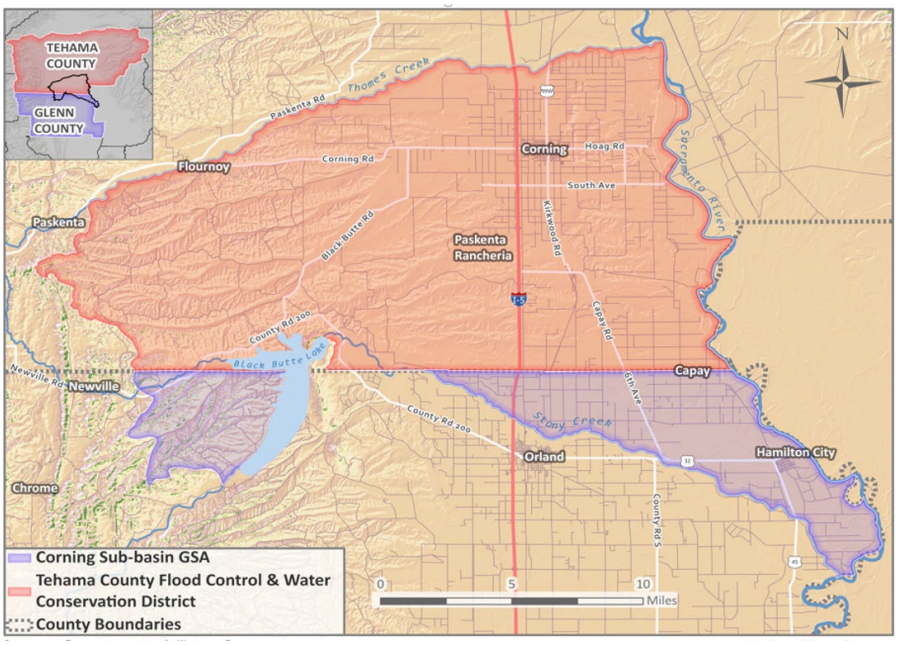
Appendix 2A

Corning Subbasin Stakeholder Communications and Engagement Plan



CORNING SUBBASIN STAKEHOLDER COMMUNICATIONS AND ENGAGEMENT PLAN

Sustainable Groundwater Management Act (SGMA) Implementation (2019-2022)

Prepared by the Consensus Building Institute

Version: 12/11/19

Revised: 09/08/2021 and 11/18/2021

Table of Contents

Background

The purpose of the Sustainable Groundwater Management Act (SGMA), signed by Governor Brown in 2014, is to ensure local sustainable groundwater management in medium- and high-priority groundwater basins statewide. California's Department of Water Resources has determined that the Corning Subbasin located in Tehama and Glenn counties is high priority and subject to SGMA.

SGMA Milestones: There are two Groundwater Sustainability Agencies (GSAs) in the Corning Subbasin that formed by the state-mandated deadline of June 30, 2017, constituting SGMA's first major milestone. These GSAs have entered into a Memorandum of Understanding (MOU) for the purpose of developing a single Groundwater Sustainability Plan (GSP) for the subbasin. The second major milestone in SGMA is the adoption of a Groundwater Sustainability Plan (GSP) by January 30, 2022. The GSP is prescribed by SGMA and contains required elements not specified in this Plan. The third milestone is achieving sustainability by 2042.

Figure 1. SGMA Milestones

Desired Outcomes & Goals of the Plan

Outcomes: The desired outcome of this Communications & Engagement plan is to achieve adoption of the GSP with input from and in consideration of the people, the economy, and the environment within the subbasin and in coordination with adjacent subbasins. As the participating GSAs near completion of the GSP, this Communications & Engagement Plan will be updated to address implementation actions.

Goals: SGMA requires GSAs to consider the interests of all beneficial uses and users of groundwater, and encourages involvement of diverse social, cultural, and economic elements of the population within the subbasin during GSP preparation and implementation. The goals of the Communications & Engagement Plan are to:

1. Enhance understanding and inform the public about water and groundwater resources in the Corning Subbasin, the purpose and need for sustainable groundwater management, the benefits of sustainable groundwater management, and the need for a GSP.

2. Engage a diverse group of interested parties and stakeholders and promote informed feedback from stakeholders, the community and groundwater-dependent users throughout the GSP preparation and implementation process.
3. Coordinate communication and involvement between the GSAs and other local agencies, elected and appointed officials, and the general public.
4. Utilize the Corning Subbasin Advisory Board to facilitate a public engagement process.
5. Employ a variety of outreach methods that make public participation accessible and that encourages broad participation.
6. Respond to public concerns and provide accurate and up-to-date information.
7. Manage communications and engagement in a manner that provides maximum value to the public and constitutes an efficient use of the GSAs resources.

Duration of Plan

The Plan is intended to cover communications and engagement from January 2020- January 2022, when the GSP is due to be submitted to California Department of Water Resources. Since this is a multi-year effort, the key activities needed to achieve these goals will likely be broken down into annual work plans, and may be amended, as needed.

Interested Parties and Other Stakeholders

SGMA identifies interested parties that the GSA must consider when developing and implementing the GSP, including:

- Agricultural users of water
- Domestic well owners
- Municipal well operators
- Public water systems
- Land use planning agencies
- Environmental users of groundwater
- Surface water users
- The federal government
- California Native American tribes (see Appendix A for Tribal Outreach Guidance Document)
- Disadvantaged communities (including those served by private domestic wells or small community water systems).

Outreach Roles

There are two GSAs in the Corning Subbasin—the Corning Sub-basin GSA and Tehama County Flood Control and Water Conservation District. The Corning Sub-basin GSA was formed by a Memorandum of Agreement (MOA) between County of Glenn, Glenn Colusa Irrigation District (GCID), and Monroeville Water District. The Corning Sub-basin GSA has jurisdiction for the portion of the Corning Subbasin overlying Glenn County. The Tehama County Flood Control and Water Conservation District has jurisdiction for the portion of the Corning Subbasin overlying Tehama County.

These two GSAs have entered into a Cooperation Agreement to:

1. Develop, adopt, and implement a legally sufficient GSP for the subbasin
2. Coordinate basinwide public involvement and stakeholder outreach and engagement in developing and implementing the Corning Subbasin GSP
3. Maintain mutual respect for the autonomy of individual GSAs and the preservation of each GSAs' separate legal authorities, powers, duties and rights as separate public agencies and GSAs.

The **Corning Subbasin Advisory Board** is comprised of elected officials and designees appointed by each of the GSAs in the subbasin. As is specified in the Memorandum of Understanding forming the Advisory Board, the purpose of this entity is to establish:

1. A GSA cooperation forum.
2. A public noticed meeting and process in accordance with the Ralph M. Brown Act for public involvement in GSP development and implementation in the subbasin.
3. A mechanism for GSAs to raise and attempt in good faith to resolve disputes that may occur between and among GSAs.
4. To make advisory recommendations to GSAs concerning development and implementation of the GSP.

When evaluating the options and making decisions, GSAs and the Corning Subbasin Advisory Board will **solicit public input** through a variety of methods, including public workshops, written and verbal comments, meetings with stakeholder organizations, and other applicable methods. Input can be made during public comment periods at GSA board meetings, at the Corning Subbasin Advisory Board meetings, and in writing.

Communications and Engagement for GSP Plan Elements

To truly engage the public in development of a GSP that is science-based, complex, technical, and includes achievable outcomes, GSAs will strive to meet these overall objectives:

- Educate the public in meaningful ways. Communicate what may often be complex concepts in straightforward, comprehensible ways;
- Show how the input received has been considered and incorporated as appropriate into the plan or process;
- Remain focused on results.

Community engagement activities will be focused on development of GSP plan elements. The GSP will be prepared iteratively and in a logical progression, building on previously developed technical and policy information. Throughout the process of preparing the GSP, background materials along with draft text, figures and tables for each section will be provided to the GSAs' staff, the Corning Subbasin Advisory Board, and the public in advance of meetings for input and comment. The Advisory Board and the public will have opportunities to comment on each element, before the element is ultimately adopted by the governing bodies of the GSAs.

It is anticipated that the GSP will be developed in six phases:

1. Preparation and submittal of initial notification of GSP preparation
2. Definition of plan area and basin setting
3. Development of sustainable management criteria, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives and interim milestones
4. Design of monitoring program and data management system
5. Identification and evaluation of proposed projects and management actions
6. Development of GSP implementation costs, detailed schedule, and reporting

Each phase requires outreach with the goal of educating and engaging the general public, stakeholders, and the Advisory Board on the technical and policy aspects of the GSP plan elements. Each phase will include a mix of communication tools, to be used in a variety of forums.

Communication & Engagement Forums

Member Agencies Governance Briefings

Member Agency board members may brief their councils or boards regularly on GSA activities and may work with the Corning Subbasin Advisory Board to provide additional briefings on sensitive or important topics.

Stakeholder Briefings

Corning Subbasin Advisory Board members will meet with and communicate regularly with the stakeholders they represent. To promote consistent messaging, to the extent possible, all briefings will be coordinated through the Advisory Board structure.

Public Meetings/Hearing

Public meetings or hearings are formal opportunities for people to provide official comments on programs, plans and proposals. Regular meetings of the GSAs and the Corning Subbasin Advisory Board constitute regular public meetings that will be noticed and conducted in accordance with the Ralph M. Brown Act. SGMA requires that public meetings be held prior to the adoption of fees or the adoption of GSP elements and the final GSP document. There are also constitutional requirements for public hearings for some fee/rate options. Public meetings and hearings are an important forum for people to share viewpoints and concerns, but often occur at the end of a process, when only one option is under consideration. The GSAs will hold required public meetings and hearings, but will also use less formal public workshops to solicit feedback and information throughout the process.

Public Workshops

The Corning Subbasin Advisory Board will convene public workshops. These workshops provide less formal opportunities for people to learn about groundwater, SGMA, and GSP elements. Workshops can be organized in a variety of ways, including open houses, "stations" where people can ask questions one-on-one, and traditional presentations with facilitated question and answer sessions. In order to solicit feedback from people who may not be comfortable speaking in public, workshops can include small group breakout discussions, comment cards and other techniques to promote inclusion. Whatever format is used, workshops will be designed to maximize opportunities for public input.

Public Notices

In addition to the public notice required for fee adoption, SGMA requires that prior to initiating the development of a GSP, GSAs must provide a written statement describing the manner in which interested parties may participate in the development and implementation of the GSP. The statement must be provided to all the cities and counties within the subbasin.

As outlined in this Communications and Engagement Plan, there will be a variety of opportunities for people to participate in the development and implementation of the GSP, including workshops, public hearings, providing comments at GSA and Corning Subbasin Advisory Board meetings and through written comments.

Communication & Engagement Tools

The GSAs in the Corning Subbasin will use a variety of communications and engagement tools to keep the public informed, including the following.

Interested Parties List

SGMA mandates the creation of an interested parties list. SGMA does not specify the type of list (email versus hard copy). The first preference is an email list, to get information out quickly and to reduce costs. A secondary list will be developed for people who do not use email. GSAs can contribute names of organizations, agencies, and individuals to the list. Whenever new inquiries are made and when new individuals participate in public meetings and workshops, their names will be added to the list if requested. Each GSA in the Corning Subbasin maintains separate interested parties lists.

The lists are broad and include anyone who would like to stay informed about SGMA activities and anyone the GSAs think should be informed about the GSP process and the outcomes of the planning effort. The GSA staff will coordinate on the distribution of periodic updates to the interested parties lists. The lists will also be used for dissemination of information about public workshops, public meetings, and other engagement opportunities.

Informational Materials

Developing a variety of informational materials is critical to successful education and necessary to circulate consistent, accurate information. The Corning Subbasin GSAs will develop a range of materials, which may include:

- **Talking Points:** Clear, concise messages to be used by GSAs when communicating with media, organizations, and stakeholders.
- **Milestone Fact Sheets:** For initiating the GSP and completion of elements of the GSP.
- **Periodic Updates:** As stated above, the Corning Subbasin Advisory Board will coordinate on the distribution of periodic updates that can then be used by the GSAs for distribution to the groups and organizations they represent using existing communications tools, such as newsletters, social media, list serves, and other.
- **Newspaper editorials:** Authored by GSA staff or the Corning Subbasin Advisory Board for submittal to local news sources.

- **Briefing Packets:** For milestone briefings to the public and stakeholders. Packets will include standard talking points, and other materials to assist in educational outreach and for soliciting feedback.

Website

The GSAs' websites will be a tool for distributing and archiving meeting and communication materials as well as a repository for any studies and informative, educational materials. The GSAs are responsible to ensure that its website is updated on a consistent basis to ensure up to date, timely information. The website will include the following information:

- Home page: summary, calendar of meetings and events, highlighted topics
- Groundwater basics, SGMA background including links to existing sources of relevant information, such as https://groundwaterexchange.org.
- Corning Subbasin specific information
- Information about adjacent basins, if warranted and relevant
- Information about Corning Subbasin GSAs
- Corning Subbasin Advisory Board agendas and meeting materials

In addition, a Corning Subbasin GSP-specific website will be maintained throughout the development of the GSP and can be accessed at: https://www.corningsubbasingsp.org/.

This website will host all common public meeting materials (such as agendas, presentations, and handouts for the Corning Subbasin Advisory Board meetings) and will have GSP sections posted when ready for public review.

Mailings and Utility Bill Notifications

Individual GSAs may utilize postcards or other means to include updates and relevant GSP development information in utility bills or other regular mailings.

Social Media

Existing Facebook, Twitter, and other emerging social media technologies may be leveraged to provide updates on milestone progress to interested parties.

Surveys

Online tools, such as Survey Monkey, may be used periodically to gather stakeholder ideas and to provide feedback on key issues.

Media Plan

The GSAs, with input from the Corning Subbasin Advisory Board will develop press releases and Public Service Announcements (if appropriate) at each milestone and for meetings and workshops. The press releases will be distributed to local and regional media and elected officials. See Appendix B for a media contact list that will be updated on a periodic basis.

Outreach Partners

In addition to the communication tools listed above, other organizations can also partner to assist the Corning Subbasin GSAs reach their communications and engagement goals, including:

- ✓ California Water Service
- ✓ Capay Landowners Association
- ✓ City of Corning
- ✓ Corning Water District
- ✓ Glenn County Resource Conservation District
- ✓ Glenn County Farm Bureau
- ✓ Glenn Groundwater Authority
- ✓ Hamilton City CSD
- ✓ Kirkwood Water District
- ✓ Monroeville Water District
- ✓ North Sacramento Valley (NSV) Integrated Regional Water Management (IRWM) group
- ✓ Orland Unit Water Users Association
- ✓ Paskenta Band of the Nomlaki Indians
- ✓ Reclamation District 2140
- ✓ Shasta-Tehama Watershed Education Coalition
- ✓ Tehama Colusa Canal Authority
- ✓ Tehama County Farm Bureau
- ✓ Tehama County Groundwater Commission
- ✓ Tehama County Resource Conservation District
- ✓ Thomes Creek Water District

Inter-Basin Coordination

While inter-basin agreements are optional under SGMA, GSAs in the Corning Subbasin intend to coordinate with adjacent subbasins to share technical information and to ensure that the implementation of the GSPs in adjacent subbasins are compatible and will not cause any adverse effects in the Corning Subbasin or any other adjacent subbasins.

Adjacent subbasins include:

- Butte Subbasin
- Colusa Subbasin
- Los Molinos Subbasin
- Red Bluff Subbasin
- Vina Subbasin

Evaluation and Assessment

Any communication strategy should include opportunities to check in at various points during implementation to ensure that it is meeting the communication and engagement goals and complying with SGMA. These check-ins will occur at least on an annual basis.

Table 1. Summary of Engagement Opportunities and Milestones

Timeframe	Milestone or Stage	Required Community Engagement Under SGMA	Communication Strategies
Shortly after GSA formation	After identification of outreach responsibilities among GSA member agencies	Notification of GSA formation	• Provide notice of GSA outreach resources: website, email listserv, calendar of GSA Board and subcommittee meetings • Develop and continue to update list of interested parties
Before GSP Planning Activities	Prior to beginning GSP development	Provide to the public and State, notice of intent to begin GSP planning and description of opportunities for interested parties to participate in GSP development and implementation	• Public workshop (s) • GSA Board meetings • Email notices and updates • Newspaper notice of public workshop(s)
Between Notice of GSP Planning and January 31, 2022	During GSP development	Public workshops, public meetings, Corning Subbasin Advisory Board meetings, GSA Board meetings and other opportunities providing stakeholder avenues to participate in GSP development	• Public workshops and/or public meetings on GSP development. • Email notice of public workshops / meetings • Newspaper notices of public workshops / meetings • Updates and information on GSP development at standing meetings • Disseminate updates via interested parties list, websites social media, outreach partners
	During GSP development	Active involvement of diverse social, cultural, and economic elements of the population within the Subbasin	• Provide email notices and updates • Update website regularly • Convene regularly scheduled Corning Subbasin Advisory Board meetings • Convene regularly scheduled meetings of GSA Boards • Identify and communicate opportunities for public engagement on GSP development, (providing clear

Timeframe	Milestone or Stage	Required Community Engagement Under SGMA	Communication Strategies
			messages that GSAs retain legal responsibility for final GSA and GSP related decisions) • Develop consistent, coordinated messages and talking points • Arrange for technical support to stakeholder groups through presentations or workshops conducted by GSA representatives/staff • Develop content appropriate to the audience and their interests, ensuring information can be easily understood • Conduct legislative briefings at strategic milestones (and any other groups upon request) • Utilize updated interested party stakeholder list, GSA listservs delivered via email and/or U.S. Mail, outreach partners mechanisms for communications and other media outlets such as newspaper and radio to provide notices • Strategically engage local, special SGMA identified groups • Utilize local channels and meetings to identify and communicate opportunities for public engagement and/or public comment during meetings on GSP development • Leverage and support local agencies and community organizations in disseminating information and engaging stakeholders, including through existing community meetings, newsletters, websites, and social media • Organize public meetings around concrete impacts to specific stakeholders • Develop additional, locally-targeted communication strategies to engage difficult-to-reach communities and community members
GSP adoption no later than January 31,	Prior to GSP adoption or amendment	○ Provide notice to cities and counties within Plan area (90-	SEE ABOVE

Timeframe	Milestone or Stage	Required Community Engagement Under SGMA	Communication Strategies
2022		days prior to adoption) ○ Consider comments provided by the cities and counties ○ Accommodate requests for consultation received from the cities and counties within 30 days	
GSP adoption no later than January 31, 2022	Prior to GSP adoption or amendment	No sooner than 90 days following public notice, hold public hearing/ public workshop for GSP adoption	SEE ABOVE

Appendix A: Tribal Engagement in the Corning Subbasin: Guidance Document

SGMA's Tribal References

SGMA Section 10720.3. …any federally recognized Indian Tribe, appreciating the shared interest in assuring the sustainability of groundwater resources, may voluntarily agree to participate in the preparation or administration of a groundwater sustainability plan or groundwater management plan under this part through a joint powers authority or other agreement with local agencies in the basin. A participating Tribe shall be eligible to participate fully in planning, financing, and management under this part, including eligibility for grants and technical assistance, if any exercise of regulatory authority, enforcement, or imposition and collection of fees is pursuant to the Tribe's independent authority and not pursuant to authority granted to a groundwater sustainability agency under this part.
Draft Discussion Paper Tribal Participation with Groundwater Sustainability Agencies http://www.water.ca.gov/groundwater/sgm/pdfs/SGMA_Tribal_GSAs.pdf
Must a local agency exclude federal and tribal lands from its service area when forming a GSA? No, federal lands and tribal lands need not be excluded from a local agency's GSA area if a local agency has jurisdiction in those areas; however, those areas are not subject to SGMA. But, a local agency in its GSA formation notice shall explain how it will consider the interests of the federal government and California Native American tribes when forming a GSA and developing a GSP. DWR strongly recommends that local agencies communicate with federal and tribal representatives prior to deciding to become a GSA. As stated in Water Code §10720.3, the federal government or any federally recognized Indian tribe, appreciating the shared interest in assuring the sustainability of groundwater resources, may voluntarily agree to participate in the preparation or administration of a GSP or groundwater management plan through a JPA or other agreement with local agencies in the basin. Water Code References: §10720.3, §10723.2, §10723.8

Tribal Outreach Resources

The following are links to agency tribal outreach resources and considerations, each of which captures important principles and resources for tribal outreach. A short summary of key outreach principles can be found below.

