common approach and draft language for incorporation into each subbasin's GSP. This narrative describes the facilitated effort as well as the framework and scope for long-term coordination during plan implementation. The public will have opportunities to weigh in and provide input on the proposed framework through each subbasin's existing public venues, such as advisory committees, groundwater commissions, and GSA board meetings.

3. Evolution of Inter-basin Coordination Efforts

Inter-basin coordination efforts, facilitated by the Consensus Building Institute (CBI) began in summer 2020 among Subbasin staff from Antelope, Bowman, Butte, Colusa, Corning, Los Molinos, Red Bluff, Vina, and Wyandotte Creek subbasins to identify priorities and resources available for inter-basin coordination. Soon after, staff representatives from the Sutter and Yolo subbasins joined the meetings. To date, CBI has facilitated nine inter-basin coordination meetings with staff and periodically with technical consultants from the subbasins. Subbasin staff and/or CBI communicated regular updates to GSA Boards and advisory committees in each of the subbasins regarding the status of inter-basin coordination activities [Access Webpage Here].

Initial stages of inter-basin coordination efforts were closely aligned with the GSP Regulations in Article 8:

1. ***General information*** *of subbasins, plans and agencies participating in the coordination agreement,*
2. ***Technical information*** *including consistent and coordinated data or methodology for inter-basin boundary flows and stream-groundwater interactions at basin boundaries, and information on sustainable management criteria and monitoring that would confirm that no adverse impacts of implementing the GSPs would result to any party to the agreement,*
3. *A description of the* ***process for identifying and resolving conflicts*** *between Agencies that are parties to an inter-basin coordination agreement.*
   Reference: *Sections 10727.2, 10733, and 10733.2, Water Code.*

The goal at the initial stage was to compile general and technical information identified by DWR in a consistent manner to establish an accurate basis of comparison and to identify any significant inconsistencies that may need to be addressed or resolved. This included developing a series of information-sharing documents and outreach materials, summarized below.

1. ***Inter-basin Coordination Directory–*** *This document provides an updated and centralized directory with contact information for GSA managers, technical consultants, and facilitators in the various subbasins. This document seeks to facilitate communication among the various representatives leading GSP development [Access Here].*
2. ***Technical Information-Sharing Template–*** *This template was developed among the managers and technical consulting teams to compile and compare information on modeling tools and water budget results for inter-basin flows, stream-aquifer interactions, and hydro-geologic conditions in the subbasins. Potentially, this document could be used to compile information about Sustainable Management Criteria and Monitoring Networks [Access Draft Template Here]. The first output from the technical information-sharing template summarizes the highlights of compiled model information across the subbasins [Access Here].*
3. ***Outreach Presentation****–This PowerPoint presentation provides updates on inter-basin coordination activities to the various SGMA public venues (GSA boards, advisory committees, etc.) and an overview of the scope and timeline of inter-basin coordination efforts. This presentation is continuously updated*

after each inter-basin coordination staff meeting for use in consistently communicating with GSA Boards/advisory committees and the public throughout the region [Access Here].

4. ***Outreach Factsheet–*** *The inter-basin coordination factsheet aims to support public outreach and information sharing in the various subbasins. This two-page flier or factsheet summarizes why regional coordination is important under SGMA, who is involved in ongoing efforts, what the coordination priorities are, and includes a table with links to each subbasin's website for additional subbasins' specific information [Access Here].*
5. ***Inter-basin Coordination Webpage****– Butte County hosts a webpage to provide the most up-to-date information on inter-basin coordination efforts in the Northern Sacramento Valley. The webpage provides an overview of the scope and makes available documentation and results of the inter-basin coordination work, including meeting agendas, summaries, and outputs [Access Here].*
6. ***Meeting Summaries****–CBI develops meeting summaries after each regional inter-basin coordination staff meeting to summarize key discussion themes, action items, and next steps. These summaries are publicly available on the inter-basin coordination webpage [Access Here].*

After an initial attempt to compile technical information, staff realized the broad aspirations were not feasible during the initial stages of GSP development. The process of compiling and comparing modeling outputs from the diverse regional hydrological models required a significant amount of time, resources, and varying levels of data. Further, subbasins were at different stages of GSP development and GSAs were facing tight timelines, competing priorities, and capacity limitations to meet the regulatory deadline. While communication on a neighbor-to-neighbor basis on technical components was encouraged through GSP development, subbasin staff representatives realized more robust technical analysis and coordination between and among subbasins was not possible until initial plans (including water budgets) were more fully developed or after adoption of the initial GSPs.

Following reflection from the separate inter-basin efforts and priorities moving forward, subbasin staff recommended shifting the focus of regional coordination meetings to establishing a framework for long-term inter-basin coordination and dialogue following GSP submission in January 2022. To do so, subbasin staff identified desired outcomes in the short-term (during initial GSP development), mid-term (first 5-year update), and long-term (GSP Implementation through 2042) [Access Here]. This approach recognizes adoption of the 2022 GSPs as an initial step in sustainable groundwater management, not the final step. Subbasin staff acknowledged while model outputs may not match perfectly, the main objective is to identify and acknowledge significant discrepancies, understand why those differences exist, and evaluate to the extent they need to be reconciled. Inter-basin coordination has been characterized as "a marathon not a sprint," and current efforts will serve to pave the path for long-term collaboration. Further, GSAs can take advantage of annual reporting and five-year GSP updates to identify and address discrepancies. Lastly, subbasin staff representatives acknowledge public participants are interested in inter-basin coordination efforts and concerns from some subbasins can easily affect others. Subbasin staff understand the need to share and educate the public on what is in the various GSPs, and the SGMA requirements for inter-basin coordination. Staff will continue to provide updates and gather GSA Board and public input related to the direction of current efforts and desired priorities, shared concerns, and possible ideas for inter-basin coordination during GSP implementation.

4. Inter-basin Coordination Framework

This section outlines the foundational pillars that comprise the framework for inter-basin coordination under SGMA between and among subbasins in the Northern Sacramento Valley. These pillars build upon a long-standing history of regional collaboration and embody a commitment for continued coordination, collaboration, and communication for successful groundwater management in the region. Honoring the individual authorities of the GSAs, these pillars represent a menu of options neighboring subbasins can draw upon, based on individual or neighboring subbasins' needs and challenges. GSA Boards can decide which of these options they would like to support and implement, acknowledging circumstances may change over time.