- Draft Discussion Paper Tribal Participation with Groundwater Sustainability Agencies
- CalEPA Tribal Consultation Policy Memo (August 2015)
- DWR Tribal Engagement Policy (May 2016)
- CA Natural Resources Agency Tribal Consultation Policy (November 2012)
- SWRCB Proposed Tribal Beneficial Uses
- Consultation With Federally Recognized Native American Tribal Governments *(a model from the transportation sector)*
- CA Court Tribal Outreach and Engagement Strategies

- Traditional Ecological Knowledge resources
- Water Education Foundation Tribal Water Issues

Key Outreach Principles

- *Engage early and often*
- *Consider tribal beneficial uses in decision-making (identified by region* here*); identify and seek to protect tribal cultural resources*
- *Share relevant documentation with tribal officials*
- *Conduct meetings at times convenient for tribal participation with ample notifications*
- *Request relevant process input/data/information from tribes*
- *Empower tribes to act as tribal cultural resources caretakers*
- *Designate a tribal liaison(s) where appropriate*
- *Share resources for tribal involvement as is feasible*
- *Develop MOUs where relevant*
- *Be mindful of the traditions and cultural norms of tribes in your area*

Key Outreach Partners/Liaisons

- California Indian Water Commission, Inc.
- DWR Office of Tribal Advisor
- DWR Regional Office

Appendix B: Media Contact List

Agency	Name	Email	Phone
The Sacramento Valley Mirror	Tim Crews	vmtim@pulsarco.com	
The Sacramento Valley Mirror	Doug Ross	yfyles@yahoo.com; yfyles@gmail.com	
The Sacramento Valley Mirror		valleymirror@pulsarco.com	
Appeal-Democrat, Glenn County Transcript	Ruby Larson	rlarson@appealdemocrat.com	530-749-4780
Chico ER	News Desk	localnews@chicoer.com	530-896-7761
Appeal Democrat	News Desk	adnewsroom@appealdemocrat.com	530-749-6552
Action News Now	News Room	news@actionnewsnow.com	530-343-1212
Action News Now	Laura Eng	leng@actionnewsnow.com	530-520-5970
KRCR	News Director	news@kaeftv.com	530-232-5702
NSPR	Sarah Bohannc	sebohannon@csuchico.edu	530-893-3932
CPAY Radio	Bruce		530-345-6397
Red Bluff Daily News	Julie Zeb	jzeeb@redbluffdailynews.com	530-737-5053
Corning Observer/ Appeal-Democrat		adnewsroom@appealdemocrat.com	(530) 749-6552
Record Searchlight		rrsedit@redding.com	530-225-8211

Note - Media Contact Update:
New contact for Red Bluff Daily News is: George Johnston (gjohnston@redbluffdailynews.com)

Appendix 2B

Initial Notifications

Corning Subbasin
Groundwater Sustainability Agencies
Corning Sub-basin GSA
Tehama County Flood Control and Water Conservation District

December 13, 2018

Re: Notification of Intent to Develop a Groundwater Sustainability Plan for the Corning Subbasin

To Whom It May Concern:

Pursuant to California Water Code Section 10727.8, the Corning Sub-basin Groundwater Sustainability Agency and the Tehama County Flood Control and Water Conservation District have submitted a Groundwater Sustainability Plan initial notification to the Department of Water Resources via the SGMA Portal. This notification indicates the intent of the agencies to work together to develop a Groundwater Sustainability Plan for the Corning Subbasin (5-021.51) of the Sacramento Valley Groundwater Basin. More information on the notice can be found on the Department of Water Resources SGMA Portal at:

https://sgma.water.ca.gov/portal/gsp/init/preview/149

The Corning Sub-basin Groundwater Sustainability Agency and the Tehama County Flood Control and Water Conservation District (Agencies) are exclusive Groundwater Sustainability Agencies covering the entire geographic extent of the Corning Subbasin.

The Agencies intend to work together to develop a single Groundwater Sustainability Plan for the Corning Subbasin. The Agencies are dedicated to working together with the intent to develop a Coordination Agreement, or another agreement, to provide guidance for an ongoing coordinated effort.

The public will have ample opportunities to participate in Groundwater Sustainability Plan development in the Corning Subbasin. The Agencies have and will continue to consider the interests of all beneficial uses and users of groundwater listed in Water Code Section 10723.2 in operating their respective Agencies and developing and implementing the Corning Subbasin Groundwater Sustainability Plan. The Agencies intend to develop an outreach plan in which these opportunities will be further defined. Staff from both Agencies maintain a list of interested parties pursuant to Water Code Section 10723.4. All information relevant to Sustainable Groundwater Management Act planning and implementation is readily available to the public via websites, newsletters, emails, presentations, and public meetings.

The Agencies will continue their ongoing outreach efforts, which began in early 2015, continue to expand the lists of interested parties, and continue to encourage broad local and regional stakeholder engagement during development and implementation of the Groundwater Sustainability Plan. For more information, and to add your name to the list of interested parties, please visit the Agencies' websites or contact staff members listed below:

Corning Sub-basin Groundwater Sustainability Agency:
http://www.countyofglenn.net/dept/agriculture/water-resources/sustainable-groundwater-management-act-sgma/corning-subbasin-0

Tehama County Flood Control and Water Conservation District:
http://www.tehamacountypublicworks.ca.gov/flood/default.html

Sincerely,

Lisa Hunter
Corning Sub-basin Groundwater Sustainability Agency
PO Box 351
Willows, CA 95988
530-934-6501

Thad Bettner
Corning Sub-basin Groundwater Sustainability Agency
PO Box 150
Willows, CA 95988
530-934-8881

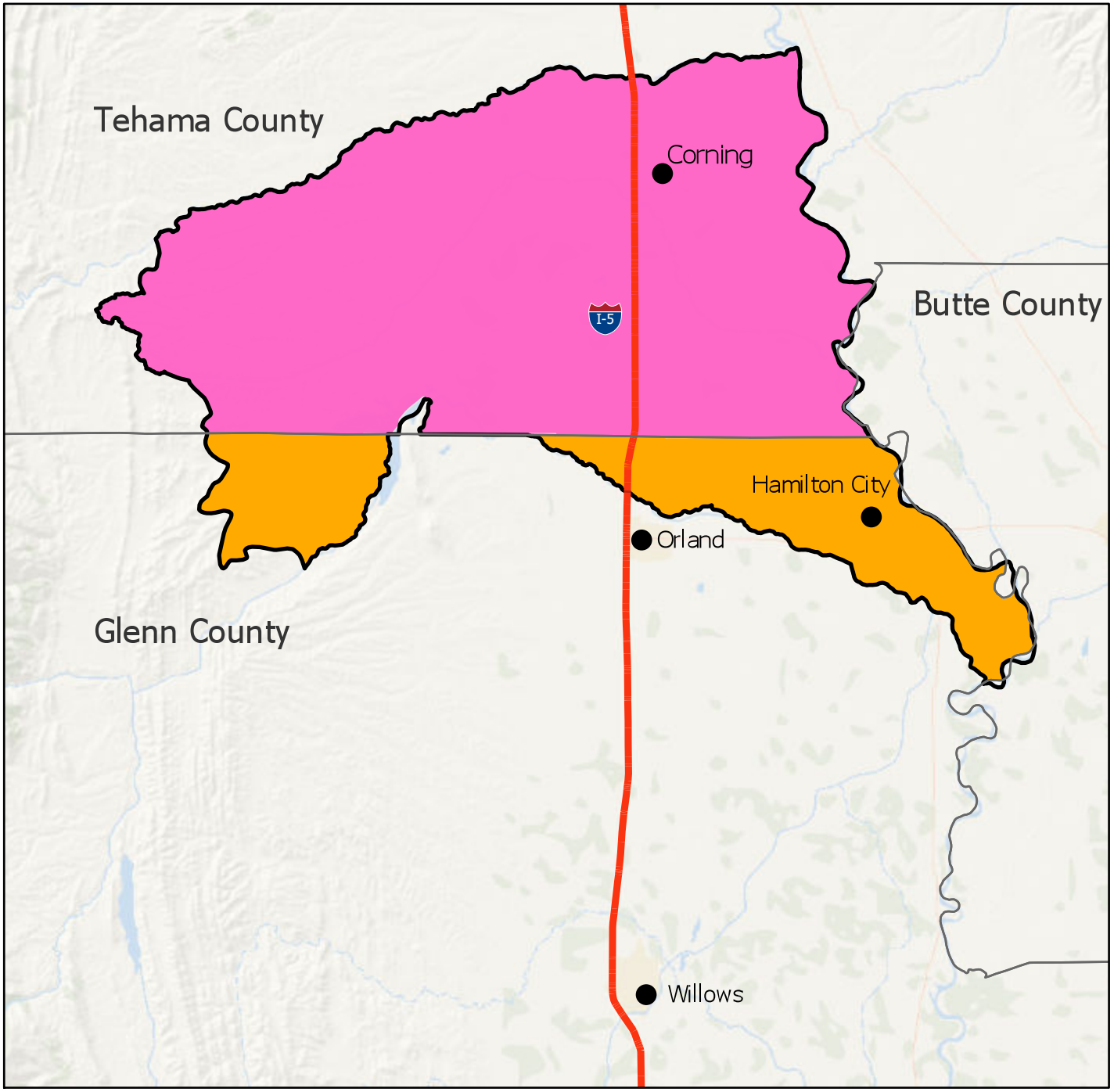
Ryan Teubert
Tehama County Flood Control and Water Conservation District
9380 San Benito Ave.
Gerber, CA 96035
530-385-1462

Attachment 1: Corning Subbasin Groundwater Sustainability Agencies Map

Cc:

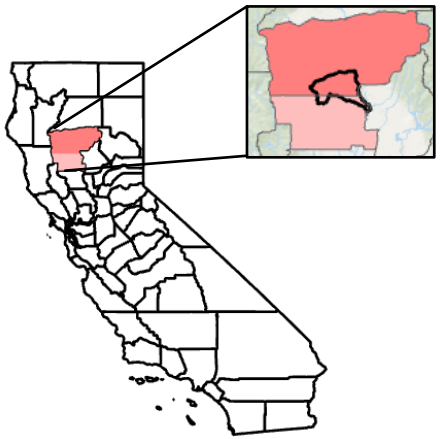
Board of Supervisors, Glenn County
Board of Supervisors, Tehama County
City Council, City of Corning
California Public Utilities Commission
General Public via Window Posting/Website Posting

Attachment 1: Corning Subbasin Groundwater Sustainability Agencies



Legend

- County Boundaries
- I-5
- Corning Subbasin
- Corning Sub-basin GSA
- Tehama County Flood Control and Water Conservation District



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11/16/2018

From:	Ryan Teubert
To:	Tad Williams
Cc:	Nichole Bethurem; Julie Leimbach
Subject:	FW: CA Department of Water Resources is hosting a 3 part Webinar on Tribal Regional Water Management - May 19, May 26 and June 2, 2020
Date:	Tuesday, July 7, 2020 1:54:54 PM
Attachments:	CorningSubbasin_GSP NOI_FINAL_signed_Attachment.pdf

Tad, please see the attached Notice of Intent (NOI) to develop a Groundwater Sustainability Plan for the Corning Subbasin. We recently realized that the Paskenta Band of Nomlaki Indians was not included when the NOI was sent out on December 13, 2018. Hopefully you have been able to participate in the Corning Subbasin Advisory Board (CSAB) meetings that occur the first Wednesday of each month from 1:30-3:30pm. Agendas, presentations and meeting minutes from the CSAB meetings can be found on https://www.corningsubbasingsp.org/. Currently these meetings are held virtually and I would encourage you to participate if possible.

Please let me know if you would still like me to give a more in-depth presentation to the Council Members on the Sustainable Groundwater Management Act (SGMA) and the Corning Subbasin Groundwater Sustainability Plan (GSP) development. I'm not sure if the Tribal Council is currently meeting in person or not, but we could either wait until they are or I could set up a virtual meeting if this is preferred. Please let me know what works best for you and the Council Members.

Thank you,

Ryan Teubert, CFM
Tehama County Flood Control &
Water Resources Manager
rteubert@tcpw.ca.gov
Tel: (530)-385-1462 x3020
Cell: (530)-200-2166

From: Ryan Teubert
Sent: Friday, May 22, 2020 4:57 PM
To: Tad Williams <TWilliams@paskenta.org>
Subject: FW: CA Department of Water Resources is hosting a 3 part Webinar on Tribal Regional Water Management - May 19, May 26 and June 2, 2020

Tad, hope all is well with you. Please see the email below concerning DWR's Webinar on Tribal Regional Water Management. Sorry for the delay on this as I think the first of a three part webinar series occurred this week. I will follow up this email with another one recapping the first email.

I also still need to set up a meeting with you to discuss developing a presentation for your Tribal Council on Sustainable Groundwater Management Act (SGMA). We are starting the process of developing the Corning Subbasin Groundwater Sustainability Plan which is due in January 2022. The

Corning Subbasin Advisory Board meets monthly on the first Wednesday of each month from 1:30-3:30pm. These meetings are being held virtually for now. You will be included on our outreach distribution list, so you should start receiving emails concerning the Corning Subbasin Advisory Board meetings. You can also check the new website for meeting materials and agendas at https://www.corningsubbasingsp.org/ . Please let me know if you still are interested in me giving a presentation to the Council or if you have any questions.

Ryan Teubert, CFM
Tehama County Flood Control &
Water Resources Manager
rteubert@tcpw.ca.gov
Tel: (530)-385-1462 x3020
Cell: (530)-200-2166

From: Vellines, Patricia@DWR <Patricia.Vellines@water.ca.gov>
Sent: Friday, May 15, 2020 3:40 PM
To: Seemann, Hank <HSeemann@co.humboldt.ca.us>; Marina Deligiannis <Marina.Deligiannis@lakecountyca.gov>; Mary Fahey <mfahey@countyofcolusa.com>; Lisa Hunter <LHunter@countyofglenn.net>; Disney, Jaclyn <jdisney@cityofredding.org>; Watkins, Joshua <jwatkins@cityofredding.org>; Sierra Vly Groundwater Management District <sierravalleygmd@sbcglobal.net>; Ryan Teubert <rteubert@tcpw.ca.gov>; Matt Parker <mparker@co.siskiyou.ca.us>; Kraig Beasly <kbeasly.tid@cot.net>; Tiffany Martinez (tiffanymartinez@co.modoc.ca.us) <tiffanymartinez@co.modoc.ca.us>; Gaylon Norwood <GNorwood@co.lassen.ca.us>; Buck, Christina <CBuck@buttecounty.net>
Cc: Katherine Gledhill <kgledhill@westcoastwatershed.com>; Angelina Cook <usrrwag@gmail.com>; Stacey Hafen <northcalnevarcdc@gmail.com>; Kayla Meyer <kmeyer@honeylakevalleyrcd.us>; Eric Wedemeyer <ewedemeyer@co.shasta.ca.us>
Subject: FW: CA Department of Water Resources is hosting a 3 part Webinar on Tribal Regional Water Management - May 19, May 26 and June 2, 2020

Registration links below

May I ask you to share this information within your Tribal network. This webinar (3-part) will be discussing the grants program and what funding is available from Department of Water Resources.

CA Department of Water Resources, Office of Tribal Policy Advisor and Division of Regional Assistance is hosting a three-part series on Tribal Regional Water Management that will take place on May 19, May 26, and June 2, 2020. This three-part series will discuss Integrated Regional Water Management funding and technical assistance opportunities for Tribes; improving and strengthening regional water funding coordination; identifying regional needs and reviewing needs assessment; and effective Tribal guidance of Integrated Regional Water Management.

Please share with your Tribal Networks – Intended Audience is Tribal Leaders, Tribal Water Managers and Program and Grant Management Staff.

Each date has a separate registration link as indicated below by date and session.

SAVE THE DATE FLYER IS ATTACHED AND THE REGISTRATION LINKS FOR EACH SESSION:

May 19, 2020
SESSION 1 - https://attendee.gotowebinar.com/register/578622798757918223
May 26, 2020
SESSION 2 - https://attendee.gotowebinar.com/register/5451568173109801741
June 2, 2020
SESSION 3 - https://attendee.gotowebinar.com/register/6460970424943054605

Thank you for sharing within your network.

Respectfully,

~Anecita

Anecita Agustinez
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Appendix 2C

Summary of CSAB Meeting Topics and Primary Outcomes

The following table provides the date, meeting topics, and primary outcomes for the CSAB meetings.

Date and #	Meeting Topics	Primary Outcomes
CSAB Meeting #1 (Apr. 27, 2020)	Introduction to SGMA and GSP	Primer on SGMA and GSP Process; answer questions on GSP.
CSAB Meeting #2 (June 3, 2020)	Review of Plan Area, HCM, and GW Conditions	Established background conditions in Subbasin; Recommendation to GSAs on groundwater model platform **Action**: Recommendation to the GSAs to use the C2VSIM-FG model version 1 if it comes out within one month. If version 1 comes out after one month, then the GSAs will use the Beta2 version.
CSAB Meeting #3 (July 1, 2020)	Review of Water Budget, GW Model, and DMS	Refined groundwater model inputs; Discussed options for management areas.
CSAB Meeting #4 (Aug. 5, 2020)	Monitoring Network and SMC Overview	Recommendation to GSAs to remove seawater intrusion from list of applicable sustainability indicators; Manage Subbasin as single management area and single aquifer for now. **Action**: Recommendation to GSAs to remove seawater intrusion from the list of applicable sustainability indicators.
CSAB Meeting #5 (Sept. 2, 2020)	Introduction to Water Level SMC	Drafted sustainability goal; Primer on water level SMC
CSAB Meeting #6 (Oct. 7, 2020)	Potential Water Level SMC	Gathered initial feedback from CSAB and public regarding potential methods for determining water level SMC
CSAB Meeting #7 (Nov. 4, 2020)	Sustainable Management Goal for SMC, Integrated Model Updates, Revise of Water Budgets	Gathered CSAB and public feedback on Sustainable Management Criteria for Chronic Lowering of Groundwater Levels;Reviewed Integrated Model Updates and Water Budgets
CSAB Meeting #8 (Dec. 2, 2020)	Open Discussion on GSP Sections and Feedback: Overview of GSP sections, process for public review, and in-depth review of Section 1: Introduction, and Section 2: Plan Area	Shared understanding with participants of draft GSP Sections 1 and 2. Gathered public feedback.
CSAB Meeting #9 (Jan. 6, 2021)	Open Discussion on GSP Sections and Feedback: Overview of GSP sections, process for public review, and in-depth review of Section 3: Basin Setting – Hydrogeologic Conceptual Model and Groundwater Conditions	Shared understanding with participants of draft GSP Section 3. Gathered public feedback.
CSAB Meeting #10 (Feb. 3, 2021)	Review Status and Path Forward on GSP Development; Introduction to Streamflow Depletion data and SMC; Introduction to Subsidence data and SMC	Public Comment on all agenda topics.