Pillars	Scale(s)	Timing
1. Information-sharing a. Inform each other on changing conditions (i.e., surface water cutbacks, land use changes, policy changes that inform groundwater management) b. Share annual reports and interim progress reports c. Share data and technical information and work towards building shared data across and/or along basin boundaries (e.g., monitoring data, water budgets, modeling inputs and outputs, and Groundwater Dependent Ecosystems)	• Neighbor-to-neighbor • Coordination groups [Refer to section 4.1 below]	• *Ongoing (GSP Development)* • *Near-term (5-year update)* • *Long-term (GSP implementation)*
2. Joint analysis & evaluation a. Evaluate and compare contents of GSPs with a focus on establishing a common understanding of basin conditions at boundaries b. Identify significant differences, uncertainties, and potential issues of concern related to groundwater interaction at the boundaries c. Engage in analysis and evaluation of SMCs between GSPs to assess impacts and identify significant differences and possible impacts between subbasins that could potentially lead to undesirable results	• Neighbor-to-neighbor • Coordination groups [Refer to section 4.1 below]	• *Near-term (5-year update)* • *Long-term (GSP implementation)*
3. Coordination on mutually beneficial activities a. Communicate, coordinate, and collaborate on mutually beneficial activities, which could include joint monitoring, joint reporting, regional modeling, and other efforts to address data gaps at subbasin boundaries b. Collectively pursue funding and collaborate on mutually agreed upon projects and management actions that provide benefits across boundaries c. Leverage existing collaboratives (NSV IRWM, NCWA etc.)	• Neighbor-to-neighbor • Coordination groups • Regional: NSV IRWM, NCWA Groundwater Task Force	• *Ongoing (GSP Development)* • *Near-term (5-year update)* • *Long-term (GSP implementation).*
4. Coordinated communication and outreach a. Coordinate and collaborate on regional-scale public engagement and communication strategies that promote awareness on groundwater sustainability, enhance public trust, and maintain institutional knowledge b. Maintain list of GSP/subbasin staff contacts and websites	• Regional: NSV IRWM and NCWA Groundwater Task Force	• *Ongoing (GSP Development)* • *Near-term (5-year update)* • *Long-term (GSP implementation)*
5. Issue-resolution process a. Establish and follow an agreed-upon process for identifying and resolving conflicts between GSAs by the first five-year update [Refer to Appendix D for more details and discussion prompts on issue resolution processes]	• Neighbor-to-neighbor • Coordination groups	• *Near-term (5-year update)* • *Long-term (GSP implementation).*

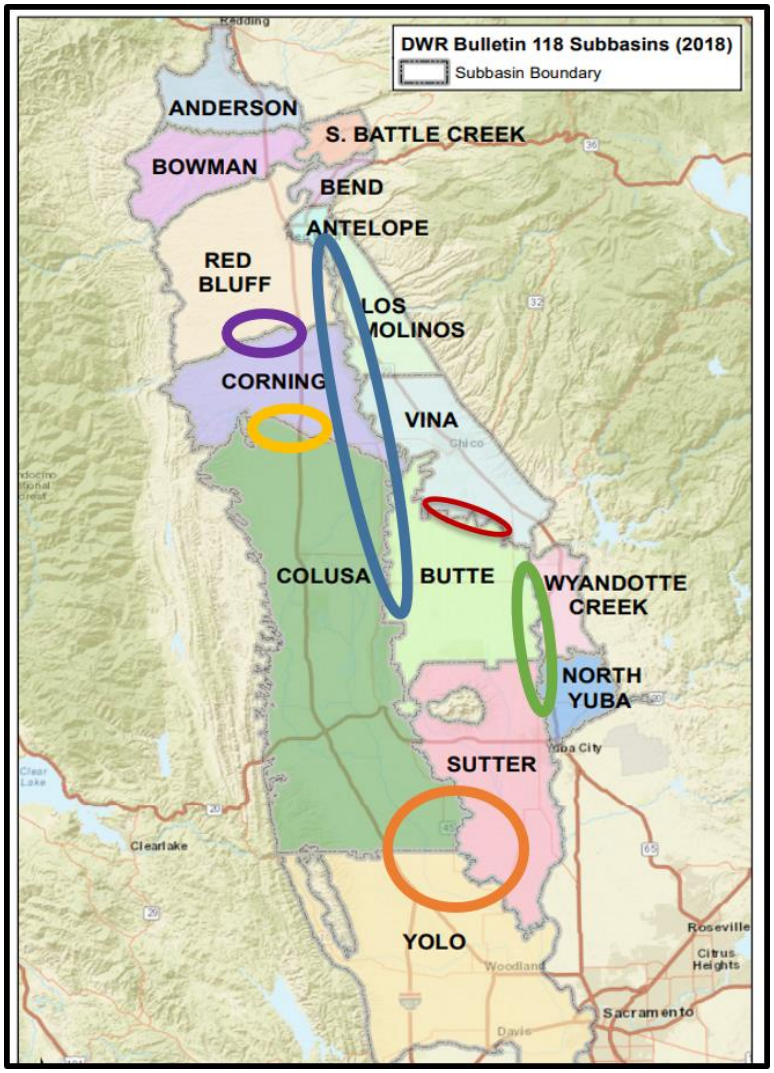
4.1. Inter-basin Coordination Groups

Inter-basin coordination efforts, as outlined in the pillars above, would require resources and technical support. Subbasin staff recommend organizing inter-basin coordination priorities by specific subbasin boundaries. One suggested approach identifies specific "Coordination Groups" (see Figure 3 and list below). Some of these groups are pairs and others include multiple subbasins around a river boundary.

1. ***Feather River Corridor***- *Butte, Wyandotte Creek, North Yuba, Sutter*
2. ***North Sacramento River Corridor***- *Antelope, Los Molinos, Red Bluff, Corning, Vina, Butte, Colusa*
3. ***South Sacramento Corridor***- *Colusa, Sutter, Yolo*

Neighbor to Neighbor, examples:

4. ***Stony Creek***- *Corning, Colusa*
5. ***Thomes Creek***- *Red Bluff, Corning*
6. ***Butte/Vina***- *Vina, Butte*



5. Conclusion and Next Steps

In sum, this report outlines a framework for inter-basin coordination for sustainable groundwater management in the Northern Sacramento Valley. The inter-basin coordination framework describes a menu of options for ongoing communication and collaboration around substantive issues over the twenty-year implementation of SGMA.

The pillars and other content from this report could be used by GSAs to support GSP development and implementation in a number of ways. This inter-basin coordination report could be included as an Appendix to the GSP and could be updated on a yearly basis. Individual subbasins can incorporate sections of the report into the body of the GSP, depending upon specific boundary conditions at adjoining subbasins. Finally, subbasins could draw on the inter-basin coordination framework if they would like to consider entering into one or more voluntary inter-basin agreements during GSP implementation.

The content of the report is the result of staff recommendations resulting from regional inter-basin coordination staff meetings. Staff will present the framework as a supporting document to guide and inform discussions with the GSA Boards and other existing public venues, such as advisory committees or groundwater commissions. GSAs in turn will discuss the menu of options for inter-basin coordination outlined in this report to determine their priorities and desired approach to draw on the inter-basin coordination framework in their individual GSPs. Lastly, Subbasin staff will come together to share input received and determinations from their respective GSAs.

Subbasin staff acknowledge that while this report builds upon a long-standing history of regional collaboration, this is just the beginning of inter-basin coordination efforts under SGMA. Therefore, this framework and inter-basin coordination activities will be continually refined throughout GSP implementation.

Appendices

Appendix A: GSP Emergency Regulations, Article 8: Interagency Agreements §357.2

§ 357.2. Inter-basin Agreements (access here)

Two or more Agencies may enter into an agreement to establish compatible sustainability goals and understanding regarding fundamental elements of the Plans of each Agency as they relate to sustainable groundwater management. Inter-basin agreements may be included in the Plan to support a finding that implementation of the Plan will not adversely affect an adjacent basin's ability to implement its Plan or impede the ability to achieve its sustainability goal. Inter-basin agreements should facilitate the exchange of technical information between Agencies and include a process to resolve disputes concerning the interpretation of that information. Inter-basin agreements may include any information the participating Agencies deem appropriate, such as the following:

(a) General information:
  (1) Identity of each basin participating in and covered by the terms of the agreement.
  (2) A list of the Agencies or other public agencies or other entities with groundwater management responsibilities in each basin.
  (3) A list of the Plans, Alternatives, or adjudicated areas in each basin.

(b) Technical information:
  (1) An estimate of **groundwater flow across basin boundaries**, including consistent and coordinated data, methods, and assumptions.
  (2) An estimate of **stream-aquifer interactions** at boundaries.
  (3) A **common understanding of the geology and hydrology** of the basins **and the hydraulic connectivity** as it applies to the Agency's determination of groundwater flow across basin boundaries and description of the different assumptions utilized by different Plans and how the Agencies reconciled those differences.
  (4) **Sustainable management criteria and a monitoring network** that would confirm that no adverse impacts result from the implementation of the Plans of any party to the agreement. If minimum thresholds or measurable objectives differ substantially between basins, the agreement should specify how the Agencies will reconcile those differences and manage the basins to avoid undesirable results. The Agreement should identify the differences that the parties consider significant and include a plan and schedule to reduce uncertainties to collectively resolve those uncertainties and differences.

(c) A description of the **process for identifying and resolving conflicts** between Agencies that are parties to the agreement.

(d) Inter-basin agreements submitted to the Department shall be posted on the Department's website.

Note: Authority cited: Section 10733.2, Water Code.
Reference: Sections 10727.2, 10733, and 10733.2, Water Code.

Appendix B: Inter-basin Coordination Fact Sheet

Northern Sacramento Valley | Sustainable Groundwater Management Act

Regional Coordination Between Subbasins

Antelope | Bowman | Butte | Colusa | Corning | Los Molinos | Red Bluff | Sutter | Vina | Wyandotte Creek | Yolo

Sustainable Groundwater Management Act

What is SGMA? California enacted the Sustainable Groundwater Management Act (SGMA) in 2014 to better manage groundwater over the long term. Sustainability is achieved by avoiding significant and unreasonable conditions for the six "sustainability indicators."

- Lowering of Groundwater Levels
- Reduction of Groundwater Storage
- Land Subsidence
- Surface Water Depletion
- Water Quality Degradation
- Sea Water Intrusion

Why is regional coordination important? In the Sacramento Valley, inter-basin coordination is critical as Groundwater Sustainability Agencies (GSA) develop their Groundwater Sustainability Plans (GSP). Since groundwater subbasins in the Northern Sacramento Valley (NSV) are hydrologically interconnected, water management decisions and actions in one subbasin (e.g. groundwater pumping) and processes like climate change could change aquifer conditions and affect flows to other subbasins. Understanding and accounting for these processes is key to achieve sustainability in all subbasins.

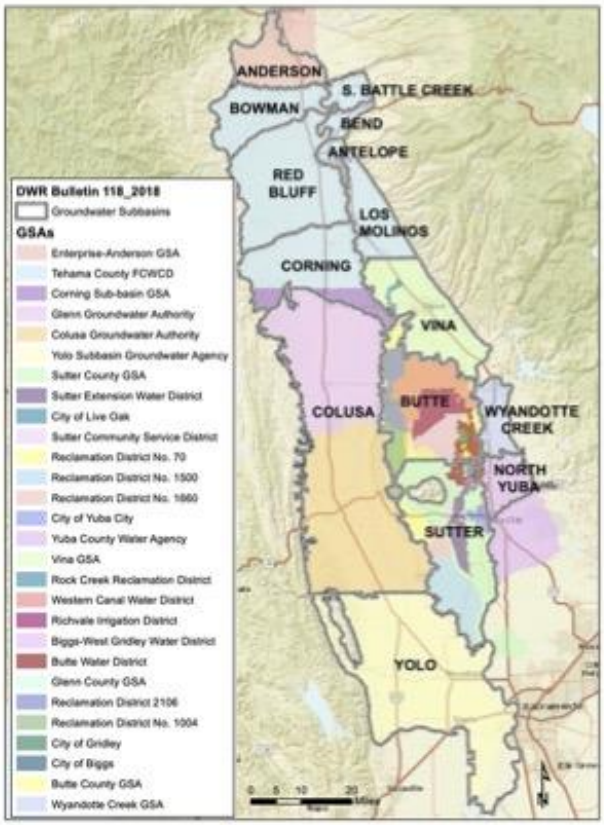
Who is involved in ongoing efforts?

Collaborative efforts have begun among representatives from 11 subbasins (Antelope, Bowman, Butte, Colusa, Corning, Los Molinos, Red Bluff, Sutter, Vina, Wyandotte Creek, Yolo), with facilitation support from the Consensus Building Institute. While efforts have focused on the subbasins mentioned, coordination will occur, as warranted, with other neighboring subbasins (Anderson and North Yuba).

What are the coordination priorities?

Groundwater Sustainability Agencies are working together to establish a foundation for open and transparent inter-basin coordination and communication by developing tools to:

- SHARE & COMPILE INFORMATION IN A CONSISTENT WAY
- OUTLINE A PROCESS TO IDENTIFY & RESOLVE ISSUES
- DOCUMENT COORDINATION EFFORTS



Learn More & Get Involved

Receive Updates
Sign up for your GSA's interested parties list.

Contact Your GSA
Talk to your GSA representative

Attend Meetings
Attend public workshops, Advisory Board, and GSA Board meetings

Subbasin	GSA(s)	Website
Antelope	Tehama County Flood Control and Water Conservation District (FCWCD)	Website
Bowman	Tehama County FCWCD	Website
Butte	Biggs West Gridley WD, Butte County, Butte WD, City of Biggs, City of Gridley, Colusa Groundwater Authority, Glenn County, RD 1004, RD 2106, Richvale ID, Western Canal WD	Website
Los Molinos	Tehama County FCWCD	Website
Red Bluff	Tehama County FCWCD	Website
Corning	Corning Sub-basin GSA, Tehama County FCWCD	Website
Colusa	Glenn Groundwater Authority; Colusa Groundwater Authority	Websites (Glenn) I (Colusa)
Sutter	Butte WD, City of Live Oak, Sutter Community Service District, Sutter County, Sutter Extension Water District, RD 70, RD 1660, RD 1500, City of Yuba City	Website
Vina	Rock Creek Reclamation District, Vina GSA	Websites (Vina) I (RCDC)
Wyandotte Creek	Wyandotte Creek GSA	Website
Yolo	Yolo Subbasin Groundwater Agency	Website

Find more information about regional inter-basin coordination at:
ButteCounty.net/waterresourceconservation/Sustainable-Groundwater-Management-Act/Inter-basin-Coordination

APPENDIX C

Memorandum of Understanding
Four County (Butte, Colusa, Glenn, and Tehama Counties)
Regional Water Resource Coordination, Collaboration, and Communication

Memorandum of Understanding
Four County (Butte, Colusa, Glenn, and Tehama Counties) Regional Water Resource Coordination, Collaboration, and Communication

1. BACKGROUND
The counties of Butte, Colusa, Glenn, and Tehama share common surface water and groundwater resources. Based on these common resources, local water resource managers understand that regular coordination, collaboration, and communication can result in an improved water resource understanding at both the county and regional level.

2. PURPOSE
The purpose of this document is to establish the mutual understandings of the four counties with respect to their voluntary joint efforts toward regional coordination, collaboration, and communication.