Date and #	Meeting Topics	Primary Outcomes
CSAB Meeting #11 (Mar. 3, 2021)	General GSP Updates, Priority Actions for Plan Implementation and Data Gaps, Continue to Evaluate Funding Mechanisms, Upcoming DWR Grant Opportunities, Open Discussion on GSP Sections and Feedback	Discusion on: 1) Chronic Lowering of Groundwater Levels SMC, 2) Land Subsidence SMC, 3) Streamflow Depletion SMC, and 4) draft GSP Completion Process and Adoption Timeline. Public Comment on all agenda topics. Action to recommend to the GSAs statements on Chronic Lower of Groundwater Levels SMC, Land Subsidence SMC, and Streamflow Depletion SMC. **Action**: Make recommendation to GSAs on draft GSP Completion Process and Adoption Timeline
CSAB Meeting #12 (Apr. 7, 2021)	GSA Updates, Groundwater Level SMC, Subsidence SMC, Projected Water Budgets and Introduction to Storage Decline SMC, Initial Review of Projects and Management Actions	General CSAB agreement around Land Subsidence SMC. Public Comment on all agenda topics.
CSAB Meeting #13 (May 2021)	GSA Updates, Water Quality SMC, Streamflow Depletion SMC, Projects and Management Actions	Public Comment on all agenda topics.
Special CSAB Meeting (May 5, 2021)	Overview of Groundwater Level SMC Comments Received to Date, Monitoring Network Data Review and Well Locations, Potential Groundwater Level (GWL) Sustainable Management Criteria (SMC) Revisions	• Agreed to explore using fixed/static buffers for the MTs closer to the river where water levels are more stable and using the percentage approach for the western areas of the subbasin. • Divergent perspectives on the fixed numeric buffer and percentage buffer. • Request to revisit the measurable objectives to confirm feasibility and protectiveness. • Request for contour maps based on stable and declining wells and buffers in identified years to inform setting the MT and MOs.
CSAB Meeting #14 (June 2, 2021)	GSA Updates, Degraded Water Quality SMC, Land Subsidence SMC, Chronic Lowering of Groundwater Levels SMC, Reduction in Storage SMC, Streamflow Depletion SMC	**Action**: Recommendations to GSAs on: 1) Degraded Water Quality SMC, 2) Land Subsidence SMC, 3) Chronic Lowering of Groundwater Levels SMC, , 4) Reduction in Storage SMC, and 5) Streamflow Depletion SMC. Public Comment on all agenda topics.
CSAB Meeting #15 (July 6, 2021)	General GSP Updates, Projects and Management Actions, Introduction to Funding Mechanisms	CSAB and Public Feedback on all topics
CSAB Meeting #16 (Aug. 4, 2021)	General GSP Updates, Priority Actions for Plan Implementation and Data Gaps, Continue to Evaluate Funding Mechanisms, Upcoming DWR Grant Opportunities, Open Discussion on GSP Sections and Feedback	CSAB and Public Feedback on all topics
CSAB Meeting #17 (Sept. 1, 2021)	Review and Release Final Draft GSP, Outreach Activities, and Next Steps for GSP Adoption and Implementation	CSAB and Public Feedback on all topics

Appendix 2D

Northern Sacramento Valley Inter-basin Coordination Report

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

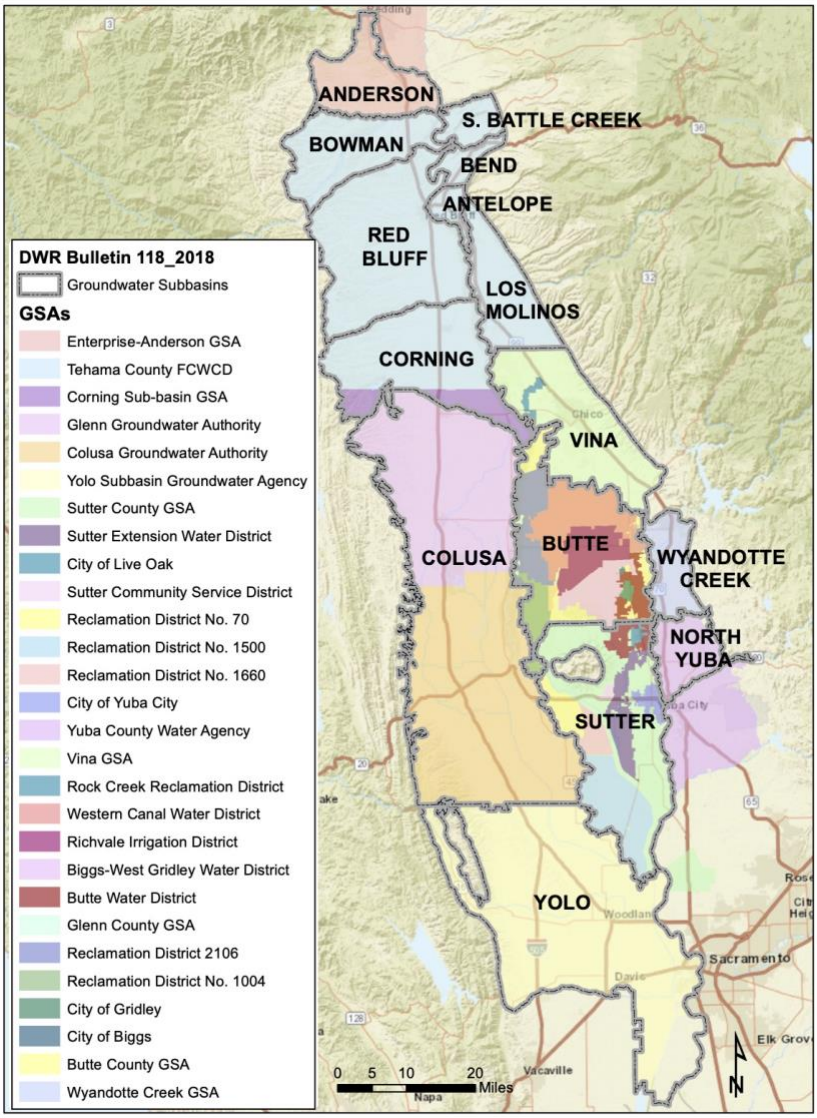
- ***CBI*** – *Consensus Building Institute [link]*
- ***DWR*** – *California Department of Water Resources*
- ***GSA*** – *Groundwater Sustainability Agency*
- ***GSP*** – *Groundwater Sustainability Plan*
- ***MOU*** – *Memorandum of Understanding*
- ***NCWA*** – *Northern California Water Association*
- ***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).*

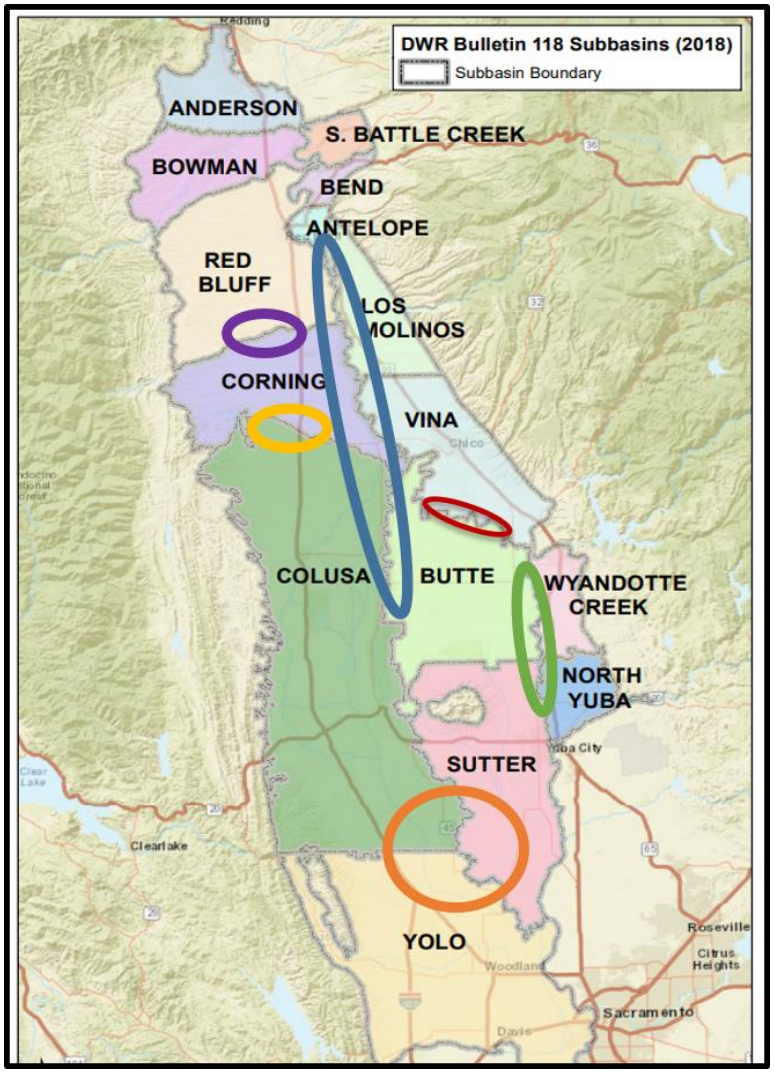
4.1. Inter-basin Coordination Groups

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.

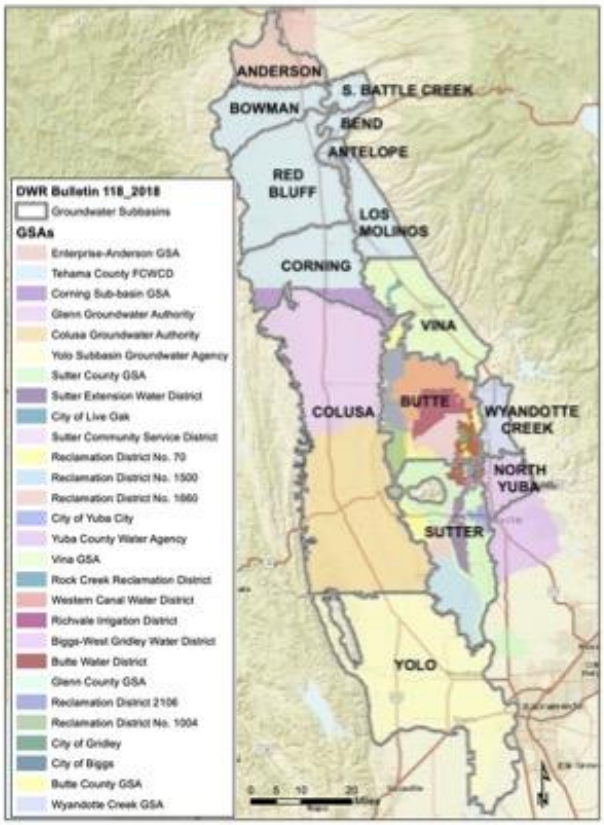
Who is involved in ongoing efforts?

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



CBI
CATALYZING COLLABORATION

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) | (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) | (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.

Date April 4, 2006

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:

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	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

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

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	5/6/09 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	4/14/09 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

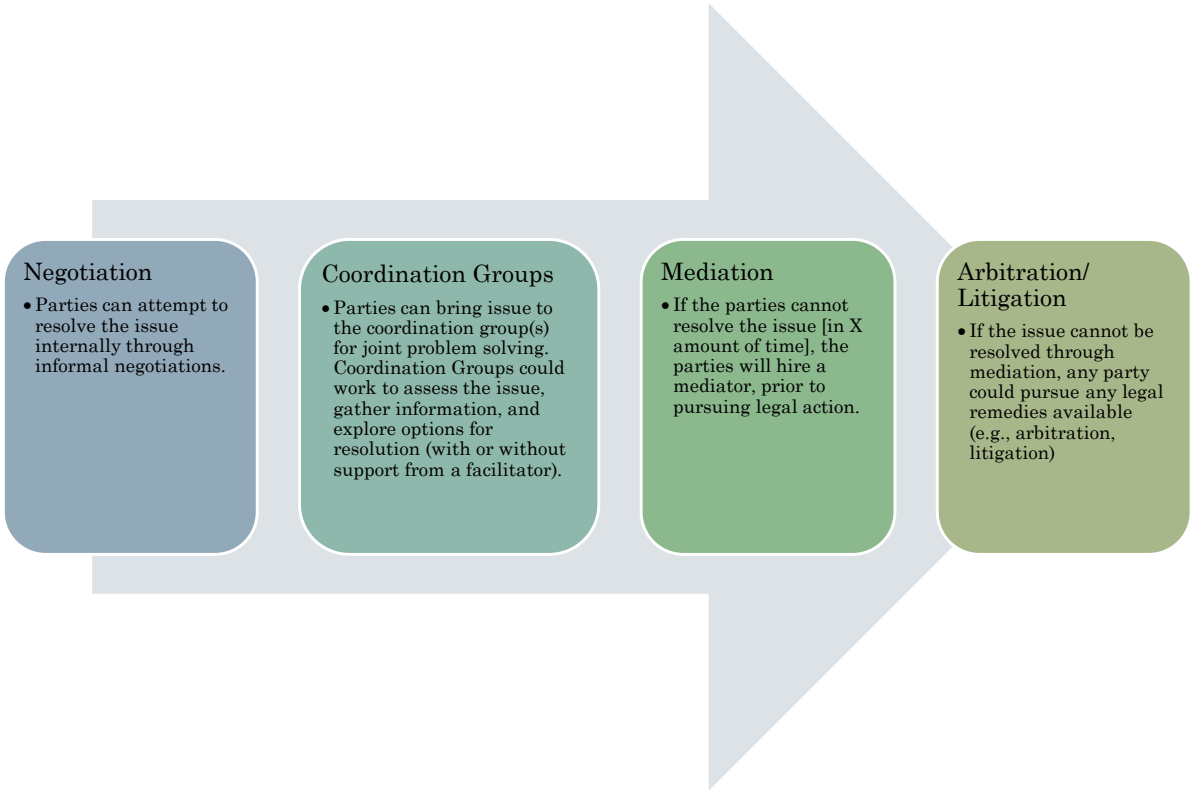
Note: This example doesn't provide much specificity. However, acknowledges shared intent to resolve disputes.

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

Appendix 2E

Outreach Documentation

Corning Subbasin Outreach & Engagement Activities (Led by Consensus Building Institute (CBI))

As of September 3, 2021 (these activities are in addition to the monthly CSAB meetings described in Section 2)

Materials / Public Meetings

- Corning Subbasin General SGMA Factsheet - Link
- Tehama County SGMA Factsheet – Link
- North Sacramento Valley SGMA Regional Coordination Flyer – Link
- SGMA Update in Tehama County Subbasins Webinar | October 8, 2020 - Slide Deck | Video
    - *Brief introduction of GSP development effort in Corning Subbasin.*
- SGMA Update in Tehama County Subbasins Webinar | December 9, 2020 – Corning Subbasin Slide Deck | Video
    - *Portion of webinar dedicated to providing an update on development of the Corning Subbasin GSP*
- SGMA and Tribal Engagement Slide Deck | April 6, 2021 - Link
- Tehama County quarterly eNewsletter – Winter 2020 | Spring 2021 | Summer 2021
- Tehama County Subbasins Online Survey | Projects / Management Actions ideas (March - July 2021) – Link
    - 16 total responses. 4 responses related to Corning Subbasin
- Tehama County Subbasins Online Survey | Domestic Well Owners (March 2021 – Present) – Link
    - To date: 9 total responses. 1 response from Corning Subbasin

Stakeholder O&E Communications

Factsheet sent by Outreach Team for Distribution by Partner Agencies to their Stakeholders/Members

- Corning Water District (Mitch Hardwick) (Nov 2020)
- Corning SGMA factsheet (Link) and Tehama SGMA factsheet (Link) were sent to all potential outreach partner interviewees listed below as part of introductory email requesting an interview (March 2021)

Interviews with Potential Outreach Partners [March – April 2021]

- Interview purpose – Speak with potential outreach partners to receive insight and ideas on how to improve outreach and engagement.
- Interviewees were added to the Tehama County or the Glenn County interested parties lists (if they weren't already subscribed).
- Examples of utilizing partnerships – the Corning SGMA factsheet was shared with interviewees to share with their network; Tehama County GSA asked outreach partners to help advertise upcoming public webinars.

Outreach Partners Contacted
RCAC (Rural Community Associates Corporation)
Latino Outreach of Tehama County
Glenn County Farm Bureau
Individual Well Owners
Glenn County Rangelands Association
Glenn County RCD
Glenn/Colusa Cattlemen's Association
Glenn/Colusa Cattlewomen
Tehama County Cattlemen's Association
Tehama County Cattlewomen's Association
Shasta-Tehama Watershed Education Coalition (STWEC)
Tehama County Farm Bureau
Tehama County RCD
UCCE
Water Districts within Subbasin

Appendix 2F

CSAB and Public Comments and Responses on Initial Draft GSP Sections

Appendix 2F. CSAB and Public Comments and Responses on Initial Draft GSP Sections

This Appendix provides a compilation of comments received from CSAB and the public on initial draft GSP sections, as they were developed and posted on the Corning Subbasin GSP website (https://www.corningsubbasingsp.org/), for CSAB and public review. These comments relate to specific sections (1 through 6) and include responses from the GSP Development Team and a status of the revisions in the GSP. Section 7 was reviewed by the CSAB and partner agencies prior to posting for the public review period. Section 8 was made available to the CSAB for review prior to posting for the public review period.

Additional comments made on general GSP development during CSAB public meetings, and responses by the GSP Development Team, are available as part of the monthly meeting summaries, posted on the Corning Subbasin GSP website: https://www.corningsubbasingsp.org/csab-meetings

Corning Subbasin GSP - Comments on Section 1 INTRODUCTION and Section 2 PLAN AREA

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
1	1-1	1.0	N/A	1-1	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	The graphic shows "Paskenta Rancheria". It would be a good idea to check with the tribe on what the Corning location is called. The Paskenta Rancheria I am familiar with was formed in the early 1900's and terminated in 1959. It was located in the foothills near the town of Paskenta. I do not know how they refer to the approximately 2000 acre current rancheria near Corning. I have only seen it called "The Paskenta Band of Nomlaki Indians" Rancheria.	GSP Development Team checked with the Tribe	Figures were modified accordingly
2	1-5	1.3	N/A	1-3	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Same as above.		
3						I. Turnbull/TCFCWCD CSAB Alternate			
4	2-3	2.1.1	N/A	2-2	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Same as above.		
5	2-15	2.4.5	N/A	N/A	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Same as above.		
6	2-16	2.4.5	N/A	2-9	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Same as above.		
7	2-17	2.4.5	2-4	N/A	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Same as above.		
8	2-17	2.4.5	N/A	N/A	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Additional industrial groundwater users that I know of in the Corning Subbasin are: Olson Meats (slaughterhouse) 7301 Cutler Ave, Orland, CA 95963; Sunsweet Growers (Prune Dehydrator) 7714 Co Rd 9, Orland, CA 95963; Capay Farms (Walnut Hulling and Drying) 7929 Co Rd 9, Orland, CA 95963; GCID Headgates (Pumping Plant) End of Co Rd 203, Orland, CA; North State Hulling Cooperative (Almond Hulling and Drying) 7559 Hwy 32, Orland, CA 95963	Thank you for providing	Information was added to the GSP
9	2-19	2.5	N/A	2-10	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	See comment SEC 1-1; same comment for all future appearances not noted.	Noted	
10	2-27	2.5.6.8	N/A	N/A	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	I don't agree with the statement regarding Hamilton City Community Services District that "none are related to water supply and are not relevant for the GSP planning and implementation". The district operates a wastewater treatment facility and the discharge from this facility may provide a source for a future recharge project.	Noted	This section was revised
11	2-28	2.6	2-5	N/A	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	I reviewed DWR's Well Completion Report Map Application for a few areas that I am familiar with and there is a significant undercount of the number of domestic and agricultural production wells in some areas. As a guess, it looks like only about 25% of the wells in a given square mile are shown. I believe that this will be mostly in older communities where agricultural uses have been established for many decades. This discrepancy needs to be addressed in this document. If the DWR data will be used for guiding future mitigation actions and is applied as a base for using valuable tools such as Alan Fulton's, the impact of setting a minimum thresholds at a particular level will be grossly understated.	Noted - revised information was received/developed during GSP development; additional refinements will take place during GSP implementation	GSP was updated accordingly
12	2-29	2.6	N/A	2-12	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Same as above.		
13	2-30	2.6	N/A	2-13	11/27/20	I. Turnbull/TCFCWCD CSAB Alternate	Same as above.		
14	2-26	2.5.6.5	n/a	n/a	11/28/2020	Steve Gruenwald, CSAB member	GCID description should mention the fact that they have a number of production wells within our subbasin, along their canal system that can and at times do pump water for distribution to agricultural interests outside of our subbasin. Because this groundwater can replace diverted surface water for the district after their surface water is sold outside of their irrigation district, it amounts to selling and transferring groundwater from the area. This may not be the time and place to add this to the Draft, but it may be mentioned in public comments, so we should consider getting ahead of that concern.		
16	2-26	2.5.6.6	n/a	n/a	11/28/2020	Steve Gruenwald, CSAB member	Orland water users does not supply water to their members year round, rather only during the irrigation season generally from April through October. The lack of winter water availability has been an impediment to using that water during high streamflow periods in the winter for off stream groundwater recharge projects. To help set the stage for future collaborative recharge efforts with OWUD, we might spur interest and discussion by mentioning this within the context of the proposed plan framework. Again, this may not be the time or the place for this comment, but growers in the area are looking at the OWUD system for potential recharge projects.	Noted	