3. GOALS
The goals of the Four County Memorandum of Understanding (MOU) are:

2.1. To foster coordination, collaboration and communication between the four counties on water-related issues, to achieve greater efficiencies, and enhance public services.

2.2. To provide a framework for the management and disbursement of funding associated with activities pursued jointly under this MOU.

2.3. To improve competitiveness for State and Federal grant funding.

4. DEFINITIONS
4.1. Four County. Participants including the counties of Butte, Colusa, Glenn, and Tehama, with representation by the following:

- Butte County: Department of Water and Resource Conservation
- Colusa County: Department of Planning and Building
- Glenn County: Department of Agriculture
- Tehama County: Flood Control and Water Conservation District

4.2. Project Manager. A project manager will be determined by the Counties signatory to this MOU for any given project regardless of funding source to meet the goals set forth in this MOU.

5. MUTUAL UNDERSTANDINGS
5.1. Participation. Signatories to this MOU constitute the current participants. Participation is strictly on a voluntary basis and may be

terminated at any time without recourse. Neighboring counties who share water resources common to the participating counties and who are engaged in similar activities will be invited to be signatory to this MOU. Signatories aspire to work collaboratively with other regional programs and technical outreach efforts.

5.2. Activities. Efforts pursued under this agreement will remain consistent with and will not exceed the current authority for any individual participating county. Efforts will include the study and investigation of water resources common to participants, monitoring and reporting, information dissemination and sharing between counties and with other county departments, public outreach and education, and other activities at the agreement and direction of individual county governing bodies.

5.3. County Funding. Counties are not required to commit funding associated with activities completed under this MOU. It is understood that activities under this MOU may result in the more efficient use of existing and future department funding resulting from improved collaboration and coordination.

5.4. External Funding. Signatories will work collaboratively in pursuit of external funding associated with common interest activities based on voluntary participation and agreement. When required, a mutually agreed upon County representative will serve as the Project Manager for activities completed under a contract with an external funding source. Existing county contracting mechanisms will be utilized where available for contractual and invoicing purposes between participating counties. Nothing in this MOU precludes individual counties from the individual pursuit, contracting and completion of work from an externally funded source regardless of a real or perceived regional interest.

5.5. Decision-making. Consensus will be sought when the need for a decision arises.

5.6. Non-binding nature. This document and participation under this MOU are nonbinding, and in no way suggest that a county may not continue its own activities as each county is expected to continue its own policies and procedures and undertake efforts to secure project funding from any source. A county may withdraw from participation at any time.

5.7. Termination. Because the MOU will require periodic review and updating for use into the future, it is envisioned that the joint efforts of those involved will be ongoing in maintaining a living document. Thus this document will remain as a reflection of the understandings of the participants. Individual signatories of this MOU may terminate their involvement at any time with no recourse.

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective counties, acknowledge the above as our understanding of how the Four County Coordination, Collaboration, and Communication MOU will be implemented.

MAR 14 2006 APPROVED JAN 24 2006

Date

Curt Josiassen, Chairman
Butte County Board of Supervisors

2/28/06

Approved As To Form:
Bruce Alpert, Butte County Counsel

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING
We, the undersigned representatives of our respective counties, acknowledge the above as our understanding of how the Four County Coordination, Collaboration, and Communicative MOU will be implemented.

April 4, 2006
Date

By Christy Scofield

Christy Scofield, Chairperson
Colusa County Board of Supervisors

Approved As To Form:
Henry Rodegerdts, Colusa County Counsel

EXHIBIT B
PAGE 3 OF 3

6. SIGNATORIES TO THE MEMORANDUM OF UNDERSTANDING

We, the undersigned representatives of our respective counties, acknowledge the above as our understanding of how the Four County Coordination, Collaboration, and Communication MOU will be implemented.

12-13-05
Date

Vice Chairman, Tehama County Flood Control
And Water Conservation District

Approved As To Form:

by
County Counsel, Tehama County

Date

By Board Chair

County
Approved As To Form:

County Counsel

Date

By Board Chair

County
Approved As To Form:

County Counsel

Date

By Board Chair

County
Approved As To Form:

TEHAMA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
MINUTE ORDER

December 13, 2005

8. Approval of Four-County Regional Water Resource Coordination- MOU: Ernie Ohlin reviewed that in August 2004, the Board authorized staff to participate in the four county water effort. The MOU attached is allowing all counties to participate together in water resource collaboration and communication. This non-binding voluntary MOU recognizes coordination among Butte, Colusa, Glenn and Tehama County.

Roger Sherrill encouraged the four-county groups to participate and noted in Item 5.1 "Participation" is strictly voluntary. Shasta County provides a major part of the recharge for the northern part of the Sacramento Valley and to move forward could only make for a stronger overall group.

Mark Black, Ag Commissioner for Glenn County, added this will be presented to Glenn County next Tuesday for support. Discussions with Sutter and Yuba County brings interest and they are awaiting the outcome of the four counties. This is a good collaborative effort, giving us strength of possible capturing of funding.

Motion by Director Warner to approve the MOU for signature.

Director Willard questioned if this has been reviewed by County Counsel. Upon his approval, signature will be completed.

Motion revised by Director Warner to approve the MOU for signature by the Chair upon review of County Counsel. Second by Director Avilla and carried by those present 3-0 with 2 absent.

Ayes: Directors':, Charles Willard; Ron Warner; Gregg Avilla
Noes: None
Absent or Not Voting: Director's: Ross Turner, George Russell

STATE OF CALIFORNIA)
) ss
COUNTY OF TEHAMA)

I, Gary Antone, Director of the Tehama County Flood Control and Water Conservation District of the County of Tehama, State of California, hereby certify the above and foregoing to be full, true and correct copy of an order adopted by said Tehama County Flood Control and Water Conservation District on this **13th day of December, 2005**

Dated: This 13th day of **December, 2005**.

Gary Antone
Director of the Tehama County Flood Control and Water Conservation District of the County of Tehama, State of California

By Linda Madea
Linda Madea, Deputy

F:\ADMIN\MEETING\MINORDER\05MinOrd\Dec.wpd

FOUR COUNTY MEMORANDUM OF UNDERSTANDING
ADDENDUM ONE:
Statement of Principles Regarding Water Related Programs and Projects

In recognition that certain activities related to water resources do not recognize jurisdictional boundaries and require regional solutions, the parties identified in the Four County Memorandum of Understanding hereby agree to adhere to the following Statement of Principles Regarding Water Related Programs and Projects:

1. Programs and projects related to groundwater level and water quality monitoring shall be conducted in a cooperative manner and related data shall be shared between the participants to prevent negative impacts to our constituents.
2. Environmental documents associated with water projects and programs will automatically be circulated to all four counties for review and comment.
3. Incidents of abnormal water level or water quality readings will be immediately communicated to all participating counties resulting in a collaborative review and dissemination of related information.
4. Project and program related information will be disseminated on a regional basis through the independent county websites, augmented by regional public outreach meetings.
5. The parties will work cooperatively to acquire grant funding to conduct aquifer studies that further identify the linkages of the common groundwater resources.
6. Efforts pursued under this agreement will remain consistent with and will not exceed the current authority of any participating county.

We, the undersigned representatives of our respective counties, agree to adhere to the conditions of **Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects.** The original MOU was signed by the Counties of Butte, Glenn, Colusa and Tehama in 2006.