Corning Subbasin GSP - Comments on Section 1 INTRODUCTION and Section 2 PLAN AREA

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
17	2-40		n/a	n/a	11/28/2020	Steve Gruenwald, CSAB member	Re: Agreement between OUWUA and TCCA to sell and transfer water. An increasing number of OUWUA growers are transitioning away from flood irrigation water from the district and relying more on groundwater to irrigate new orchards. It does not make sense to sell the water from the stoney creek watershed for export out of local west side watershed and out of the area. Work on recharge projects using that water before we start sending it out of the area. Maybe outside of our scope, but worth mentioning.	Noted	
18	2-41	2.8.2	n/a	n/a	11/28/2020	Steve Gruenwald, CSAB member	Glenn County Groundwater Ordinance. Wells and pumpers exporting water out of the area have some oversight and are singled out as the first to be regulated or having to modify their pumping practices in the event of "causing harm" to a neighboring non export pumper. While we are focusing on managing our groundwater and ultimately rationing it in some fashion as this continues, should we be advocating for the export of groundwater out of the area?	Noted - this is further discussing in Section 7	
19					**12/2/2020**	David Lester/CSAB Member	I am concerned about the accuracy of DWR well mapping. Production well map is showing wells that I know are abandoned near Corning. How are you doing water budgeting, it it tied to this inaccurate mapping?	Well density maps are part of the general data collection. Water budgeting in the model is not tied to the well distribution maps. Groundwater pumping is estimated in the model based on surface water supplied and water demands of planted crops.	
20					**12/2/2020**	Ryan Teubert/Tehama GSA	How is domestic well pumping estimated in the model? What about urban pumping?	Domestic well pumping is estimated based on per capita population distribution. Public supply wells from City of Corning and Hamilton City are represented in the model.	
21					**12/2/2020**	David Lester/CSAB Member	The section language should emphasize that the well density maps are an estimate and will improve over time. If we are looking at distribution of domestic wells for establishing sustainable management criteria; if the data is bad then we can end up making uninformed decisions.	The section language does emphasize that well density maps are based on the available information and give a general overview of where wells are installed in the Subbasin. The maps and summary tables of wells by type are not expected to accurately count where every well is installed or where every old well has been abandoned in the Subbasin. The sustainable management criteria for lowering of water levels are being developed based on general information regarding well distribution and water level history. We are using domestic well statistics to guide this effort, but not to set levels.	
22					**12/2/2020**	Tamara Williams/Stakeholder	Climate discussion in Section 2 should include a longer timeframe than the last couple of decades as a backdrop for climate change in the Subbasin. The report gives a snapshot of recent rainfall and temperature trends and refers to it as "climate" but I think that a longer timeframe needs to be analyzed to be considered indicative of climate patterns. The DWR has some good information that could be referenced.	We can add references for climate from DWR as applicable. The climate section is not a requirement of the GSP so don't want to go into a huge level of detail here. DWR prepares climate reports and climate change studies that will be incorporated into future groundwater modeling scenarios in this GSP.	
23					**12/2/2020**	Tamara Williams/Stakeholder	Think that this document should acknowledge that more wells are continuing to be installed and that water levels are dropping. Where will you discuss the problem of overdraft in this basin and the water use?	Information on overdraft will be provided in future sections of the GSP (mainly, sections 3, 4, and 6)	

Corning Subbasin GSP - Comments on Section 3 BASIN SETTING

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
1	8		4-1		4/1/2021	Brian Mori/CSAB Member	Any modeling that is listed in the table "Budget Data Components and Data Sources" should be made available for review with the budget. All assumptions that are able to be adjusted and are not a set amount should be delineated out so the public knows what data options to focus upon.	Most of the data are inherent to the model developed by DWR and can be reviewed directly from the DWR data and C2VSim model report (https://data.cnra.ca.gov/dataset/c2vsimfg-version-1-0/resource/4f904e97-a47b-4138-81df-9b74bd952948); the input data that are being modified are described in the Appendix 4A or throughout the Water Budget section as needed.	
2					4/1/2021	Brian Mori/CSAB Member	The model indicates that even with increased rainfall in the projects that there will be decreased deep water percolation due to stream flow. With increased precipitation would that still lead to increased replenishment in shallower aquifers? Is that taken into account?	The projected climate change data predict both increased precipitation and increased ET due to higher temperatures. These have inverse effects on recharge to groundwater. Results from the 2030 and 2070 projected simulations indicate that the increased ET may have a larger effect on the Corning Subbasin due to an increase in crop water demand, than the increased precipitation, leading to decreased deep percolation to groundwater. These simulations also predict some increased seasonality (the additional precipitation will generally fall in a shorter rainy season) which may lead to some of the additional rain ending up as overland flow rather than percolating to groundwater.	
3					4/1/2021	Brian Mori/CSAB Member	In addition to the statement above won't that also lead to increase flows from the Sacramento river and therefore increased inflows from Stony creek and Thomes Creek into the basin?	Yes, increased precipitation alone would lead to increased surface water inflow, however the model suggests increased ET may "use up" much of this upstream water before it reaches the Corning Subbasin. This is likely a combination of increased riparian ET and increased land surface ET, both of which reduce the total downstream flow.	
4					4/1/2021	Brian Mori/CSAB Member	Furthermore, with increased precipitation will that also lead to increased project water available for surface water applications? Therefore, resulting in a net increase of surface water in the basin not net decrease? This should in turn adjust some of the additional assumptions on increased pumping due to surface water curtailment as well?	* There could be more water available for surface water application in some years, but what we have seen in the recent past is that districts are not using their full allocated amount because some growers prefer to pump groundwater, as described in Section 4.2.5. We will simulate a projected scenario that shows how pumping would decrease if surface water was used to its full potential allocation in the future. * Also, CVP water contracts are set and would not be able to be increased even in future years. * Data and information on private riparian water rights is more difficult to obtain and would be a data gap to evaluate during GSP implementation. * Increased precipitation and flows could help with developing additional recharge projects, which we will explore. * The increased temperature creates increase in ET, which means more crop demand and more water used overall (in this baseline scenario, through pumping).	
5					4/1/2021	Brian Mori/CSAB Member	The current budget is listed as "generally in balance" therefore the two biggest drivers that seem to lead to a deficit in future budgets are the increase in ET in the climate model and an assumption of increased pumping? However, are these conclusions derived and are they subject to adjustment in the model or mandates from DWR? If they are is there a less aggressive climate change model available that is acceptable to DWR?	The two models we are using for climate, the 2030 and 2070 central tendency models, are the least aggressive ones available and acceptable by DWR. There may be revised climate change models and data available in the future that could be used for GSP updates. This is the best available information at the moment.	
6					4/1/2021	Brian Mori/CSAB Member	Increased precipitation will lead to higher level of water at the surface that is available to permanent crops which make up a majority of the basin. In research supported and vetted by UC Davis, a larger available early season storage of water in soil allows for a delayed irrigation to permanent crops even with higher ET values. This decreased overall seasonal water use and therefore diminishes ET loss not increases it.	The hydrologic model is not totally set up that way, because not enough information is available to support this; but this can be modified in future GSP updates. So for now, we are using a "worst case scenario" approach.	
7					4/1/2021	Brian Mori/CSAB Member	Are ET values in the climate model allowed to be adjusted for actual crop use coefficients? Are the ET assumptions based upon ETO? If so, that is above the actual water use of a majority of the irrigated acres in the basin.	ET values in the groundwater model are adjusted from the climate ETo to account for crop specific coefficients and irrigation efficiencies are also included. That is detailed in the attachment to Appendix 4A.	

Corning Subbasin GSP - Comments on Section 3 BASIN SETTING

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
8	2	4.1.1			4/7/2021	Tamara Williams/Stakeholder	Bottom of model is no-flow boundary representing base of freshwater. Is this a valid assumption for the western area of the Corning Subbasin? Will the model be protective of water quality, or could there be degradation of the deep pumped aquifer due to upward migration of saline water?	The base of freshwater is considered an acceptable bottom of the model by DWR, who developed C2VSim. While the model does not simulate water quality, it is possible to estimate upward flow from saline layer 4 into layer 3, which could provide an estimate of potential upwelling. However, modeling connate water upwelling is not within the scope of this GSP. Minimum Thresholds established by the GSA are what will protect groundwater elevations, preventing upwelling.	
9	4	4.1.1.2			4/7/2021	Tamara Williams/Stakeholder	Evapotranspiration -- Should include transpiration from all vegetation, not just crops.	ET does include transpiration from native vegetation on native vegetation lands	Replaced "crops" with "crops and native vegetation"
10	13	4.1.4			4/7/2021	Tamara Williams/Stakeholder	Are we certain that the subbasin as a whole is not in overdraft? Are there sufficient data to make this statement?	As simulated by the model, the Subbasin has gained a significant amount of groundwater storage since the start of the historical model period. While the model is not a perfect simulation of the Subbasin, the general historical trends indicate the Subbasin gained storage between 1974-and 2015. This trend reverse when we start looking at the current modeling period and then some overdraft is proejcted to occur in future periods.	Text was edited for clarity
11	13	4.1.4			4/7/2021	Tamara Williams/Stakeholder	This is confusing. Is the gain actually in storage or in storage capacity? The 7th and 8th bullets are also unclear. Is "cumulative change in groundwater storage", as shown on Fig 4-8 meaningful?	Annual Change in storage reflects the change in groundwater in storage (inflows-outflows) on an annual basis. Cumulative groundwater storage is the sum of these annual changes in storage over time (here, over the model simulation period). Cumulative change in groundwater storage gives an estimation of how much total groundwater in storage was gained or lost over a period.	Text was edited for clarity
12	13	4.2.1	4-2		4/7/2021	Tamara Williams/Stakeholder	It seems the change in storage should be the difference between the sums of the inflows and outflows. The numbers in the table don't reflect that. What's missing?	Small differnces between total inflow-outflow and change in storage result from rounding the numbers to the nearest hundred acre-feet.	Added a note to all budget tables with *Small discrepancies between inflow minus outflow and change in storage may occur due to rounding
13	13	4.2.1	4-2		4/7/2021	Tamara Williams/Stakeholder	The sensitivity to error in the various components of the water budget seems large in comparison to the resulting calculated "changes in groundwater storage".	Changes in these components based on water year type are not indications of error, but reflect changes in stresses on the groundwater system such as precipitation and temperature.	
14	30	4.2.3.1	4-5		4/7/2021	Tamara Williams/Stakeholder	It's odd that there's no "streambed recharge" from the River to the groundwater system during the minimum flow condition. Unless the river is completely dry, I'd expect some groundwater recharge, especially due to groundwater pumping along the river.	Groundwater-surface water interaction is calculated on a net annual basis per reach, meaning that in years with 0 streambed recharge, the Sacramento River was consistently gaining over the year in all reaches. There may be stream nodes or months where the river was losing, but these budgets are calculated as annual averages.	
15					4/26/2021	Lerose Lane/Stakeholder	Since the sub-basin includes portions of watersheds, how were the numbers proportioned for the different inflow and outflows of Stony Creek, and Thomas Creek between Corning Sub-basin and the adjoining sub-basins? It would be helpful if these assumptions could be explained on how the split was made in the first part of the report	Stony Creek and Thomes Creek represent surface water inflows to the Corning Subbasin, the data in the model come from historical stream gage data. The model then calculates the routing of the surface water flow dowstream when it reaches the Sacramento River; the split of surface water flows between subbasins at the boundaries is also calculated by the model, based on interaction with groundwater, taking into account groundwater gradients and groundwater levels.	
16	13	4.1.4			4/26/2021	Lerose Lane/Stakeholder	The first bullet on Page 13, states that the sub-basin is not in an overdraft condition. However, with the water levels dropping, I am not sure how that statement can be made. The overdraft may be minimal at this point in time, but maybe it should be stated more clearly. It seems that there is still an overdraft although it may be for a relatively short historical time period.	Simulated groundwater budgets display a positive change in cumulative groundwater storage over the historical period, which is the basis of the statement that the Subbasin is not in overdraft. From 2010 onward the model does simulate negative change in groundwater storage, which could be interpreted as overdraft. However over the long-term historical period the groundwater budgets do not present an extended overdraft condition.	Text was edited for clarity

Corning Subbasin GSP - Comments on Section 3 BASIN SETTING

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
17	14	4.1.4			4/26/2021	Lerose Lane/Stakeholder	The report references historical data, yet it is still being referred to as simulated, on Page 14, in the first sentence. Also, on Page 14, "-19,700" is stated, but the units are missing.	The model simuates historical conditions using measured historical data where available, and calculates values that are not measured, as described in Table 4-1.	Added "acre-feet" after -19,700
18	64	4.4.2	4-15		4/26/2021	Lerose Lane/Stakeholder	Table 4-15 should also show the total for inflows, and outflows from all the other sub-basins. The numbers are more difficult to digest with the watersheds being split between the different sub-basins.	Subsurface flows to/from adjacent subbasins are shown on the water budget figures. Splitting these flows allows for more robust analysis of where the water is flowing to and from the subbasin	

Corning Subbasin GSP - Comments on Section 4 WATER BUDGET

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
1	8		4-1		4/1/2021	Brian Mori/CSAB Member	Any modeling that is listed in the table "Budget Data Components and Data Sources" should be made available for review with the budget. All assumptions that are able to be adjusted and are not a set amount should be delineated out so the public knows what data options to focus upon.	Most of the data are inherent to the model developed by DWR and can be reviewed directly from the DWR data and C2VSim model report (https://data.cnra.ca.gov/dataset/c2vsimfg-version-1-0/resource/4f904e97-a47b-4138-81df-9b74bd952948); the input data that are being modified are described in the Appendix 4A or throughout the Water Budget section as needed.	
2					4/1/2021	Brian Mori/CSAB Member	The model indicates that even with increased rainfall in the projects that there will be decreased deep water percolation due to stream flow. With increased precipitation would that still lead to increased replenishment in shallower aquifers? Is that taken into account?	The projected climate change data predict both increased precipitation and increased ET due to higher temperatures. These have inverse effects on recharge to groundwater. Results from the 2030 and 2070 projected simulations indicate that the increased ET may have a larger effect on the Corning Subbasin due to an increase in crop water demand, than the increased precipitation, leading to decreased deep percolation to groundwater. These simulations also predict some increased seasonality (the additional precipitation will generally fall in a shorter rainy season) which may lead to some of the additional rain ending up as overland flow rather than percolating to groundwater.	
3					4/1/2021	Brian Mori/CSAB Member	In addition to the statement above won't that also lead to increase flows from the Sacramento river and therefore increased inflows from Stony creek and Thomes Creek into the basin?	Yes, increased precipitation alone would lead to increased surface water inflow, however the model suggests increased ET may "use up" much of this upstream water before it reaches the Corning Subbasin. This is likely a combination of increased riparian ET and increased land surface ET, both of which reduce the total downstream flow.	
4					4/1/2021	Brian Mori/CSAB Member	Furthermore, with increased precipitation will that also lead to increased project water available for surface water applications? Therefore, resulting in a net increase of surface water in the basin not net decrease? This should in turn adjust some of the additional assumptions on increased pumping due to surface water curtailment as well?	* There could be more water available for surface water application in some years, but what we have seen in the recent past is that districts are not using their full allocated amount because some growers prefer to pump groundwater, as described in Section 4.2.5. We will simulate a projected scenario that shows how pumping would decrease if surface water was used to its full potential allocation in the future. * Also, CVP water contracts are set and would not be able to be increased even in future years. * Data and information on private riparian water rights is more difficult to obtain and would be a data gap to evaluate during GSP implementation. * Increased precipitation and flows could help with developing additional recharge projects, which we will explore. * The increased temperature creates increase in ET, which means more crop demand and more water used overall (in this baseline scenario, through pumping).	
5					4/1/2021	Brian Mori/CSAB Member	The current budget is listed as "generally in balance" therefore the two biggest drivers that seem to lead to a deficit in future budgets are the increase in ET in the climate model and an assumption of increased pumping? However, are these conclusions derived and are they subject to adjustment in the model or mandates from DWR? If they are is there a less aggressive climate change model available that is acceptable to DWR?	The two models we are using for climate, the 2030 and 2070 central tendency models, are the least aggressive ones available and acceptable by DWR. There may be revised climate change models and data available in the future that could be used for GSP updates. This is the best available information at the moment.	
6					4/1/2021	Brian Mori/CSAB Member	Increased precipitation will lead to higher level of water at the surface that is available to permanent crops which make up a majority of the basin. In research supported and vetted by UC Davis, a larger available early season storage of water in soil allows for a delayed irrigation to permanent crops even with higher ET values. This decreased overall seasonal water use and therefore diminishes ET loss not increases it.	The hydrologic model is not totally set up that way, because not enough information is available to support this; but this can be modified in future GSP updates. So for now, we are using a "worst case scenario" approach.	
7					4/1/2021	Brian Mori/CSAB Member	Are ET values in the climate model allowed to be adjusted for actual crop use coefficients? Are the ET assumptions based upon ETO? If so, that is above the actual water use of a majority of the irrigated acres in the basin.	ET values in the groundwater model are adjusted from the climate ETo to account for crop specific coefficients and irrigation efficiencies are also included. That is detailed in the attachment to Appendix 4A.	