Chair, Butte County Board of Supervisors	3-8-07 Date	County Counsel Approved As to Form	2/23/07 Date
Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date

1

Vice-Chair, Colusa County
Board of Supervisors

4-17-07
Date

County Counsel
Approved As to Form

Date

EXHIBIT A
PAGE 2 OF 2

COUNTY CONTRACT
1788

FOUR COUNTY MEMORANDUM OF UNDERSTANDING
ADDENDUM ONE:
Statement of Principles Regarding Water Related Programs and Projects

In recognition that certain activities related to water resources do not recognize jurisdictional boundaries and require regional solutions, the parties identified in the Four County Memorandum of Understanding hereby agree to adhere to the following Statement of Principles Regarding Water Related Programs and Projects:

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4. Project and program related information will be disseminated on a regional basis through the independent county websites, augmented by regional public outreach meetings.
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6. Efforts pursued under this agreement will remain consistent with and will not exceed the current authority of any participating county.

We, the undersigned representatives of our respective counties, agree to adhere to the conditions of **Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects.** The original MOU was signed by the Counties of Butte, Glenn, Colusa and Tehama in 2006.

Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	4/3/2007 Date	County Counsel Approved As to Form	3/26/07 Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date

FOUR COUNTY MEMORANDUM OF UNDERSTANDING
ADDENDUM TWO:
Adding Sutter County to the Four County MOU

In recognition that certain activities related to water resources do not recognize jurisdictional boundaries and therefore require regional solutions, the parties identified in the original Four County Memorandum of Understanding: Counties of Butte, Colusa, Glenn and Tehama are hereby joined by Sutter County in the regional efforts discussed in the Four County MOU and the Statement of Principles Regarding Water Related Programs and Projects as discussed in Addendum One to the Four County MOU.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of the **Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects. And Addendum Two: Adding Sutter County to the Four County MOU.**

The original MOU was signed by the Counties of Butte, Glenn, Colusa and Tehama in 2006. Through approval of this addendum, Sutter County makes the same commitment to regional cooperation and coordination that is outlined in the original MOU.

Bill Connelly	05 MAY 2009	Bruce L. Alpert	
Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Colusa County Board of Supervisors	Date	County Counsel Approved As to Form	Date

C09-082

FOUR COUNTY MEMORANDUM OF UNDERSTANDING
ADDENDUM TWO:
Adding Sutter County to the Four County MOU

In recognition that certain activities related to water resources do not recognize jurisdictional boundaries and therefore require regional solutions, the parties identified in the original Four County Memorandum of Understanding: Counties of Butte, Colusa, Glenn and Tehama are hereby joined by Sutter County in the regional efforts discussed in the Four County MOU and the Statement of Principles Regarding Water Related Programs and Projects as discussed in Addendum One to the Four County MOU.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of the **Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects. And Addendum Two: Adding Sutter County to the Four County MOU.**

The original MOU was signed by the Counties of Butte, Glenn, Colusa and Tehama in 2006. Through approval of this addendum, Sutter County makes the same commitment to regional cooperation and coordination that is outlined in the original MOU.

Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Colusa County Board of Supervisors	5/5/09 Date	County Counsel Approved As to Form	Date 5/5/09

1

C09-082

FOUR COUNTY MEMORANDUM OF UNDERSTANDING
ADDENDUM TWO:
Adding Sutter County to the Four County MOU

In recognition that certain activities related to water resources do not recognize jurisdictional boundaries and therefore require regional solutions, the parties identified in the original Four County Memorandum of Understanding: Counties of Butte, Colusa, Glenn and Tehama are hereby joined by Sutter County in the regional efforts discussed in the Four County MOU and the Statement of Principles Regarding Water Related Programs and Projects as discussed in Addendum One to the Four County MOU.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of the **Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects. And Addendum Two: Adding Sutter County to the Four County MOU.**

The original MOU was signed by the Counties of Butte, Glenn, Colusa and Tehama in 2006. Through approval of this addendum, Sutter County makes the same commitment to regional cooperation and coordination that is outlined in the original MOU.

Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	5/21/09 Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Colusa County Board of Supervisors	5/5/09 Date	County Counsel Approved As to Form	5/5/09 Date

1

Chair, Sutter County
Board of Supervisors

Date

William J. Vanasek

County Counsel
Approved as to Form

4/14/09
Date

FOUR COUNTY MEMORANDUM OF UNDERSTANDING
ADDENDUM TWO:
Adding Sutter County to the Four County MOU

In recognition that certain activities related to water resources do not recognize jurisdictional boundaries and therefore require regional solutions, the parties identified in the original Four County Memorandum of Understanding: Counties of Butte, Colusa, Glenn and Tehama are hereby joined by Sutter County in the regional efforts discussed in the Four County MOU and the Statement of Principles Regarding Water Related Programs and Projects as discussed in Addendum One to the Four County MOU.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of the **Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects. And Addendum Two: Adding Sutter County to the Four County MOU.**

The original MOU was signed by the Counties of Butte, Glenn, Colusa and Tehama in 2006. Through approval of this addendum, Sutter County makes the same commitment to regional cooperation and coordination that is outlined in the original MOU.

Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
George Runner Chair, Tehama County Flood Control & Water Conservation District	6-23-09 Date	County Counsel Approved As to Form	Date
Chair, Colusa County Board of Supervisors	Date	County Counsel Approved As to Form	Date

FOUR COUNTY MEMORANDUM OF UNDERSTANDING:
ADDENDUM THREE
Expression of a Commitment to Begin An
Integrated Regional Water Management Planning Process
Within the Counties of Butte, Colusa, Glenn, Tehama and Sutter

Through adoption of this addendum, the signatories agree to begin a regional water management planning process pursuant to the Four County MOU, geographically covering the area of Butte, Colusa, Glenn, Tehama and Sutter Counties. The planning process shall utilize and incorporate existing plans and processes. The California legislature has recently adopted new criteria associated with the Integrated Regional Water Management Planning process. This new legislative criteria requires that acceptance and approval of the composition of all Integrated Regional Water Management Planning Areas be completed prior to accepting public funding associated with IRWMP grant funds. All IRWMP planning Regions and Plans must comply with the requirements as set forth in the Final Regional Acceptance Process Program Guidelines.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of **The Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects; Addendum Two: Adding Sutter County to the Four County MOU; Addendum Three: Expression of a Commitment to Begin An Integrated Regional Water Management Planning Process Within the Counties of Butte, Colusa, Glenn, Tehama and Sutter.**

Bill Connelly	05 MAY 2009	Bruce L. Alpert	
Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date

Chair, Colusa County Board of Supervisors	5/5/09 Date	County Counsel Approved As to Form	5/5/09 Date
Chair, Sutter County Board of Supervisors	Date	County Counsel Approved as to Form	Date

C09-095
5-5-09

FOUR COUNTY MEMORANDUM OF UNDERSTANDING:
ADDENDUM THREE
Expression of a Commitment to Begin An
Integrated Regional Water Management Planning Process
Within the Counties of Butte, Colusa, Glenn, Tehama and Sutter