Corning Subbasin GSP - Comments on Section 4 WATER BUDGET

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
8	2	4.1.1			4/7/2021	Tamara Williams/Stakeholder	Bottom of model is no-flow boundary representing base of freshwater. Is this a valid assumption for the western area of the Corning Subbasin? Will the model be protective of water quality, or could there be degradation of the deep pumped aquifer due to upward migration of saline water?	The base of freshwater is considered an acceptable bottom of the model by DWR, who developed C2VSim. While the model does not simulate water quality, it is possible to estimate upward flow from saline layer 4 into layer 3, which could provide an estimate of potential upwelling. However, modeling connate water upwelling is not within the scope of this GSP. Minimum Thresholds established by the GSA are what will protect groundwater elevations, preventing upwelling.	
9	4	4.1.1.2			4/7/2021	Tamara Williams/Stakeholder	Evapotranspiration -- Should include transpiration from all vegetation, not just crops.	ET does include transpiration from native vegetation on native vegetation lands	Replaced "crops" with "crops and native vegetation"
10	13	4.1.4			4/7/2021	Tamara Williams/Stakeholder	Are we certain that the subbasin as a whole is not in overdraft? Are there sufficient data to make this statement?	As simulated by the model, the Subbasin has gained a significant amount of groundwater storage since the start of the historical model period. While the model is not a perfect simulation of the Subbasin, the general historical trends indicate the Subbasin gained storage between 1974-and 2015. This trend reverse when we start looking at the current modeling period and then some overdraft is proejcted to occur in future periods.	Text was edited for clarity
11	13	4.1.4			4/7/2021	Tamara Williams/Stakeholder	This is confusing. Is the gain actually in storage or in storage capacity? The 7th and 8th bullets are also unclear. Is "cumulative change in groundwater storage", as shown on Fig 4-8 meaningful?	Annual Change in storage reflects the change in groundwater in storage (inflows-outflows) on an annual basis. Cumulative groundwater storage is the sum of these annual changes in storage over time (here, over the model simulation period). Cumulative change in groundwater storage gives an estimation of how much total groundwater in storage was gained or lost over a period.	Text was edited for clarity
12	13	4.2.1	4-2		4/7/2021	Tamara Williams/Stakeholder	It seems the change in storage should be the difference between the sums of the inflows and outflows. The numbers in the table don't reflect that. What's missing?	Small differnces between total inflow-outflow and change in storage result from rounding the numbers to the nearest hundred acre-feet.	Added a note to all budget tables with *Small discrepancies between inflow minus outflow and change in storage may occur due to rounding
13	13	4.2.1	4-2		4/7/2021	Tamara Williams/Stakeholder	The sensitivity to error in the various components of the water budget seems large in comparison to the resulting calculated "changes in groundwater storage".	Changes in these components based on water year type are not indications of error, but reflect changes in stresses on the groundwater system such as precipitation and temperature.	
14	30	4.2.3.1	4-5		4/7/2021	Tamara Williams/Stakeholder	It's odd that there's no "streambed recharge" from the River to the groundwater system during the minimum flow condition. Unless the river is completely dry, I'd expect some groundwater recharge, especially due to groundwater pumping along the river.	Groundwater-surface water interaction is calculated on a net annual basis per reach, meaning that in years with 0 streambed recharge, the Sacramento River was consistently gaining over the year in all reaches. There may be stream nodes or months where the river was losing, but these budgets are calculated as annual averages.	
15					4/26/2021	Lerose Lane/Stakeholder	Since the sub-basin includes portions of watersheds, how were the numbers proportioned for the different inflow and outflows of Stony Creek, and Thomas Creek between Corning Sub-basin and the adjoining sub-basins? It would be helpful if these assumptions could be explained on how the split was made in the first part of the report	Stony Creek and Thomes Creek represent surface water inflows to the Corning Subbasin, the data in the model come from historical stream gage data. The model then calculates the routing of the surface water flow dowstream when it reaches the Sacramento River; the split of surface water flows between subbasins at the boundaries is also calculated by the model, based on interaction with groundwater, taking into account groundwater gradients and groundwater levels.	
16	13	4.1.4			4/26/2021	Lerose Lane/Stakeholder	The first bullet on Page 13, states that the sub-basin is not in an overdraft condition. However, with the water levels dropping, I am not sure how that statement can be made. The overdraft may be minimal at this point in time, but maybe it should be stated more clearly. It seems that there is still an overdraft although it may be for a relatively short historical time period.	Simulated groundwater budgets display a positive change in cumulative groundwater storage over the historical period, which is the basis of the statement that the Subbasin is not in overdraft. From 2010 onward the model does simulate negative change in groundwater storage, which could be interpreted as overdraft. However over the long-term historical period the groundwater budgets do not present an extended overdraft condition.	Text was edited for clarity
17	14	4.1.4			4/26/2021	Lerose Lane/Stakeholder	The report references historical data, yet it is still being referred to as simulated, on Page 14, in the first sentence. Also, on Page 14, "-19,700" is stated, but the units are missing.	The model simuates historical conditions using measured historical data where available, and calculates values that are not measured, as described in Table 4-1.	Added "acre-feet" after -19,700
18	64	4.4.2	4-15		4/26/2021	Lerose Lane/Stakeholder	Table 4-15 should also show the total for inflows, and outflows from all the other sub-basins. The numbers are more difficult to digest with the watersheds being split between the different sub-basins.	Subsurface flows to/from adjacent subbasins are shown on the water budget figures. Splitting these flows allows for more robust analysis of where the water is flowing to and from the subbasin	

Corning Subbasin GSP - Comments on Section 6 SUSTAINABLE MANAGEMENT CRITERIA

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
1	General Comments on Minimum Thresholds				9/8/2020	Matt Hansen/Tehama County Landowner	We are currently in a drought and the County continues to allow the redevelopment of grazing land into orchards. Surface water use is nearly non-existent compared to the past and the water is coming from the ground in extraordinary amounts. I recommend the GSA adopt the current levels as the MT threshold. Doing so would protect domestic wells, many of which are already threatened. I understand it would be bold move because at the current course the water level will predictably continue to fall below the MT forcing the County to take some sort or regulatory action to turn things around. It is also important to have more information before setting the MT in the GSP. A few monitoring wells close to the River do not paint an accurate picture about how the draw is affecting residents in the outlying areas such as Rancho Tehama Reserve. Monitoring wells in these areas are important to the over-development groundwater use and should also be included in the plan. The last point I took away from this article was that DWR has the authority to reject GSPs where the MT is too low. This is likely because several GSAs developed plans in the San Joaquin Valley with low MTs which did not protect domestic water and thousands of wells have run dry. In this regard, I ask the Red Bluff and Corning Subbasin GSA to take responsible action in accordance with our local resources.	Comment letter was passed along to CSAB members; comments were considered during development of Chronic Lowering of Groundwater Levels SMC	
2	7	6.5	6-1	N/A	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	I believe we are no longer using EC as a salinity indicator (at bottom of table)	Correct	Deleted footnote below table
3	20	6.6.2.2	N/A	N/A	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	As has been commented previously, the approach you used to look at the impact on domestic wells is sound, but the data and at least one of the assumptions is seriously flawed. Excluding domestic wells older that 30 years is not consistent with real well lifespans in the subbasin. It leads to a significant undercount (some would say gross undercount) of functioning domestic wells. As stated in earlier comments, I reviewed DWR's Well Completion Report Map Application for a few areas that I am familiar with and there is a significant undercount of the number of domestic and agricultural production wells in some areas. As a guess, it looks like only about 25% to 40% of the wells in a given square mile are shown. I believe that this will be mostly in older communities where agricultural uses have been established for many decades. <u>This discrepancy needs to be addressed with very clear language in this section and Appendix 6A of the document. The reader must know that the number of affected wells you show as a result of your calculations is likely to be significantly lower than the actual number of wells affected.</u>	Comment noted. This approach also excludes older wells in the database that are no longer used, so there really is no way to capture accurately without an overhaul of the well completion database.	Text was edited to include clarifications per the comment
4	22	6.6.2.2	N/A	6.6	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	I am struggling with the text in the explanation box. Since we are looking at groundwater elevations, I believe it should read "Elevation of Bottom of well > (is more than) 25 feet <u>BELOW</u> Minimum Threshold" and "Elevation of Bottom of well < (is less than) 25 feet <u>BELOW</u> Minimum Threshold"	Comment noted.	Figure Explanation was modified for clarity
5	23	6.6.2.2	N/A	6.7	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	As before, the text in the explanation box. Since we are looking at groundwater elevations, I believe it should read "Elevation of Bottom of well > (is more than) 25 feet <u>BELOW</u> Fall 2015 Water Level" and "Elevation of Bottom of well < (is less than) 25 feet <u>BELOW</u> Fall 2015 Water Level"	Same as above	
6	28	6.6.3.1	N/A	N/A	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	Same comment as SEC 6-1 for discussion of domestic well affected by the MO	Same as above	
7	31	6.6.3.1	N/A	6.10	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	As before, the text in the explanation box. Since we are looking at groundwater elevations, I believe it should read "Elevation of Bottom of well > (is more than) 25 feet <u>BELOW</u> Measurable Objective" and "Elevation of Bottom of well < (is less than) 25 feet <u>BELOW</u> Measurable Objective"	Same as above	
8	38	6.8	N/A	N/A	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	I believe we are no longer using EC as a salinity indicator	Correct	Comment addressed

Corning Subbasin GSP - Comments on Section 6 SUSTAINABLE MANAGEMENT CRITERIA

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
9	51	6.9.2.6	N/A	N/A	7/12/2021	I. Turnbull/TCFCWCD CSAB Alternate	I believe inelastic and elastic should be reversed: "Annual comparison of data will help the GSAs isolate inelastic (elastic) subsidence related to seasonal groundwater pumping from elastic (inelastic) subsidence caused by chronic groundwater level decline (Figure 3.2-17 and Figure 3.2-18)."	Comment noted	Comment addressed
10	9	6.6.2.1				Brian Mori/CSAB Member	The bullet point refers to the methodology of the hydro graph being manually adjusted. A list of what was adjusted and why should be provided.	The MTs were not manually adjusted for the final versions; agreed this may be confusing.	Second portion of sentence was deleted
11	13	6.6.2.1				Brian Mori/CSAB Member	In the review projected simulation model results 2015 surface water use as well as 2070 climate change, with no projects was utilized in the model- this decline of just 10 ft in the literal worst case scenario should be stressed as compared to the average decline in the 20% MT selection. in other words that 20% that was voted on is actually still very conservative	10 ft is the average decline, this cannot be easily compared to MT based on 20% buffer for gw depth. In many cases the MT is greater than the projected simulated level with climate change.	No change to text
12	20	6.6.2.2				Brian Mori/CSAB Member	I disagree with this domestic well impact report presentation. To put a "25 ft safety buffer" on domestic wells is going to impact the total impact on the rmp intersects for ground water elevation. How can we apply a 20 ft buffer on an MT for stable wells in the basin but put a 25 ft safety buffer unitlaterally on all domestic wells. That is seems to be making the % impact inflated even at a 20% MT application	The MT is based on drawdown of regional water levels over time and is not related to the domestic well safety factor. The domestic well analysis uses a 25 ft safety factor to account for drawdown of the regional water table in wells when they are turned on to allow them to operate. Use of a 25-foot safety factor on top of shallow domestic well depths to maintain sufficient water in domestic wells to operate pumps is an industry standard.	Added a statement for clarification
13	26	6.6.2.5				Brian Mori/CSAB Member	Under the "agriculural land uses and uses" the bullet point regarding permantent versus annual crop water use has no relevance as crops selection is determined by market value.	You are right, the text doesn't really explain various effects on beneficial users and land uses as well as it could. Propose changing to something like this: "Changes to crop types from annual crops to permanent crops is based on market value. Permanent crops provide less flexibility for irrigation during potential future droughts as the opportunity to fallow in dry periods does not exist. The groundwater elevation minimum threshold allows for some drawdown during droughts to accomodate irrigation of the current land use."	Statement was added to address the operational range to help protect the permanent crops that are already planted
14	26	6.6.2.5				Brian Mori/CSAB Member	Increasing ag inflation in land values is not a positive aspect as it will bring cumbersome taxes and elimate the ability for small family farms to compete for land	Comment noted	
15	28	6.6.3.1				Brian Mori/CSAB Member	Same issue as before. 6% of domestic wells impacted at MO with the 25 ft intersect buffer. If water levels are at fall max of 2015 after the last drought cycle and those wells survived that cycle how are 6% still affected?	This is a rough analysis based on the best possible data with inexact well locations, inactive wells, etc. Its likely that of this 6% of wells went dry in 2015, some were replaced, or that are in an area where water level data are not available and thus are prone to errors in water level interpretation between points.	Added a sentence explaining that this is a baseline estimate of already impacted wells in the well database.
16	32	6.6.4.1				Brian Mori/CSAB Member	to clarify is the final RMP count 56? I thought we had elminated some RMP wells due to faulty data	That's correct. Some wells were removed, 2 new observation wells in Glenn Co were added. Will also likely add 2 new observation wells in Tehama Co in City of Corning so ultimately this may be 58.	
17	72-73	Appendix 6A				Brian Mori/CSAB Member	Is it necessary to present the original fall 2018 example and numbers? Is this to point out that a more aggressive data set was not used? What is the purpose of including this in the GSP?	This was an analysis requested by the CSAB and GSA staff, based on previous work done by Allan Fulton. It is useful in that it shows steps of the process not described in detail in the main text.	Appendix 6A was modified to be more succinct

Corning Subbasin GSP - Comments on Section 7 PROJECTS MANAGEMENT ACTIONS

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
1	7-5	7.2.4	N/A	7-2	8/8/2021	I. Turnbull/TCFCWCD CSAB Alternate	The graphic still has not been changed to reflect the proper name of the tribe. See comment from Section 1. In addition, this has not been corrected where this graphic appears in subsequent sections from Section 1.	The correct name is introduced in (the revised) Section 1, and then we are calling this the Paskenta Reservation after abbrev. in Plan Area (Section 2).	All figures in the GSP were revised to include "Reservation" instead of "Rancheria". Per feedback from the Tribe.
2	7-31	7.4.3.1.6	N/A	N/A	8/8/2021	I. Turnbull/TCFCWCD CSAB Alternate	It might add to clarity to remind the reader that OUWUA's infrastructure is entirely within Glenn County and therefore only the Corning Sub-basin GSA has jurisdiction.	Comment addressed; clarification added	Comment addressed; clarification added
3	7-39	7.4.3.3.3	N/A	N/A	8/8/2021	I. Turnbull/TCFCWCD CSAB Alternate	Another benefit not directly related to the GSP is fire hazard reduction. Arundo has become so thick in the Orland area that it has provided significant fuel for wildfires. They have become a regular occurrence. This may be an avenue for additional removal funding.	Comment noted	Comment addressed; clarification added
4	7-43	7.4.3.4	N/A	7-10	8/8/2021	I. Turnbull/TCFCWCD CSAB Alternate	A legend indicating what are represented by the different colors would significantly add to clarity.	Comment noted	Will revise figure for final GSP
5	7-44	7.4.3.4	N/A	7-11	8/8/2021	I. Turnbull/TCFCWCD CSAB Alternate	A legend indicating what are represented by the different colors would significantly add to clarity.	Comment noted	Will revise figure for final GSP
6	7-22				8/9/2021	Rick Massa, OUWUA Manager	Page 7-22 and throughout the report—Please correct “Orland Unit Project” to read “Orland Project”	Comment noted	Comment addressed
7	7-29				8/9/2021	Rick Massa, OUWUA Manager	Page 7-29 through 7-34 Looks OK		
8	5	Appendix 7D			8/9/2021	Rick Massa, OUWUA Manager	*Suggest a re-write to state something like this:* **Orland Project (Operated and Maintained by Orland Unit Water Users’ Association)** The Orland Project relatively has not suffered cutbacks in supply with the exceptions of the years 1976, 1977, 2014 and 2021. Orland’s water rights allow for the diversion of 279 cfs of Stony Creek flows to a maximum of 85,000 AF annually. However; natural flows do not occur long enough during the irrigation season to provide for 85,000 AF. In addition, Orland operates two storage reservoirs, each having approximately 50,000 AF of storage. Total annual diversions during the years 2009 through 2020 ranged from 61,042 AF (during the drought year 2014) to 94,548 AF in 2012. Diversions during 2021 will be considerably less than that of 2014. The area served by the North canal system typically accounts for 1/3 of total annual diversions. *Note that we can provide you with monthly/annual diversions for the time period 2009 through 2020.*	Comment noted	Revised text to add more details per comment
9	9	Appendix 7D			8/9/2021	Rick Massa, OUWUA Manager	I am unsure of the data to comment. However; what I see looks reasonable.		
10	1	Appendix 7E			8/9/2021	Rick Massa, OUWUA Manager	*In the last sentence of the first paragraph,* “…existing CVP and Orland Project contracts, as described in Section 7.3.2.4.” *Orland Project does not have a water contract—see explanation above.*	Comment noted	Revised text per comment
11	2	Appendix 7E			8/9/2021	Rick Massa, OUWUA Manager	*Please note that Stony Creek and Tributaries are subject to a federal decree (United States of America v H.C. Angle et al.), and therefore, any and all tributaries are not unappropriated.*	Comment noted	Revised text to clarify
12	7-38				8/13/2021	K Manhart, Executive Officer, GLENN COUNTY RESOURCE CONSERVATION DISTRICT	Glenn County Community Wildfire Protection Plan (CWPP) is currently being updated with an anticipated finalization date in early 2022; the project remains a high priority in the updated document. We will likely add Upper Stony Creek to the priority list as well.	Comment noted	Text revisions were made
13	7-40				8/13/2021	K Manhart, Executive Officer, GLENN COUNTY RESOURCE CONSERVATION DISTRICT	I would like to see a bullet point added - Intensive permitting costs and restrictions	Comment noted	Text added

Corning Subbasin GSP - Comments on Section 7 PROJECTS MANAGEMENT ACTIONS

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
14	7-47 or 7-49	Expected Benefits and Evaluation of Benefits section			8/13/2021	Allan Fulton, UCCE, retired	Might mention strengths of such practice: •Off-stream surface water storage would provide water for irrigation in-lieu of groundwater pumping. •A practice that preserves groundwater in storage by reducing pumping should out-perform other direct recharge methods like Flood MAR or dedicated groundwater recharge basins. With direct recharge methods there is more uncertainty about the fate of the recharge waters both in terms where and when they are ultimately stored and about impacts on water quality.	Comment noted	Text revisions were made
15	7-48				8/13/2021	Allan Fulton, UCCE, retired	Might include lift pumps as part of the conveyance consideration. Might also include frequency and cumulative days of water availability for off-site storage along with volumes available for off-site storage in an assessment. In previous assessments the challenge has been the infrequent and flashy nature of unallocated stream flows. The flashy nature of stream flows leads to need for a large pumping plant requirement to capture as much water as quickly as possible when unallocated stream flows are available but the infrequent occurrence of such high flow on these ephemeral streams risk leaving the large pumps sitting idle a high proportion of time. This in turn affects costs and economic feasibility. Might need grant support in some form for practice to be affordable for local users.	Comment noted	Considered information for additions to the text
16	General	7.4			7/15/2021 and 8/17/2021	Jenny Sheer, Ag Water Specialist, Water & Land Solutions LLC	Our client, California Olive Ranch, is interested in a recharge project at their ranch east of Corning. We are doing some feasibility analysis on the concept right now, and we wanted to make sure to include it for the PMA chapter because we know recharge projects will be so important for managing the subbasin.	Additional techncial information was provided by commenter	Proposed project was added to the GSP Section 7.4.4

Corning Subbasin GSP - Comments on Section 8 PLAN IMPLEMENTATION

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
1	8.6.2					Steve Gruenwald, CSAB	Well registration program includes discussion of metering wells. This has been described as a 'non starter' for some, and likely to meet with widespread opposition from the agricultural community. The old saying is something like 'what they can measure, they can tax', and although this is true, we need to have an idea of how much water we're using to measure our water conservation efforts. As much as I dislike the idea of metering, a per unit fee would be the most equitable way to develop a structure to fund the implementation of SGMA.	Comment noted and will be taken into consideration during further projects and management actions development for GSP implementation.	
2			8-5			Steve Gruenwald, CSAB	The cost estimates in this table seem low...where can we get qualified management staff for $75,000 per year? Insurance, consulting services all look like they are low, where did these estimates come from?	Additional information on general cost assumptions are provided in Section 8.9.1. Costs are estimated, subject to change, and may be higher or lower upon implementation. Costs will be further refined by the GSAs during the implementation phase. Cost estimates were developed based on a review of cost/fee studies from other GSAs, coordination with GSA staff, and consultants' prior SGMA experience. For cost estimation purposes, Staff are assumed to be provided from Tehema and Glenn Counties to serve GSA duties on a part-time basis. Estimated consultant costs in Table 8-5 are based on a general on-call budget for miscellanous support and is not inclusive of consultant costs for dedicated implementation tasks.	
3			8-6			Steve Gruenwald, CSAB	Estimated planning costs look prett inexpensive as well; video logging one well is over $1000.00, so the $10,000 budget for that task would only allow for viedo logging maybe 8 wells. Is this a good estimate? Five observation wells for $125,000? Is this for the cost of construction or for monitoring existing wells?	Costs are estimated, subject to change, and may be higher or lower upon implementation. Costs will be further refined by the GSAs during the implementation phase. Estimated videologging and observation well costs are based on anticipated GSA grant administration, cost-share, and planning responsibilities. The costs of labor, service, materials, and construction are anticipated to be funded via grants and are not included in the estimated costs.	
4	23					Steve Gruenwald, CSAB	Fees and Assessments: Who will determine the fee structure, how will it be determined? If the primary source of new revenue for implementing SGMA will be coming from 'fees, charges, and assessments', how will these new taxes be determined? Prop 26 and prop 28 are referenced frequently in association with these fees, I need to learn more about that.	Additional information on potential funding sources and mechanisms is provided in Section 8.2 of the Draft GSP. Any fees, charges, and/or assessments levied by either GSA will be determined and approved by each GSA's respective Board pursuant to the processess and requirements of the appropriate legal statutes.	
5	23					Steve Gruenwald, CSAB	Rate Study: Who will be doing the rate study?	At the time of writing, no specific fee, charge, and/or assessment structure has been proposed or adopted by either GSA. The presentation made at the August 4th, 2021 CSAB meeting provided hypothetical cost breakdowns based on an example budget to illustrate how costs may be allocated based on a set of example approaches for discussion purposes only and did not propose a specific fee or approach. Any fees, charges, and/or assessments levied by either GSA will be determined and approved by each GSA's respective Board pursuant to the processess and requirements of the appropriate legal statutes. Stakeholder feedback will continue to be welcomed and considered by the GSAs as they consider funding mechanisms in the future. Additional information on potential funding sources and mechanisms is provided in Section 8.2 of the Draft GSP.	

Corning Subbasin GSP - Comments on Section 8 PLAN IMPLEMENTATION

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
6	n/a (Comment Letter)				8/26/2021	Jaime Lely, for the West Side Landowners and Tenants group in the Corning GSA	Summary of Comment Letter: Provided stakeholder feedback on the limited use, quality, and availability of groundwater on foothill non-irrigated lands in the Corning Subbasin, concerns regarding the equitable sharing of GSA costs among irrigated and non-irrigated lands, and representation. Conveyed that a per-acre fee of $2.90/acre is not a viable option and represents greater than 32% of livestock grazing lease income on average. Conveyed that allowing non-irrigated landowners to sell or transfer their groundwater rights is not a viable option. Shared concern regarding costs for surface water users that do not use groundwater. Provided suggested solutions, such as basic minimum fees, per well fees, agreements/contracts to not pump groundwater, and pumping fees. Shared concern regarding west side landowner representation on the GSA Boards. Referenced information from the August 4th, 2021 CSAB Presentation.	SGMA implementation funding and the equitable distribution of implementation costs are important issues. At the time of writing, no specific fee, charge, and/or assessment structure has been proposed or adopted by either GSA. The presentation made at the August 4th, 2021 CSAB meeting provided hypothetical cost breakdowns based on an example budget to illustrate how costs may be allocated based on a set of example approaches for discussion purposes only and did not propose a specific fee or approach. Any fees, charges, and/or assessments levied by either GSA will be determined and approved by each GSA's respective Board pursuant to the processess and requirements of the appropriate legal statutes. Stakeholder feedback will continue to be welcomed and considered by the GSAs as they consider funding mechanisms in the future. Additional information on potential funding sources and mechanisms is provided in Section 8.2 of the Draft GSP.	
7	n/a (Comment Letter)				9/7/2021	John Whitney, Glenn County Rangeland Association	Summary of Comment Letter: Provided stakeholder feedback on the limited use, quality, and availability of groundwater on foothill non-irrigated lands in the Corning Subbasin, concerns regarding the equitable sharing of GSA costs among irrigated and non-irrigated lands, and representation. Conveyed that a per-acre fee of $2.90/acre is not a viable option and represents greater than 32% of livestock grazing lease income on average. Shared concern regarding west side landowner representation on the GSA Boards.	SGMA implementation funding and the equitable distribution of implementation costs are important issues. At the time of writing, no specific fee, charge, and/or assessment structure has been proposed or adopted by either GSA. The presentation made at the August 4th, 2021 CSAB meeting provided hypothetical cost breakdowns based on an example budget to illustrate how costs may be allocated based on a set of example approaches for discussion purposes only and did not propose a specific fee or approach. Any fees, charges, and/or assessments levied by either GSA will be determined and approved by each GSA's respective Board pursuant to the processess and requirements of the appropriate legal statutes. Stakeholder feedback will continue to be welcomed and considered by the GSAs as they consider funding mechanisms in the future. Additional information on potential funding sources and mechanisms is provided in Section 8.2 of the Draft GSP.	
8	n/a (Comment Letter)				8/26/2021	Dennis Barkley, Landowner	Summary of Comment Letter: Provided stakeholder feedback on the limited use, quality, and availability of groundwater on foothill non-irrigated lands in the Corning Subbasin, concerns regarding the equitable sharing of GSA costs among irrigated and non-irrigated lands, and representation. Conveyed that a per-acre fee of $2.90/acre is not a viable option and represents approximately 48% of current income from the stakeholder's property. Conveyed that allowing non-irrigated landowners to sell or transfer their groundwater rights is not a viable option. Shared concern regarding costs for surface water users that do not use groundwater. Provided suggested solutions, such as basic minimum fees, per well fees, agreements/contracts to not pump groundwater, and pumping fees. Shared concern regarding west side landowner representation on the GSA Boards. Referenced information from the August 4th, 2021 CSAB Presentation.	Your comment is appreciated. SGMA implementation funding and the equitable distribution of implementation costs are important issues. At the time of writing, no specific fee, charge, and/or assessment structure has been proposed or adopted by either GSA. The presentation made at the August 4th, 2021 CSAB meeting provided hypothetical cost breakdowns based on an example budget to illustrate how costs may be allocated based on a set of example approaches for discussion purposes only and did not propose a specific fee or approach. Any fees, charges, and/or assessments levied by either GSA will be determined and approved by each GSA's respective Board pursuant to the processess and requirements of the appropriate legal statutes. Stakeholder feedback will continue to be welcomed and considered by the GSAs as they consider funding mechanisms in the future. Additional information on potential funding sources and mechanisms is provided in Section 8.2 of the Draft GSP.	

Corning Subbasin GSP - Comments on Section 8 PLAN IMPLEMENTATION

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response (optional)	Status/Revisions (as needed)
9	n/a (Comment Email)				8/30/2021	Dennis Barkley, Landowner	Summary of Comment Email: Provided stakeholder feedback on potential property taxes, their impact on range land, and equity.	Your comment is noted and will be been taken into consideration.	
10	n/a (Comment Letter)				8/26/2021	Kathryn Vogt-Haefelfinger, Landowner	Summary of Comment Letter: Provided stakeholder feedback on the limited use, quality, and availability of groundwater on foothill non-irrigated lands in the Corning Subbasin, concerns regarding the equitable sharing of GSA costs among irrigated and non-irrigated lands, and representation. Conveyed that a per-acre fee of $2.90/acre is not a viable option and represents greater than 32% of livestock grazing lease income on average. Conveyed that allowing non-irrigated landowners to sell or transfer their groundwater rights is not a viable option. Shared concern regarding costs for surface water users that do not use groundwater. Provided suggested solutions, such as basic minimum fees, per well fees, agreements/contracts to not pump groundwater, and pumping fees. Shared concern regarding west side landowner representation on the GSA Boards. Referenced information from the August 4th, 2021 CSAB Presentation.	SGMA implementation funding and the equitable distribution of implementation costs are important issues. At the time of writing, no specific fee, charge, and/or assessment structure has been proposed or adopted by either GSA. The presentation made at the August 4th, 2021 CSAB meeting provided hypothetical cost breakdowns based on an example budget to illustrate how costs may be allocated based on a set of example approaches for discussion purposes only and did not propose a specific fee or approach. Any fees, charges, and/or assessments levied by either GSA will be determined and approved by each GSA's respective Board pursuant to the processess and requirements of the appropriate legal statutes. Stakeholder feedback will continue to be welcomed and considered by the GSAs as they consider funding mechanisms in the future. Additional information on potential funding sources and mechanisms is provided in Section 8.2 of the Draft GSP.	

Appendix 2G

Public Comments Received on Draft GSP

Public Comments Received on Draft GSP

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response	Status/Revisions (as needed)
1		2			10/17/2021	Kathryn Vogt-Haefelfinger Quiet Hills Ranch Co.	**1. Communication with Landowners on the Westside** We are joining the conversation regarding the Groundwater Sustainability Plan Draft late in the process. This is not due to lack of interest in the subject matter. Far from that. We simply did not receive information making it clear to us that our property is in the Corning Subbasin GSP. It was not until it was pointed out to us in late August of 2021 by a westside landowner that we were made aware of such and of the possibility of being affected by a per acre tax. Moving forward, we would suggest that all landowners receive information and notifications directly from you by mail. In addition, GSP information should be shared with the public and stakeholders via local newspapers. It is our understanding that to this day not all stakeholders are aware of the direct impact the GSP will have on them. We believe that it is of the utmost importance that GSP information reaches all landowners and domestic well owners. Stakeholders need to understand the process and the funding mechanisms and must be made aware of the impact the GSP will have on them and on their livelihood.	The GSAs are working with an engagement and outreach team to identify better ways to engage stakeholders in all portions of the GSP and will continue to reach out during the implementation of the GSP.	
2		8			10/17/2021	Kathryn Vogt-Haefelfinger Quiet Hills Ranch Co.	**2. Funding - per acre fee** We would like to voice our concerns regarding the funding of the GSP, specifically the possible per acre fee. We must point out and underline the unfairness a per acre fee would have on Westside and Dryland Landowers. We understand that there are several ways to fund the GSP capital projects, activities, and management. Funding mechanisms like taxes, fees and assessment each having its own benefits, limitations, and problems. Fairness and equity are paramount because a "one size fits all" will have potentially profound consequences for property owners and the type of land owned, including uses thereof. For instance, some landowners such as those at Quiet Hills Ranch (established in 1930), now have numerous family members as minority owners. Due to water limitations, the land can only be used for cattle operations. Income is therefore limited. If a flat tax were imposed on a per acre basis, the result would be a permanent financial loss from operations. Such a condition is not sustainable or correctable. Fairness and equity demand a funding process which does not destroy this nearly 100-year ownership. Moreover, QHR provides substantial community benefits from its operation. Wildlife is provided protection, feed, and water. Fire danger, which could have a devastating effect on numerous other people, is minimized by the annual grazing of cattle. Roads are maintained so that emergency vehicles can easily and quickly get where they need to go. Other landowners, with more water, would be forced to convert from cattle grazing to orchards, with a substantial negative impact on groundwater. The owner adjacent to QHR, for example, owns 509 acres, which is leased out to third party cattlemen. There are no structures on that property. There is one pond, with water only if there is sufficient runoff from the rains. A $2.00 per acre tax would consume the entire lease income, a result which would be unfair, unjust, and inequitable in the extreme. The GSP plan for capital projects and activities would provide no benefits whatsoever to the type of owners listed above. Those benefits should be paid by those who actually benefit therefrom, not allow them to benefit at a lower effective cost at the expense of poorer landowners who receive no benefit whatsoever. A tax-based system would be the most unfair and inequitable. Taxes need not be directly tied to benefits or costs. The negative consequences described above would be guaranteed results, with the further effect of potentially draining water tables and	Funding discussions will continue during the early phases of GSP implementation and all comments will be considered for the decision on how to structure the funding moving forward.	
3		7.3.2.1			10/25/2021	Michael Ward, Stakeholder	The MA does not identify that a Well Inventory MA will be conducted within the Tehama County portion of the subbasin. The MA needs to be applied to the entire subbasin. The Well Incident Report Svstem MA states that the GSA's "could assist" Tehama County and Glenn County with a well incident reporting program. The system of well incident reporting is important to sustaining groundwater resources in the basin. This MA appears to be more of a suggestion rather than a dedicated action. Both MA's are non-committal to a basin-wide approach.	The Well Inventory program is planed to be conducted within the entire Subbasin: "A similar analysis can be extended through the remainder of the Subbasin to detail existing domestic wells within Tehama County as well." This action is led by the County, so the GSAs have no authority to take it over but can provide support, with data collection and sharing.	
4		7.3.2.1			10/25/2021	Michael Ward, Stakeholder	Chapter 7 of the GSP documents the need for additional monitoring. See Figures 7-1 and 7-2 (Figure 7-1: *Areas Identified with Groundwater Concerns or Protection Needs* ; Figure 7-2: *General Project and Management Action Categories and Areas of Implementation to Assist with Groundwater Sustainability* .) The figures show a generalized area where domestic wells have been impacted west of the City of Corning. Chapter 3, Figures 3-20 and 3-21, illustrate the need for expanded monitoring. Section 3.2.8 *Groundwater Conditions Data Gaps and Uncertainty* identified the need for "additional wells installed and/or monitored" in this area. Why hasn't the development of the groundwater monitoring grid in this region been identified as a MA?	The groundwater monitoring data netwokr expansion is identified in the Implementation Section 8 - it is a planned activity to collect additional information, separate from the development of projects and management actions.	
5		7.3.2.3.5			10/25/2021	Michael Ward, Stakeholder	The GSP states that the Tehama County well permit process will be finalized within 1-year after GSP submittal. This is a lot different than what was said during the Board of Supervisors meeting held for the consideration of the well moratorium – the draft well permit ordinance was reported to be ready within 45 days. There is no scheduled commitment to evaluate land use, water use, and well permitting policy changes. Section 7.5.1 Land Use Planning states that the GSA's will work with Glenn and Tehama Counties etc., to assist with land use. The GSA's role will primarily focus on general plan updates with a focus to land use development, water demands, water availability, and locations of sensitive habitat including GDEs. I believe the Tehama County General Plan update is due to begin in 2025. Glenn County's General Plan update is in progress now (https://glenncounty.generalplan.org/). The GSAs need to coordinate on the Land Use Element as soon as GSP adoption.	Comments noted.	
6	8-1, Bullet #8				10/24/2021	Lerose Lane, Stakeholder	Suggest: adding for changing watersheds characteristics due to fires	New land use mapping that will be incorporated into the updated model may include enough resolution to address this effect.	None
7	8-2	8.1			10/24/2021	Lerose Lane, Stakeholder	Suggest: adding an organizational chart	An organizational chart is provided in Section 2; see Figure 2-23.	None

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8	8-3, Bullet #5 and 7	8.1.2			10/24/2021	Lerose Lane, Stakeholder	Should add a minimum meeting schedule for the Advisory Board and GSA Board meeting. Perhaps, quarterly meetings would be appropriate. Suggested addition in red: The GSAs may collaborate and retain consultants and contractors to execute certain activities on behalf of the GSAs **with the approval of the Advisory Board and the County Board of Supervisors** such as collecting data from the GSP monitoring network, developing plans for data gap investigations…	Comment noted; the CSAB and GSA meeting schedules will be developed at the beginning of 2022.	
9	8-5	8.2			10/24/2021	Lerose Lane, Stakeholder	GSA administrator shall have the ability to purchase basic operational items within their allotted budget without approval from the Corning Subbasin GSA members. Suggested addition in red: Bullet #1: **The levy of fees by the GSA must be verified as being reasonable and approved by the Advisory Board, and ultimately approved by the County Board of Supervisors.**	Comments noted. Budget details will be further reviewed early during GSP implementation.	
10	8-6				10/24/2021	Lerose Lane, Stakeholder	There appears to be no limit on the amount of fees that can be assessed. Property taxes have already been raised 15% on many landowners this last fiscal year. I was informed by the County Assessors Office that there is a plan to raise property taxes again next year. It certainly seems that the property owners within the GSP limits could be unduly taxed. Are there going to be any limitations on how much these property tax fees can be raised for the GWP, and the GWA funding?	Funding discussions will continue during the early phases of GSP implementation and all comments will be considered for the decision on how to structure the funding moving forward.	
11			8-1		10/24/2021	Lerose Lane, Stakeholder	CALFED Water use Efficiency Program - Why would our GSA provide funding for the Bay - Delta water? WaterSMART USBR - Why do we want to promote water marketing from within our GSP? Would this result in our groundwater being sold outside of our counties' jurisdictions?	This table shows the types of grants that are available to GSAs and other agencies within the subbasin to apply for funding during GSP implementation, notably for the development of proejcts and management actions. Water marketing could occur among groundwater users within a subbasin, or neighboring subbasins.	
12	8-8	8.3.1.1			10/24/2021	Lerose Lane, Stakeholder	Second paragraph: Shouldn't there already be a tentative agreement with DWR Northern Region Office for the GSP implementation period?	The GSAs will work with DWR on well access agreements for the monitoring network.	
13	8-10				10/24/2021	Lerose Lane, Stakeholder	The deadline for submitting the first annual report to DWR may need to be extended. Until a report format is established, along with the required content, more time may be needed for report development. April 2, 2022, is fast approaching.	The deadline to submit the first annual report is established by legislation and cannot we changed. The GSP Regulations provide the detailed content requirements for the annual report and the GSAs will follow that report format to submit to DWR.	
14	8-16	8.6.2			10/24/2021	Lerose Lane, Stakeholder	This seems to be a duplicate effort to establish a well registration program. DWR already has a database for wells, and the well drillers are required to turn over their well logs. Most crops have a water need/requirement, and established estimates for crop type could be employed for water usage. This proposal could put an additional burden on farmers for purchasing a water meter, and for providing water usage data to the GSA.	The DWR well database is not as robust as would be useful for proper groundwater management and includes many older wells with uncertain locations. The GSAs will need more specific information to support sustainable groundwater management. Crop demand can be used for the early annual reports while the well registration program is implemented and tested.	
15	8-17		8-2		10/24/2021	Lerose Lane, Stakeholder	Is there a need for peak water flows for the models?	The groundwater model operates on a monhtly time step, and therefore, peak water flows cannot be simulated accurately in this type of model.	
16	8-18, last paragraph				10/24/2021	Lerose Lane, Stakeholder	With the current drought situation, 2-3 years for a model update may be too long.	Robust model updates take time given the lag in data availability and verification needs. Monitoring and program implementation will help with addresing drought impacts.	
17	8-19, Bullet #3				10/24/2021	Lerose Lane, Stakeholder	This bullet point is stating that our water rights will be changed as necessary. Shouldn't this be a legislative function?	This bullet does not change existing groundwater rights; it relates to new or changed surface water diversions to implement recharge projects.	Sentence revised for clarification
18	8-22 and 8-23		8-4 and 8-5		10/24/2021	Lerose Lane, Stakeholder	Legal services of $50,000 per year seems too high.	Comment noted.	
19	8-25		8-6		10/24/2021	Lerose Lane, Stakeholder	How much staffing (numbers and functions) is anticipated?	These costs are preliminary; the information will be refined during implementation as funding discussions resume.	
20	ES-1			ES-1	10/23/2021	Holly E. Reimers, Landowner	The map of the Corning Subbasin shows a lot of ground on the west side of the basin. Most of the ground in the western part of the basin and those lands west and south of Black Butte Lake has little if any groundwater. These land owners are receiving no benefit from being included in this basin and should be removed.	The Subbasin boundaries are estabsliehd by DWR; a GSP needs to be developed for the entire Subbasin and include all stakeholders within.	
21	ES-3				10/23/2021	Holly E. Reimers, Landowner	The move away from surface water to the use of groundwater in the past several years should be alarming. There has been a major change away from annual crops to perennial crops. With the increase of planting of perennial crops, i.e., trees, the overdraft of the groundwater is happening now. The use of surface water should be addressed and encouraged.	Comment noted. This is addressed in Section 7.3.2.4.	
22	2-41	2.7.4			10/23/2021	Holly E. Reimers, Landowner	The use of pressurized water sources to be able to use the surface water provided from the OUWUA in place of groundwater should be encouraged. The OUWUA system is in place to also move high water during the winter months to areas that can help in the recharge of the groundwater.	Comment noted. This is addressed in Section 7.4.3.1.	
23	8.2				10/23/2021	Holly E. Reimers, Landowner	What does not seem to be addressed is a "fee" / "tax" on those lands within the basin. This would add to the cost with no additional benefit to the landowner. It is noted that the west side of the basin is marginal ground used primarily for the grazing of livestock. To increase the amounts that we are already paying per acre would force some to look for other means to try and hold on to their ranches. As in selling their groundwater which would not benefit the groundwater situation in the Corning Subbasin.	Comment noted. Funding discussions are ongoing and will be reviewed during GSP implementation.	
24		General			10/23/2021	Holly E. Reimers, Landowner	It has come to mine and other attention that there are groups that have been formed to "farm groundwater." **Exporting groundwater outside of the basin should not be allowed,** especially when it is leaving the Northern California area. This is **NOT SUPPORTABLE**!	Comment noted.	