Through adoption of this addendum, the signatories agree to begin a regional water management planning process pursuant to the Four County MOU and geographically covering the area of Butte, Colusa, Glenn Tehama and Sutter Counties. The planning process shall utilize and incorporate existing plans and processes. The California legislature has recently adopted new criteria associated with the Integrated Regional Water Management Planning process. This new legislative criteria requires that acceptance and approval of the composition of all Integrated Regional Water Management Planning Areas be completed prior to accepting public funding associated with IRWMP grant funds. All IRWMP planning Regions and Plans must comply with the requirements as set forth in the Final Regional Acceptance Process Program Guidelines.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of **The Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects; Addendum Two: Adding Sutter County to the Four County MOU; Addendum Three: Expression of a Commitment to Begin An Integrated Regional Water Management Planning Process Within the Counties of Butte, Colusa, Glenn, Tehama and Sutter.**

Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	5/21/09 Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date

Chair, Colusa County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Sutter County Board of Supervisors	Date	County Counsel Approved as to Form	Date

FOUR COUNTY MEMORANDUM OF UNDERSTANDING:
ADDENDUM THREE
Expression of a Commitment to Begin An
Integrated Regional Water Management Planning Process
Within the Counties of Butte, Colusa, Glenn, Tehama and Sutter

Through adoption of this addendum, the signatories agree to begin a regional water management planning process pursuant to the Four County MOU and geographically covering the area of Butte, Colusa, Glenn, Tehama and Sutter Counties. The planning process shall utilize and incorporate existing plans and processes. The California legislature has recently adopted new criteria associated with the Integrated Regional Water Management Planning process. This new legislative criteria requires that acceptance and approval of the composition of all Integrated Regional Water Management Planning Areas be completed prior to accepting public funding associated with IRWMP grant funds. All IRWMP planning Regions and Plans must comply with the requirements as set forth in the Final Regional Acceptance Process Program Guidelines.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of **The Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects; Addendum Two: Adding Sutter County to the Four County MOU; Addendum Three: Expression of a Commitment to Begin An Integrated Regional Water Management Planning Process Within the Counties of Butte, Colusa, Glenn, Tehama and Sutter.**

Chair, Butte County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
George Lowell Chair, Tehama County Flood Control & Water Conservation District	6-23-09 Date	County Counsel Approved As to Form	Date

FOUR COUNTY MEMORANDUM OF UNDERSTANDING:
ADDENDUM FOUR
Expression of a Commitment to Begin An
Integrated Regional Water Management Planning Process
Within the Counties of Butte, Colusa, Glenn, Tehama, Sutter and Shasta

Through adoption of this addendum, the signatories agree:

1. Shasta County shall join the parties involved in the original Four County Memorandum of Understanding (MOU) and Addendum Two;

2. Signatories to the MOU and its addenda shall be called the Northern Sacramento Valley Integrated Regional Water Management Planning Group; and,

3. Begin a regional water management planning process pursuant to the Four County MOU, geographically covering the area of Butte, Colusa, Glenn, Tehama, Sutter and Shasta Counties. The planning process shall utilize and incorporate existing plans and processes. The California legislature has recently adopted new criteria associated with the Integrated Regional Water Management Planning process. This new legislative criteria requires that acceptance and approval of the composition of all Integrated Regional Water Management Planning Areas be completed prior to accepting public funding associated with IRWMP grant funds. All IRWMP planning Regions and Plans must comply with the requirements as set forth in the Final Regional Acceptance Process Program Guidelines.

4. The signatories to the MOU and its addenda reaffirm the provisions of section 5.6 of the MOU that the MOU and its addenda and participation under the MOU and its addenda are nonbinding.

We, the undersigned as representative of our respective counties, agree to adhere to the conditions of **The Four County Memorandum of Understanding; Addendum One to the Four County MOU: Statement of Principles Regarding Water Related Programs and Projects; Addendum Two: Adding Sutter County to the Four County MOU; Addendum Three: Expression of a Commitment to Begin An Integrated Regional Water Management Planning Process Within the Counties of Butte, Colusa, Glenn, Tehama and Sutter; Addendum Four: Expression of a Commitment to Begin An Integrated Regional Water Management Planning Process Within the Counties of Butte, Colusa, Glenn, Tehama, Sutter and Shasta.**

Bill Connelly
Chair, Butte County
Board of Supervisors

APR 13 2010
Date

County Counsel
Approved As to Form

4.9.10
Date

Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Colusa County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Sutter County Board of Supervisors	Date	County Counsel Approved as to Form	Date
Chair, Shasta County Board of Supervisors	4/27/10 Date	County Counsel Approved as to Form	5/6/10 Date

Chair, Glenn County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Tehama County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Colusa County Board of Supervisors	Date	County Counsel Approved As to Form	Date
Chair, Sutter County Board of Supervisors	4/20/10 Date	County Counsel Approved as to Form	4/13/10 Date
Chair, Shasta County Board of Supervisors	Date	County Counsel Approved as to Form	Date

Appendix D: Issue Resolution Process for Discussion Purposes

This document aims to guide discussions and provide pertinent information as subbasins consider inclusion of an issue resolution process in the Northern Sacramento Valley inter-basin coordination framework. These discussions will take place in the period leading up to the first five-year GSP update.

Discussion Prompts

1. *What are potential benefits/challenges or concerns of including an issue/dispute resolution process in the inter-basin coordination framework?*
2. *What are shared expectations between and among subbasins?*
3. *What are the GSAs preferences for addressing conflicts if/when they arise?*

Background

The Groundwater Sustainability Plan Regulations in Article 8 recommend including a "description of a process for identifying and resolving conflicts between Agencies" as a part of inter-basin coordination (Sections 10727.2, 10733, and 10733.2, Water Code). A recent study by Tara Moran, Janet Martinez, and William Blomquist, part of Stanford University's Water in the West found that the ability of interagency coordination "to solve complex challenges will be contingent on the ability of these organizations to effectively prevent and manage conflicts before they arise and to resolve these conflicts equitably and efficiently when they do." (Moran, Martinez, and Blomquist, 2021). Further, given how likely it is for disagreements at a local level to occur during SGMA implementation, the study suggests investing in establishing issue resolution processes before disagreements arise. Meanwhile, deferring their development could complicate the resolution process in times of conflict. Given these recommendations, consider the following questions for reflection and discussion.

Purposes of issue resolution processes

There are many options to identify and resolve issues that involve different parties, goals/objectives, and resources. Ideally, issue resolution processes are thoughtfully designed and tailored to specific contexts. **The broader goal for such a process can be to meet the agencies' long-term needs, considering local dynamics, desired outcomes, and expected uses**. Goals can include keeping things simple and efficient, maintaining relationships, ensuring quality of the process, fostering participation and community engagement, etc.

The figure below shows different types of dispute resolution processes. In some cases, agencies draft clauses that outline a tiered approach. They often begin with negotiation, which gives the parties control over the process and outcomes. Then, mediation, which brings in a neutral third-party (mediator) to facilitate the discussion and help parties work towards resolving issues. Often, negotiation and mediation lead to "non-binding" outcomes, non-enforceable by courts. Parties could opt to move towards arbitration or litigation, which are controlled by a third party (arbitrator or judge/jury) and can lead to binding and non-binding outcomes (Moran, Martinez, and Blomquist, 2019).

Figure 2. The spectrum of dispute resolution process. Modified from Amsler et al. (2020a).

Negotiation	Mediation	Arbitration	Trial
• No third party	• Third part (mediator)	• Third party (arbitrators)	• Third party (judge/jury)
• Non-binding	• Non-binding	• Non-binding or binding	• Binding

From Moran, Martinez, and Blomquist, 2019

Examples

1. Example from Moran, Martinez, and Blomquist, 2019

Box 2. A Draft Dispute Resolution Clause.

The blue text notes indicate how each of the preceding five questions are incorporated into the dispute resolution language.

In the event that any dispute [Q1: Provides instruction on what disputes can be addressed. Additional process goals, while not explicit should be subject to discussion.] arises among the Members relating to (i) this Agreement, (ii) the rights and obligations arising from this Agreement, (iii) a Member proposing to withdraw from membership in the Agency, or (iv) a Member proposing to initiate litigation within the Basin or the management of the Basin, the aggrieved Member or Members proposing to withdraw from membership shall provide written notice to the other Members of the controversy or proposal to withdraw from membership [Q2: Provides instruction on who can initiate and participate in the process.]. Within forty-five (45) days after such written notice, the Members shall attempt in good faith to resolve the controversy through informal negotiation [Q3: Describes a series of processes for dispute resolution, beginning with negotiation. Also includes a timeline for process stages.]. If the Members cannot agree upon a resolution of the controversy within forty-five (45) days from the providing of written notice specified above, the dispute shall be submitted to mediation prior to commencement of any legal action or prior to withdrawal of a Member proposing to withdraw from membership. The mediation shall be no less than a full day (unless agreed otherwise among the Members) and the cost of mediation shall be paid in equal proportion among the Members [Q4: Provides instruction on who will pay for dispute resolution processes.]. The mediator shall be either voluntarily agreed to or appointed by the Superior Court upon a suit and motion for appointment of an impartial mediator [Q3a: Provides a clear process for choosing an impartial mediator.]. Upon completion of mediation, if the controversy has not been resolved, any Member may exercise all rights to bring a legal action relating to the controversy or withdraw from membership as otherwise authorized pursuant to this Agreement. The Agency may, at its discretion, participate in mediation upon request by a stakeholder [to be defined by the parties to the Agreement] concerning a dispute alleged by the stakeholder concerning the management of the Basin or rights to extract groundwater from the Basin, with the terms of such mediation to be determined in the sole discretion of the Member Directors [Q2: Allows third-party participation in the dispute resolution process].

Note: This above dispute resolution clause is not intended to serve as an endorsement or illustration of effective practice.

2. Example from Butte Subbasin Cooperation Agreement

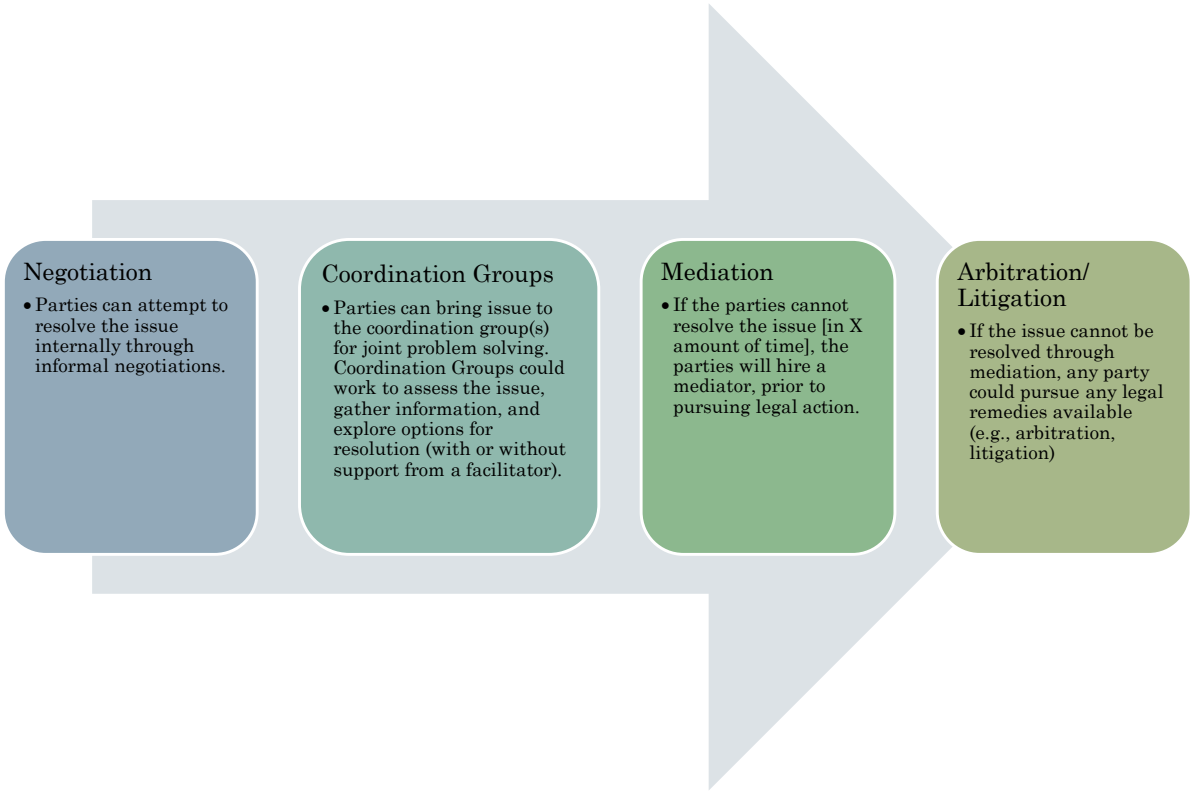
Note: This example doesn't provide much specificity. However, acknowledges shared intent to resolve disputes.

ARTICLE 9. DECISION-MAKING AND DISPUTE RESOLUTION

9.1. Decision-making Authority. Topics where the Members desire coordinated decision-making will be considered by the Advisory Board, and the Member Directors will strive for unanimous recommendations that will be presented to each Member's governing body for consideration. Such topics include, but are not limited to, development and implementation of the GSP, and associated financial arrangements. When unable to reach unanimous recommendations, the Advisory Board will outline the areas in which it does not agree, providing some explanation to inform the respective GSAs' governing bodies. Despite the recommendations of the Advisory Board, ultimate decision-making authority for topics considered by the Advisory Board resides with each Member's governing body.

9.2. Dispute Resolution. It is the desire of Members to informally resolve all disputes and controversies related to this Agreement, whenever possible, at the least possible level of formality and cost. If a dispute occurs, the disputing Members shall meet and confer in an attempt to resolve the matter. If informal resolution cannot be achieved, the matter will be referred to the Advisory Board for resolution. The Advisory Board may engage the services of a trained mediator or resort to all available legal and equitable remedies to resolve disputes.

Possible Process in the Northern Sacramento Valley



Worksheet: Key Questions and Considerations for Issue Resolution Process

The questions below could be used to guide the development of a specific issue resolution process in the context of inter-basin coordination in the Northern Sacramento Valley by the first 5-year GSP update. These questions could help to clarify the level of specificity that subbasins would find beneficial and mutually agreeable when/if conflict occurs.