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25		General			10/23/2021	Holly E. Reimers, Landowner	Reading through the Corning Subbasin GSP is somewhat of a monumental task. Reading through sections 3, 4, and 5 one should at least have a graduate degree in Engineering, Hydrology, and Geology just for starters. So much of this is way over the comprehension level of the normal landowner in Northern California. My overall feeling is that what you are doing is too little, too late, as domestic wells are going dry and landowners/homeowners are having to drill deeper just to find enough water to flush their toilets. It seems that the only way to correct this path that none of us want to go down, meters on wells and being told what **we can or cannot do with the ground we own.**	Comment noted.	
26	ES-2	Background		ES-2	09/22/2021	Tamara Williams, Stakeholder	If keeping this figure, substitute the word "Plan" for "Design" in this figure. The GSP isn't really a design.	It's meant to convey "designing elements of the Plan"	
27	ES-2	Background		ES-2	09/22/2021	Tamara Williams, Stakeholder	Consider deleting this figure or replacing it with one that relates to the process described in the GSP. It doesn't provide clarity, and gives the visual impression that the GSP is going down the drain.	Comment noted. This figure represents the general GSP planning process, while ES-3 is more specific to this GSP.	
28	ES-1	Background			09/22/2021	Tamara Williams, Stakeholder	The GSP process will be ongoing. Add a statement that the iterative process will continue into the future.	Comment noted.	Statement added.
29	ES-3	Background		ES-3	09/22/2021	Tamara Williams, Stakeholder	The terminology in ES-3 should be consistent with that of Figure ES-2 and the description of the development process in the text.	Comment noted. It is sometimes helpful to describe things slightly differently to help convey and reiterate the message.	no change
30	ES-3	Background			09/22/2021	Tamara Williams, Stakeholder	1st para, 1st sentence. The water supply isn't quantified; the use is. Since use may exceed supply in this subbasin, suggest changing "Water use in the Subbasin is largely for agricultural irrigation, which uses over 90% of the Subbasin's water supply" to read "Agricultural irrigation accounts or more than 90% of the water used in the subbasin."	Comment noted	Sentence was revised as suggested.
31	ES 3-4	Background			09/22/2021	Tamara Williams, Stakeholder	"Achieving groundwater sustainability" may require more than conjunctive use. It isn't clear that there will be sufficient surface water available to this subbasin to offset the potential groundwater overdraft. The Executive Summary should mention other possible management actions that will be considered.	Comment noted; this is described on pages ES-27 to 27.	
32	Global				09/22/2021	Tamara Williams, Stakeholder	Search and replace "sub-basin" with "subbasin"	The term "Sub-basin" refers to the name of the GSA in Glenn County: Corning Sub-basin GSA.	
33	ES-5	ES-1			09/22/2021	Tamara Williams, Stakeholder	Last sentence needs clarification. Maybe "The Advisory Board made recommendations to the GSAs for the key plan elements; the decision making authority resided with the governing bodies of the GSAs."	Comment noted	Sentence was revised as suggested.
34	ES-6	ES-2			09/22/2021	Tamara Williams, Stakeholder	1st para, 2nd sentence. Change "comprises" to "includes." Refer to Figure ES-1 here.	Comment noted	Sentence was revised as suggested.
35	ES-6	ES-2			09/22/2021	Tamara Williams, Stakeholder	2nd para. 2nd sentence. Change to read, "There are 5 Sacramento Valley subbasins adjacent to the Corning Subbasin for which…"	Comment noted. Sentence is fine as-is.	
36	ES-6	ES-2			09/22/2021	Tamara Williams, Stakeholder	4th para. Make sure the numbers in this paragraph add up, and are consistent with the data in Section 1. 195,000 AF is 93% (closer to 95% than 90%) of 210,000 AF. It looks like the "5,000 AF" for public and other uses should be "15,000 AF."	Comment noted	The values were verified and corrected as needed.
37	ES-7	ES-2			09/22/2021	Tamara Williams, Stakeholder	1st line. Black Butte Reservoir is operated by USACE. USBR operates the reservoirs upstream of Black Butte (East Park and Stony Gorge).	USACE operates the Dam fo flood control, while USBR operates it for water supply for irrigation.	
38	ES-7	ES-2		ES-4	09/22/2021	Tamara Williams, Stakeholder	2nd full sentence and Figure ES-4 title. Change "providers" to "districts."	OUWUA is not a District, therefore "providers" is more accurate.	
39	ES-7	ES-2			09/22/2021	Tamara Williams, Stakeholder	1st full para. My understanding is that some small farmers west of I-5 had their surface water cut off completely during 2021, and stopped irrigating their orchards and crops. Because of the low groundwater levels in this area, and the number of domestic wells that weren't deep enough to tolerate increased groundwater pumping this season, neighbors opted to cease irrigation.	Comment noted.	
40	ES-8	ES-2			09/22/2021	Tamara Williams, Stakeholder	1st full sentence. CASGEM not CSAGEM.	Comment noted	Change was made.
41	ES-8	ES-2			09/22/2021	Tamara Williams, Stakeholder	Last paragraph. This paragraph gives the impression that the stakeholders involved in the GSP represented the range of groundwater users with concerns about sustainability. My observation is that only a few members of the public that aren't large land owners were involved. First sentence - Delete the word "robust." Last sentence - Delete the word "extensive." Effective public outreach results in public participation. In my opinion, the outreach program didn't effectively involve the public.	Comment noted. The planning effort was robust.	"extensive" was deleted from the sentence.
42	ES-9	ES-3			09/22/2021	Tamara Williams, Stakeholder	2nd paragraph. Please have a Geologist review/revise this paragraph.	Comment noted.	
43	ES-10	ES-3			09/22/2021	Tamara Williams, Stakeholder	3rd full paragraph. 2nd sentence. Please clarify. Don't USBR and USACE both manage for flood control and irrigation? I think it should be "The Sacramento River and Stony Creed are dammed and managed by USBR and USACE for flood control and irrigation supply."	The sentence is correct as-is.	
44	ES-10	ES-3			09/22/2021	Tamara Williams, Stakeholder	4th full paragraph states: "The Sacramento River and the other creeks, to a lesser extent, provides a significant source of groundwater recharge to the alluvial aquifer. Surface water flow and recharge of groundwater aquifers is greatest in the winter and spring when precipitation is highest; flow in the river and creeks in the summer and fall dry season is generally supported by baseflow from groundwater and very little groundwater recharge occurs." Doesn't Sacramento River provide groundwater recharge in the dry season? See 3.2.7.1 and Figure 3-53.	yes, this paragraph doesn't contradict this.	
45	ES-11	ES-3			09/22/2021	Tamara Williams, Stakeholder	1st bullet. "Cotemperaneous" should be "contemporaneous"	Comment noted	Change was made.
46	ES-11	ES-3			09/22/2021	Tamara Williams, Stakeholder	2nd bullet. Definition of the aquifer properties is limited throughout the Corning Subbasin. No need to call out the Tehama and Tuscan here.	Comment noted.	
47	ES-12	ES-3			09/22/2021	Tamara Williams, Stakeholder	Last paragraph. Second sentence. There wasn't a "positive" change in storage; that would be reflected by rising water levels over time. In fact, water levels away from the Sacramento River generally had a gradual overall decline through the 20th century. Maybe say "with minor change in storage over time."	Comment noted. Do not agree with interpretation.	
48	ES-14	ES-3			09/22/2021	Tamara Williams, Stakeholder	Interconnected Surface Water. First paragraph. Last sentence. Include seasonal observations of streambed conditions, including the presence or absence of water in the streams in areas of concern. The magnitude of streambed erosion and aggradation (local changes in streambed elevation), compared with static as well as pumping groundwater level elevation fluctuations will be important to understand, monitor, and address impacts on interconnected surface water.	Comment noted.	
49	ES-15	ES-3			09/22/2021	Tamara Williams, Stakeholder	Groundwater Dependent Ecosystems. For context, suggest referencing DWR's California Groundwater Update 2020 - Highlights, which states that "groundwater dependent ecosystems and interconnected surface water are management topics in need of greater attention, engagement, and data collection across the state."	Comment noted. That is why this is in the GSP regulations, and this GSP follows these regulations.	

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50	ES-15	ES-3			09/22/2021	Tamara Williams, Stakeholder	Groundwater Dependent Ecosystems. Low groundwater level conditions over the past few decades likely reduced the extent of groundwater dependent ecosystems. The GSAs and the GSP should provide for the eventual recovery of those ecosystems where they would be expected when water levels recover and stabilize.	Comment noted.	
51	ES-15 AND Section XX	ES-3			09/22/2021	Tamara Williams, Stakeholder	Communication and Outreach. This effort must improve going forward. While the Corning Subbasin website is useful for those of us who are comfortable with our computers, many stakeholders simply do not get their information that way. It will be imperati	Comment noted.	
52	ES-15	ES-3			09/22/2021	Tamara Williams, Stakeholder	Last 2 paragraphs - It's not clear how these statements regarding Data Gaps pertain to Seawater Intrusion. Should there be a separate Data Gaps heading?	Comment noted.	A subheader for Data Gaps was added.
53	ES-17	ES-4			09/22/2021	Tamara Williams, Stakeholder	1st bullet - How can there be a gain in groundwater storage when groundwater levels have been declining over the historical period?	See previous responses and responses to Section 4 comments.	
54	ES 16 - 19	ES-4			09/22/2021	Tamara Williams, Stakeholder	SECTION ES-4 -- This discussion is much too difficult to follow for an Executive Summary. Reiterate the relationship between water level elevations and groundwater storage. Part of the confusion here is that groundwater storage is not a function of time; it's an instantaneous metric. If recharge to the basin keeps up with production, there should be no change in storage. If recharge is induced by pumping near the river, for example, there can be an increase in groundwater production with no change in storage. But if water levels are declining in a portion of the subbasin, there is, by definition, a decrease in groundwater storage in that portion of the subbasin.	Comment noted.	
55	ES-19	ES-4		ES-7	09/22/2021	Tamara Williams, Stakeholder	The 2070 Simulation Pie Chart shows "Net Groundwater Discharge to Streams" as being an inflow. Please correct this. Either it's recharge from streams/rivers, or it belongs on the outflow side of the pie chart.	The net discharge to streams is shown on the inflow side for the 2070 simulation, because the streams are losing water to groundwater in this projected scenario, on average. The terminology stays consistent between the charts, showing a "net" value; if it is a positive value from the perspective of groundwater, it is shown on the inflow side; if it is a negative value, it is shown on the outflow side (like in the other 3 charts, where the water budget shows a net GW discharge to the streams, while in the 2070 simulation, there is a net gain by the gorundwater).	
56	ES-20	ES-5			09/22/2021	Tamara Williams, Stakeholder	1st paragraph, last sentence. Suggest modifying to read, "… to **manage for and** demonstrate sustainability…."	Comment noted.	Sentence was revised as suggested.
57	ES-23	ES-6	ES-1		09/22/2021	Tamara Williams, Stakeholder	Chronic Lowering of Groundwater Levels, Reduction of Groundwater Storage, and Depletion of Interconnected Surface Water in areas of declining wells - The SMC (specifically the Minimum Thresholds, Measurable Objectives, and Undesirable Results) for Declining Wells are not protective of the shallower groundwater resources, well owners/users whose wells are not deep, and groundwater dependent ecosystems in the areas of declining wells. In areas of declining water levels, the 2015 water levels likely represented overdraft conditions, and should be revisited during the implementation of the GSP for their appropriate use as a Measurable Objectives for these Sustainability Indicators.	Comment noted.	
58	ES-24	ES-7			09/22/2021	Tamara Williams, Stakeholder	Second bullet -- Include non-agricultural water uses. Best practices should be developed and implemented for any significant commercial, industrial, recreational, or other future water use in the subbasin.	Comment noted. Initial focus is on the largest pumping use in the subbasin.	
59	ES-25	ES-7	ES-2		09/22/2021	Tamara Williams, Stakeholder	Well Management Program - Purpose -- Include better understanding of groundwater use in this Management Action. ("Better understand well **and groundwater use** distribution in the Subbasin…")	Comment noted.	
60	ES-27	ES-8			09/22/2021	Tamara Williams, Stakeholder	4th bullet -- Include informing the public as part of the purpose of the annual and 5-year reports. ("…to inform DWR **and the public** on the status…")	Comment noted.	Sentence was revised as suggested.
61	1-10	1			10/01/2021	Tamara Williams, Stakeholder	1st paragraph. The statement "The water budget was based on the best available information and an integrated hydrologic modeling tool," seems misleading. The model doesn't accurately represent the observed reduction in storage, as evidenced by declining water levels in the subbasin. The inconsistency between the modeling results and observed conditions should be discussed.	The model does show a decline in storage between 2012 and 2015 (Fig. 4-9).	
62	2-63 and 2-78	2.16			10/25/2021	Tamara Williams, Stakeholder	Notice and Communication. As a stakeholder and interested party who participated in the GSP process, I'd like to share my perspective and observations. (Part 1) **About me:** I came to the process as a native of the Corning Subbasin (Corning Union High School class of 1971) with a keen interest and professional background in groundwater. Both my parents were born in Corning. My father, Glen Williams, was a licensed water well drilling contractor in Tehama County from the 1940s until the 1990s. He learned the trade from his father-in-law, Orenzo L. Wilder (born near Paskenta in 1882), and Orenzo's brother-in-law, Henry Grieve, who began drilling water wells in the area in the 1920s. Fascinated by the subsurface, I received a Bachelors Degree in Geology from UC Davis in 1975, and began working in geology and groundwater consulting in 1977. I became a California Registered Professional Geologist in 1985, and Certified Engineering Geologist in 1989. Much of my career involved groundwater resource development, protection, and remediation. Since 2015, I've been retired. My mother, Katherine "Faye" Wilder Williams still lives in Tehama County. Our family owns and continues to manage the property Mom was born on in Corning (just west of I-5), which includes about 10 acres of Sevillano olives. We have a 450' deep irrigation/domestic well.	Information noted.	

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63	2-63 - 2-78	2.16			10/25/2021	Tamara Williams, Stakeholder	Notice and Communication. As a stakeholder and interested party who participated in the GSP process, I'd like to share my perspective and observations. (Part 2) **My participation in the Corning Subbasin GSP.** From the first meeting of the Corning Subbasin Advisory Board (CSAB) that I attended (virtually, due to the Covid-19 pandemic restrictions) in 2020, I have been concerned about the limited involvement of other domestic well owners and small farmers. The opportunities for public comment during CSAB and Tehama County Groundwater Commission meetings have involved minimal feedback, response, or follow-up from board and commission members. The GSA staff and consultants have been helpful and encouraging. My understanding is that the limited participation by domestic well owners and small farmers in the GSP process is common in rural subbasins such as Corning. I have made suggestions for improving outreach, and have expressed my concerns regarding the lack of consideration and protection for domestic well owners and groundwater dependent ecosystems during the GSP development process. Most of them are reiterated in these comments on the Public Review Draft. I hope some of them will be considered and incorporated in the GSP implementation phase. I have tried to channel my father and grandfather's stewardship perspective on the incredible, but fragile groundwater resources of this area.	Comment noted.	
64	2-65	2.16.2			10/23/2021	Tamara Williams, Stakeholder	The importance of protecting the shallow groundwater in the western half of the Corning Subbasin is heightened by the fact that the groundwater users comprise a Disadvantaged or Highly Disadvantaged Community. Having wells go dry here is not acceptable from a social justice perspective if there are measures that could be taken to reduce/reverse drops in water levels. Identifying the DACs is an important first step.	Comment noted.	
65	2-65	2.16.2			10/25/2021	Tamara Williams, Stakeholder	Implementation of the GSP, including adaptive management, will require direct representation of the interests of all basin users. This should be included as a Data Gap, and a Management Action should be added to ensure the GSP implementation considers and protects the interests of all beneficial users.	Comment noted.	
66	2-65	2.16.3			10/23/2021	Tamara Williams, Stakeholder	Section 2.16.3 states that, "The C&E Plan will be updated prior to finalization of this GSP to reflect changes and adaptations to the process and will constitute a living document for further updates during GSP implementation." The C&E Plan included in this Public Review Draft of the GSP (Appendix 2A) only covers the period of GSP development (2019-2022). Public review of the Final C&E Plan needs to be accompanied by increased outreach and involvement, particularly among the Disadvantaged and Highly Disadvantaged Communities (Figure 2-22) that make up the west side of the subbasin. Without that, the GSP process will continue to be an elitist effort, controlled by large groundwater user interests. I recommend that the GSAs assign a local community liaison who is responsible for ongoing face-to-face outreach, participant coordination, and representation for the domestic well and small farm owners.	Comment noted.	
67	2-69	2.16.3.2	2-11		10/23/2021	Tamara Williams, Stakeholder	Themes 3 and 4. The way that these apparently conflicting themes were addressed allows for shallow wells to go dry, while maintaining "operational flexibility" for deeper, high production wells. This results in an apparent bias in that favors the large groundwater producers.	Comment noted.	
68	2-75	2.16.3.4			10/23/2021	Tamara Williams, Stakeholder	Public contact was primarily electronic. This skewed the profile of members of the public who have been involved in the Corning Subbasin GSP. Many people in the more rural areas of the subbasin don't have good internet access and aren't skilled in electronic communication.	Comment noted. Additional otureach and different methods will be explored during GSP implementation, post-COVID-19 pandemic challenges.	
69	2-78 and 4-2	2.16.4; App 2F; 4.1.1			10/23/2021	Tamara Williams, Stakeholder	Clarification of Comment and Response during Comments on Section 4. Comment #8 and GSP Development Team Response. Meeting minimum thresholds, which are based on static water levels, will not prevent localized upwelling of saline groundwater which could happen during pumping, but wouldn't be evident in the static water level data.	Comment noted.	
70	3-1	3.1.2			10/18/2021	Tamara Williams, Stakeholder	North lateral boundary description should read: "North – Thomes Creek from around Flournoy in the **west** to its junction with the Sacramento River in the **east**.	Comment noted and agreed, this was an error.	The sentence was fixed.
71	3-21	3.1.6.1.4			10/18/2021	Tamara Williams, Stakeholder	Black Butte Fault description should read, "... cutting through the **western** half of the Subbasin..."	Comment noted and agreed, this was an error.	The sentence was fixed.
72	3-52	3.2.2.2			10/18/2021	Tamara Williams, Stakeholder	The description of the trends in water level elevations are accurate, showing an overall decline from 2000-2018. While the increase in groundwater reliance is due, in part, to the shift from surface water to groundwater for irrigation, the increase in irrigation due to planting of new crops and associated installation of new ag wells also contributed to the increased groundwater extraction, and should me mentioned here.	Comment noted.	This information was added as suggested.
73	3-57	3.2.2.3			10/18/2021	Tamara Williams, Stakeholder	The final sentence of the West area description reads, "Expansion of orchards and other irrigated crops will continue to increase demand for groundwater and result in a decrease in groundwater levels in this area." This is an acknowledgement of the unsustainability of the land development trend here.	Comment noted.	The sentence was revised to add reference to Section 7.
74	3-60	3.2.2.4			10/24/2021	Tamara Williams, Stakeholder	1st paragraph. Last sentence states: "Wells located closer to the Sacramento River may benefit from a greater degree of applied surface water, direct recharge from the river, and direction of groundwater flow from east to west toward the Sacramento river." Suggest deleting the last statement; groundwater flow toward the river would be from west to east. Localized flow directions likely depend on groundwater pumping and river level conditions. Consider stating that wells closer to the Sacramento River benefit from less groundwater pumping due to the availability of surface water for irrigation (if that's correct), and generally good hydraulic connection with the Sacramento River which has artificially sustained flow through the dry season. The fact that shallow wells (<100' deep) near the river have been going dry suggests that groundwater recharge from the river isn't keeping up with pumping stresses near the river and upgradient during dry periods.	Comment noted.	Suggested revisions were incorporated.
75	3-69	3.2.2.7	3.6	3.29	10/18/2021	Tamara Williams, Stakeholder	p. 3-69. 2nd sentence. The collapsing of the vertical gradients exhibited at this well cluster is worth exploring further during the implementation of the GSP. It could be due to increased vertical conductivity caused by installation of wells in the area, or simply the overstressing of the deeper zones with pumping exceeding recharge.	Comment noted.	
76	3-73 and 3-74	3.2.3			10/18/2021	Tamara Williams, Stakeholder	If the model is accurate, the simulated storage picture described here (with an average annual increase in storage of 6,900 AF) should be reflected in increased water levels over time, which we haven't seen subbasin-wide. It would appropriate to mention this in the text, with a brief discussion of how the model input might be adjusted in the future to better simulate the changes in storage evidenced by the hydrographs of observed water levels.	The average annual increase in storage of 6,900 AF is for the entire simulation period from 1974 to 2015. This is due to the fact that, in the 80s and 90s, after droughts, the basin could be recharged, as groundwater demand was lesser. When looking at more recent periods, such as 2000 to 2015, average annual change in storage shows a net loss. This is describe clearly in the rest of the paragraph.	
77	3-95	3.2.6.3			10/18/2021	Tamara Williams, Stakeholder	The statement " the lower zone is generally no deeper than 250-300 feet bgs within the Subbasin," is confusing. Should it read, "the upper zone is generally no deeper than 250-300 feet bgs with the Subbasin"?	Comment noted and agreed, this was an error.	The sentence was fixed.