Adapted from Moran, Martinez, and Blomquist, 2019

1) What are the process goals? a) Consider what disputes the process aims to address – all disputes arising at basin boundaries or only a subset? b) Consider inclusivity and transparency of the process, cost efficiency for parties and the GSA(s), timeframes, and other factors important to your agency(ies). c) Other potential objectives include dispute prevention, enhanced relationships, procedural and substantive fairness, legal compliance, durability of resolution and organizational improvement.	
2) Who can initiate and participate in the dispute resolution process? a) Consider what parties can initiate the dispute resolution process – is it only parties to the agreement or can external parties invoke it? There are pros and cons to both choices, so discussing this in advance will ensure thoughtful consideration.	
3) What processes are used to make decisions related to dispute resolution and what information is necessary? a) What is the process for selecting a mediator, facilitator, lawyer or other impartial party? b) Consider including a range of processes beginning with internal negotiations and escalating based on clear timelines.	
4) Who pays for the dispute resolution process? a) Consider who will pay for the mediator, facilitator, lawyer or other impartial party. Will it be paid for by the disputing parties, the GSA(s) or through a state-funded program? b) How could you assess whether the outcome of the dispute resolution process was successful?	

Other Resources

- Dutton, A. SGMA Updates, Coordination Considerations, and Potential Next Steps, Cosumnes Subbasin Working Group. February 21, 2018. http://cosumnes.waterforum.org/wp-content/uploads/2018/02/EKI_Cosumnes_TAC_meeting_2018-02-21.pdf
- Moran T., Martinez, J., and Blomquist W. Dispute Resolution Processes: Thinking through SGMA Implementation. Water in the West. Fall, 2019. https://waterinthewest.stanford.edu/publications/dispute-resolution-processes-thinking-through-sgma-implementation
- Moran T. Basin-scale Coordination is Key to SGMA's Success: Thoughts on DWR's Draft GSP Regulations. March 1, 2016. Stanford University. Water in the West. https://waterinthewest.stanford.edu/news-events/news-press-releases/basin-scale-coordination-key-sgma%E2%80%99s-success-thoughts-dwr%E2%80%99s-draft-gsp
- Moran et al. Dispute Resolution Clauses in Interorganizational Coordination Agreements: A Comparative Analysis. 2021. pending publication.
- Butte County. 2017. Technical Collaboration on Interconnected Subbasins to Advance Sustainable Groundwater Management: Assessment of Interconnected Subbasins. Available at: https://www.buttecounty.net/wrcdocs/Reports/SpecialProjects/InterbasinGWFlow/InterbasinSBAssessment-FINAL.pdf
- Butte County. 2017. Inter-basin Groundwater Flows Fact Sheet. Available at: https://www.buttecounty.net/wrcdocs/Reports/SpecialProjects/InterbasinGWFlow/FactSheet.pdf
- Buck, Christina. 2017. Butte County Inter-Basin Groundwater Flows Presentation, https://www.buttecounty.net/wrcdocs/Reports/SpecialProjects/InterbasinGWFlow/NSVBoardAssessment20170615.pdf

12. COMMITTEE UPDATES

a. 2021/2022 Budget Ad Hoc Committee
b. Executive Committee
    i. CGA/GGA Joint Executive Committee
c. Multi-Benefit Recharge Pilot Project Ad Hoc Committee
d. Stakeholder Engagement Committee
e. Technical Advisory Committee

The **2021/2022 Budget Ad Hoc Committee** has not met since the last GGA Board meeting and has no additional report.

The **GGA Executive Committee** last met January 27, 2021. Meeting topics were discussed at the February 8, 2021 Board meeting. The May 26, 2021 meeting was cancelled. The next meeting is scheduled for July 28, 2021. The CGA/GGA Joint Executive Committee has not met.

The **Multi-Benefit Recharge Pilot Project Ad Hoc Committee** met on June 28, 2021 and provided a recommendation to the GGA Board under Item 8. The committee has no additional items to report.

The **Stakeholder Engagement Committee** has not met and has nothing new to report.

The **Technical Advisory Committee** (TAC) last met jointly with the Colusa Groundwater Authority (CGA) Technical Advisory Committee on June 11, 2021. The July 9, 2021 CGA/GGA Joint TAC meeting was cancelled in order to allow the Consultant Team the time focus on the development of the draft chapters scheduled for release on July 16. There were no critical items for the TAC to discuss or to provide recommendations. The next CGA/GGA Joint TAC meeting is scheduled for August 13, 2021.

Full page slides of TAC presentations and other meeting materials are available on the GGA website at:

https://www.countyofglenn.net/dept/planning-community-development-services/water-resources/glenn-groundwater-authority/gga

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13. *REVIEW COMMITTEES AND CONSIDER ANY NECESSARY CHANGES

From time to time, it is important for the GGA Board to review and consider any necessary changes to the active committees. There are five committees: 2021/2022 Budget Ad Hoc Committee, Executive Committee, Multi-Benefit Recharge Pilot Project Ad Hoc Committee, Stakeholder Engagement Committee, and Technical Advisory Committee.

The **2021/2022 Budget Ad Hoc Committee** was formed on March 9, 2021 to develop a draft budget and review and recommend the property-related fee for the 2021/2022 fiscal year. Members include Grant Carmon, Leslie Nerli, and Gary Hansen. The committee provided recommendations to the GGA Board on June 16, 2021. The fiscal year 2021/2022 budget and the 2021/2022 property-related fee were approved June 16, 2021. Duties of this committee have been fulfilled.

Staff recommendation: Dissolve 2021/2022 Budget Ad Hoc Committee

The **Executive Committee** is a standing committee formed on August 14, 2017. Members include John Amaro, Leslie Nerli, and Gary Hansen. The Committee is scheduled to meet the 4th Wednesday of every other month.

Staff recommendation: No changes

The **Multi-Benefit Recharge Pilot Project Ad Hoc Committee** was formed on March 9, 2021 to coordinate the partnership with The Nature Conservancy (TNC) and Department of Water Resources (DWR) on the Flood-MAR Multi-Benefit Recharge Pilot Project and to guide the outreach process, develop he scope of work for the program, and develop the NOE, which would be brought to the GGA Board for approval. Gary Enos, Bruce Roundy, and John Amaro are members of the committee. The committee met on June 28, 2021 and coordinated via email to review and provide a recommendation to the GGA Board on the draft work plan under Item 8.

Staff recommendation: No changes

The **Stakeholder Engagement Committee** was formed as an ad hoc committee on January 8, 2018 to work in coordination with the facilitation support services to develop an initial outreach plan. Members of this committee include John Amaro, Gary Enos, and John Viegas. The committee last met December 6, 2018.

Staff recommendation: Dissolve Stakeholder Engagement Committee

The **Technical Advisory Committee** (TAC) was formed as a standing committee on April 9, 2018 to discuss technical matters, meet with the Colusa Groundwater Authority TAC, and make recommendations to the Board of Directors. TAC members currently include Michael Alves, Don Bills, Emil Cavagnolo, Zac Dicken, David Kehn, and Mark Lohse. The committee generally meets jointly with the Colusa Groundwater Authority TAC on a monthly basis on the second Friday of each month. The committee last met on June 11, 2021.

Staff recommendation: Consider number of members, individual member attendance, and member's desire to serve on the committee and make adjustments as needed.

14. MEMBER REPORTS AND COMMENTS

Members of the GGA Board are encouraged to share information, reports, comments, and suggest future agenda items. Action cannot be taken on items brought up under this item.

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15. NEXT MEETING

The next regular meeting is scheduled for August 9, 2021 at 1:30 PM.

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16. ADJOURN

The meeting will be adjourned.

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*Indicates Action Item