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78	3-109	3.2.7.1			10/18/2021	Tamara Williams, Stakeholder	Thomes Creek. To the extent Thomes Creek becomes disconnected and goes dry due to pumping, shouldn't the GSPs for the Corning and Red Bluff Subbasins be addressing this depletion of surface water and the effects on riparian users and ecosystems?	It is likely that Thomes Creek is mostly disconnected and therefore pumping would not have an effect on streamflow depletion. Also, the creek goes dry seasonally, as evidenced by the gauge where the creek enters the basin.	
79	3-124	3.2.8			10/18/2021	Tamara Williams, Stakeholder	Groundwater Conditions Data Gaps and Uncertainty. Given the discrepancy between simulated storage and hydrographs of observed water levels, this should be identified here, and actions should be proposed in Section 7 to better quantify changes in storage.	Comment noted, see response to comment 76.	
80	4-2	4.1.1			10/25/2021	Tamara Williams, Stakeholder	Bottom of model is no-flow boundary representing base of freshwater. Make sure that there is a methodology for ensuring that upward migration of high-TDS water doesn't happen due to upward vertical gradients created during pumping. Clarification of Comment and Response during Comments on Section 4. Comment #8 and GSP Development Team Response. Meeting minimum thresholds, which are based on static water levels, will not prevent localized upwelling of saline groundwater which could happen during pumping, but wouldn't be evident in the static water level data.	Comment noted.	
81	4-16	4.1.4			10/19/2021	Tamara Williams, Stakeholder	The first bullet is misleading. It begins, "As viewed over the entire historical period, the Corning Subbasin has not been subject to overdraft, as the change of groundwater in storage is positive, with groundwater inflows exceeding groundwater outflows". Suggested revision: "As simulated over the entire historical period, it would appear that the Corning Subbasin has not been in overdraft, with simulated inflows exceeding simulated outflows; however..."	Comment noted.	Suggested revisions were incorporated.
82	4-16	4.1.4			10/19/2021	Tamara Williams, Stakeholder	3rd bullet. Last sentence. This key water budget take-away point highlights the critical need to coordinate analysis and management across subbasin boundaries during GSP implementation. Inter-subbasin coordination, particularly between the Red Bluff and Corning Subbasins, should be incorporated into the immediate actions to be taken.	Comment noted. Inter-basin coordination and comparison of modeling results started during GSP development and will continue during implementation to revise/update the models.	
83	4-16	4.1.4			10/19/2021	Tamara Williams, Stakeholder	4th bullet. States "Cumulative and annual change in storage is slightly declining in the current water budget simulation compared to the historical water budget; therefore, if water management strategies remain the same as they are now, the Subbasin will continue to experience groundwater level and storage declines and an overall worsening of conditions compared to historical conditions." This is a critical point. Make sure it is clearly addressed in actions to be taken.	Comment noted.	
84	4-16	4.1.4			10/19/2021	Tamara Williams, Stakeholder	5th bullet. Last 2 sentences are misleading. Suggest modifying to read: "The **simulated** historical average annual change of groundwater in storage is 6,900 AF, which **would indicate a** subbasin generally in balance over the historical time period. The **calculated** cumulative gain in groundwater storage of 290,300 AF over the historical simulation period **is not consistent with the observed declining trends in water levels, indicating that the model needs calibration during the GSP implementation phase."**	Comment noted. The model was calibrated by DWR and includes local refinements that improved calibration within the Subbasin. The observed declining trends mentioned are for groundwater levels AFTER 2015, which is the end of the simulation period. Future model updates will incorporate a more recent timeframe and will be calibrated to more recent groundwater level observations.	
85	4-17	4.1.4			10/19/2021	Tamara Williams, Stakeholder	1st full bullet on p. 4-17. Unless it's required by SGMA guidance, suggest not calculating comparisons based on the simulation of historic conditions which do not appear to be consistent with observed overall decrease in storage.	Comment noted.	
86	4-17	4.1.4			10/19/2021	Tamara Williams, Stakeholder	4th bullet. 2nd sub-bullet: Suggest adding statement that management actions and/or projects may be needed.	Comment noted. The GSP is meant to be implemented for future projected conditions, that is why this statement is not included for Current conditions.	
87	4-17	4.1.4			10/19/2021	Tamara Williams, Stakeholder	4th bullet. 3rd sub-bullet: Management actions and projects will definitely be needed under these conditions. The GSP should be clear about this.	Comment noted. Section 7 discusses these projects and management actions.	
88	4-18	4.1.4			10/19/2021	Tamara Williams, Stakeholder	In the spirit of SGMA, suggested revision: Simulated projected water budgets, **incorporating changes in conditions as well as projects and management actions undertaken,** along with sustainability indicator monitoring and SMC evaluation, will provide "proof" of continued sustainability during GSP implementation."	Comment noted.	Suggested revisions were incorporated.
89	4-19	4.1.4		Fig 4-6	10/19/2021	Tamara Williams, Stakeholder	**General notes on groundwater budget simulations.** 1. The increase in storage shown on the pie charts for simulated historic and current conditions doesn't pass the straight-face test. 2. Confirm that the text is clear that the simulation input for net subsurface inflow (or outflow) will need to be consistent with the adjacent subbasin simulations and reporting.	Comments noted.	Information was added on the inter-basin coordination activities around model comparisons and revisions.
90	4-69	4.4.2			10/19/2021	Tamara Williams, Stakeholder	The following important statement seems hidden here: "Trends in land and surface water use not incorporated in these simulations, such as increases in total irrigated acreage or conversion from non-irrigated lands to orchards, may further exacerbate any changes associated with climate change and result in a less sustainable groundwater budget." A statement such as the following needs to be included somewhere (if it's not already clear in Sections 7 and 8): "Any increases in irrigated acreage or orchards will need to be offset by conservation or other management actions to maintain groundwater sustainability."	Comment noted. GSAs and County land use planning departments will coordinate during GSP implementation, as mentioned in Sections 7 and 8.	
91	5-14 and 5-17	5.2.6		5-4 and 5-5	10/20/2021	Tamara Williams, Stakeholder	p. 5-14. 3rd full paragraph. Please check text vs. figures. The data gap noted "along the Sacramento River to the southeast of Corning" is not shown on either of the referenced figures.	Comment noted.	The sentence was revised.
92	5-27	5.4.1.6		5-8	10/20/021	Tamara Williams, Stakeholder	Consider including additional wells in the monitoring network to identify potential salinity increases due to upward migration of poor quality water from the deep zones that are below the base of fresh water. There's a data gap for the TDS SMC on the west side of the basin, where such degradation could occur due to deep wells locally reducing the head and inducing upward flow from the deeper non-potable units. Alternatively, a small separate project could be implemented to gather and evaluate data in that area, with the possibility of expanding the monitoring network or taking other management action.	Comment noted. Currently, groundwater pumping in the western portion of the Subbasin is limited. The first data gap to fill is groundwater levels. An initial analysis of salinity in wells was conducted during the GSP development and is described in Section 3. Additional dataga gaps will be reviewed during GSP implementation.	
93	5-31	5.4.3			10/20/021	Tamara Williams, Stakeholder	1st paragraph, 3rd sentence states: "There are currently no prominent spatial data gaps in the groundwater quality monitoring network." See comment on 5.4.1.6 regarding the data gap on the west side of the basin.	Comment noted. Groundwater quality is monitored by other agencies.	
94	5-42	5.7.1			10/20/021	Tamara Williams, Stakeholder	p. 5-42. Bulleted list of monitoring well attributes. In addition to screened intervals, please confirm that the DMS includes the gravel packed interval(s) for each well. Many deep wells in this subbasin are gravel packed over a much larger interval than the screens, which can lead to errors in data interpretation.	Comment noted. The DMS currently includes what is available from DWR and county DMS. Some wells have this information but not all.	

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95	4 of 60	App. 6A		6A-2	10/20/021	Tamara Williams, Stakeholder	Excluding domestic wells greater than 30 years old for this analysis is not protective of domestic well owners, who comprise the outlying rural communities of Tehama County. Many shallow wells much older than 30 years are still in use; the owners have no intention of replacing them simply based on their age. It isn't valid to assume that those well owners should bear the inconvenience and financial burden of replacing or deepening their older shallow functional wells in order to allow uninhibited pumping of deeper (primarily large agricultural) wells that contribute to the lowering of groundwater levels in the aquifer system.	Comment noted. The exact location, date, and depth of domestic wells is uncertain for many older wells in the Subbasin, not allowing for a representative analysis when incorporating these older wells. However, duirng GSP implementation the domestic well database will be improved and during the next SMC re-evaluation, older wells as far back as 1970 (timeframe for rapid increase in domestic well construction in the Subbasin) onward could be included in the revised domestic well impacts analysis.	
96	6 of 60	App. 6A			10/20/021	Tamara Williams, Stakeholder	While it's not the measurable objective put forward in the current Draft GSP, it's worth noting that the text states: "The measurable objective was refined to be the maximum spring water level in 2012; this value provided more operational flexibility than the initial proposed 2012 minimum values." The concept of operational flexibility (setting objectives that are less protective of shallow wells) appears to be for the benefit of large pumpers and the GSA, since the GSA would be required under SGMA to take action if the measurable objective is not being met. It provides insight into the priorities of the CSAB at that meeting.	Comment noted.	
97	6-7	6.5	6-1		10/20/021	Tamara Williams, Stakeholder	Chronic Lowering of Groundwater Levels - Minimum Thresholds. The purpose of the 20-ft buffer for Stable Wells, and the 20%-of-minimum-groundwater-depth buffer is unclear. These buffers don't seem protective of shallow wells prior to the 2042 goal for meeting measurable objectives.	Comment noted. SMC will be re-evaluated for the 5-yr GSP assessment, with newer groundwater level information as monitored with the RMP network.	
98	6-7	6.5	6-1		10/20/021	Tamara Williams, Stakeholder	**Section 6.6 text--** Chronic Lowering of Groundwater Levels - Undesirable Result. "20% of groundwater elevations measured at RMP wells drop below the associated minimum threshold during 2 consecutive years. If the water year type is dry or critically dry then levels below the MT are not undesirable if groundwater management allows for recovery in average or wetter years." *What does this mean? How many RMP wells are there (20% of RMP wells = ?? wells) Do WLs need to stay below the MT throughout two years, or just drop below for one measurement during each year? When is the water year type announced, and how might that effect the users? How will it be determined that the WLs can recover? What if we don't have an average or wetter year for a long time?* The GSAs shouldn't allow the Corning Subbasin to fall below the MTs, even if DWR doesn't consider it an Undesirable Condition. Making the commitment to sustainability in the face of extreme conditions will provide more assurance that the GSAs remain in control of the Subbasin management. Given the potential dire consequences of not taking action during an extended dry or critically dry period, the GSP should provide a proactive approach to protecting users from low water level conditions during and after "unexpected" dry times. It would be prudent for the GSP to include increased vigilance and protective actions, despite the allowances made in SGMA for the GSAs not being held accountable during those times.	Comment noted. The requested information is provided in Section 6.6. Some of the questions asked will be resolved during GSP implementation.	
99	6-7	6.5	6-1		10/20/021	Tamara Williams, Stakeholder	**Section 6.8 text -- Degraded Groundwater Quality - Undesirable Result.** "At least 25% of representative monitoring sites exceed the minimum threshold for water quality for two (2) consecutive years at each well where it can be established that GSP implementation is the cause of the exceedance." *What does this mean? 25% of monitoring sites exceed the MT for 2 consecutive years at each well? How many monitoring sites? (25% of monitoring sites = ?? wells) What does "at each well" mean? This doesn't seem to protect against a localized problem caused by overpumping.* Suggest replacing "At least 25% of representative monitoring sites exceed" with *"Any monitoring site exceeds."*	Comment noted. The requested information is provided in Section 6.8. Some of the questions asked will be resolved during GSP implementation.	
100	6-7	6.5	6-1		10/20/021	Tamara Williams, Stakeholder	**Section 6.10 text.** Depletion of Interconnected Surface Water - The SMCs don't address the potential for impacts to GDEs supported by perched groundwater away from streams. *Include in data gaps and conduct field survey of green areas shown on potential GDE map that are away from the Sacramento River and main creeks. Using the buffered MTs proposed for Chronic Lowering of Groundwater Levels may not be protective of GDEs. I don't think we have sufficient inventory and understanding of the hydrologic requirements of the species in these GDEs. Suggest field surveys of all mapped potential GDEs?*	Shallow perched water in lenses underground can also be the result of lateral movement of surface water away from the stream and does not always represent groundwater. Section 8.4 identifies activities to remedy the GDE data gaps.	
101	6-10	6.6.2.1			10/20/021	Tamara Williams, Stakeholder	Last paragraph. 2nd sentence. The GSP seems to avoid attributing water level declines to increased pumping for new orchards. Suggest replacing "increased reliance on new wells which lead to increased groundwater pumping" with "increased reliance on groundwater for crops previously irrigated with surface water, and pumping of new wells for new orchards."	Comment noted.	Sentence was revised.
102	6-11 and 6-12			6-1 and 6-2	10/20/021	Tamara Williams, Stakeholder	The areas of "Decline" and Slight Decline" in both Shallow and Deep RMP Wells are very similar to the areas delineated as Disadvantaged and Highly Disadvantaged Communities (Figure 2-22). As stated in Section 2.16.2, "Identification of DACs helps ensure the GSP adequately protects all beneficial users."	Comment noted.	
103	6-13	6.6.2.1			10/20/021	Tamara Williams, Stakeholder	Projected model simulation results. If the simulations indicate that water levels will drop 10-20 feet over the planning period if water use remains the same, shouldn't the GSP be designed to keep the subbasin in balance instead of allowing mining of groundwater to a "new low level" in the face of changing climate conditions? Establishing "buffers below historical groundwater levels to account for projected climate change impacts" is not a sustainable approach to groundwater management.	Comment noted. Sustainability is defined locally and needs time to be implemented. Management is to Measurable Objectives, not to Minimum Thresholds.	
104	6-13	6.6.2.1			10/20/021	Tamara Williams, Stakeholder	Revised minimum thresholds. I strongly oppose the use of "buffers" below historic low water levels to establish MTs. While this approach might seem easier and more flexible (i.e., less conflict with large pumpers) to gain buy-in and implement in the near term, it has the potential to delay the tough decisions (e.g., pumping restrictions) to a point where the basin can't get avoid being in long-term overdraft.	Comment noted. The goal is to stabilize gorundwater levels over the long-term. Management is to Measurable Objectives, not to Minimum Thresholds.	
105	6-20	6.6.2.2			10/20/021	Tamara Williams, Stakeholder	2nd paragraph, 2nd bullet states, "Filter out wells drilled earlier than 1991 (or 30 years old, which is a typical and anticipated lifespan for domestic wells in the area)." SEE COMMENT on APPENDIX 6A, p. 6 of 40.	Comment noted, see earlier response.	
106	6-20	6.6.2.2			10/20/021	Tamara Williams, Stakeholder	Last sentence. Keeping 25 feet of water above the bottom of a domestic well really isn't conservative, or protective of the well owner; it's practical. Consider deleting this statement.	Comment noted.	
107	6-21	6.6.2.2			10/20/021	Tamara Williams, Stakeholder	First sentence. For clarity, revise to read, "...approximately 16% of domestic wells ***installed since 1991*** are at risk of getting impacted."	Comment noted.	Sentence was revised.
108	6-21	6.6.2.2			10/20/021	Tamara Williams, Stakeholder	Last sentence. Suggest modifying this sentence to read: "As a comparison, fall 2015 groundwater elevation intersected with domestic wells depths showed approximately 4% of those domestic wells potentially dry (Figure 6-7)."	Comment noted.	Sentence was revised.
109	6-22 through 6-24	6.6.2.2		6-5, 6-6, and 6-7	10/20/021	Tamara Williams, Stakeholder	It's odd that the well locations don't seem to plot the same on all three of these figures. And some wells are shown on one figure and not the others. Maybe add a brief note explaining why.	Comment noted.	Figures are revised for consistency.
110	6-25	6.2.2.2			10/20/021	Tamara Williams, Stakeholder	Top of page. I disagree with the statement, "...it is impractical to manage a groundwater basin in a manner that fully protects the shallowest wells." The shallowest wells have already gone dry in the absence of aggressive basin and land-use management.	Comment noted.	

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111	6-25	6.2.2.2			10/20/021	Tamara Williams, Stakeholder	1st paragraph, 3rd sentence states, "During the 5-year update to this GSP, a more robust database of domestic wells may be available for the Subbasin in order to estimate potential impacts of minimum thresholds on a well-by-well basis and identify domestic wells that are no longer in use or should be replaced to comply with more recent well standards." How should a shallow well owner respond to this? Please offer something other than a robust database, and a condemnation of their well.	This sentence is meant to help identify well owners at risk, to protect them and find solutions, not to condemn their wells.	The sentence was revised.
112	6-26	6.2.2.3			10/20/021	Tamara Williams, Stakeholder	Land Subsidence. Provide support for the statement, "However, the potential amount of pumping-induced subsidence should disappear within the 20-year timeframe for achieving sustainability." Maybe explain that the maximum amount of subsidence associated with XX feet of water level decline could be YY feet. If there's irreversible subsidence, it won't "disappear within the 20-year timeframe," but it might not be serious.	Comment noted	Text was modified for clarity.
113	6-26	6.2.2.3			10/20/021	Tamara Williams, Stakeholder	Depletion of Interconnected Surface Waters. It sounds like the water level MTs are not protective of interconnected surface waters. Is that OK?	MTs might affect streamflow depletion; however, the goal is to reach MOs at sustainability; which would also protect interconnected surface waters.	
114	6-38 and 6-39	6.7.4.1 and 6.7.4.2			10/20/021	Tamara Williams, Stakeholder	6.7.4.1 - last paragraph states: "Low quantities of groundwater in storage during unanticipated future droughts or unanticipated climatic conditions do not constitute an undesirable result." This appears to be the opposite of what's stated on the next page. 6.7.4.2 - 2nd bullet: "Drier than expected conditions may reduce groundwater in storage to an undesirable result." One of these needs to be corrected. It would be good to avoid the confusion between "Undesirable Result" as defined by SGMA, and a result that would be undesirable for groundwater users/uses but not from a SGMA compliance standpoint. Maybe use a term like "actionable" or "red-flag" or "condition of concern," in which case the GSAs would take a conservative approach and commit to evaluating management actions or projects to reduce the risk of long-term unsustainability.	Comment noted.	Added: ".., if groundwater levels do not recover during wet periods." to the end of the 2nd sentence
115	6-45	6.8.4.2			10/20/021	Tamara Williams, Stakeholder	2nd paragraph. This discussion implies that, for the purpose of determining undesirable results, implementation of the GSP is limited to GSA projects or activities. It seems that this should extend to water quality degradation resulting from groundwater extraction that would otherwise be allowed under the GSP. In other words, lack of intervention could result in water quality degradation that would be considered an undesirable results.	Discussion about water quality degradation due to groundwater extraction is provided in the first paragraph.	
116	6-61	6.10.2	6-5		10/20/021	Tamara Williams, Stakeholder	The minimum threshold as applied to these near-stream wells does not appear to be protective against the depletion of interconnected surface waters. For this indicator, consider using the minimum Fall groundwater elevation since 2012 for the minimum threshold, with no buffer.	Comment noted.	
117	6-64	6.10.2.3			10/20/021	Tamara Williams, Stakeholder	In adjacent subbasins, "The methods used to select the minimum thresholds were slightly different in each case but generally result in minimum thresholds that are equivalent to or slightly lower than the historical minimum measured groundwater levels." Using the minimum Fall groundwater elevation since 2012 for the minimum threshold, with no buffer would be more consistent with adjacent subbasin minimum thresholds than including the 20 foot buffer.	Comment noted.	
118		7.2.4			10/25/2021	Tamara Williams, Stakeholder	Consider incorporating action(s) that could be taken to refine inflow and outflow estimates for the storage simulations such that simulated conditions better reflect measured water levels and trends. (see comment on Section 3.2.8)	The additional data that will be collected during GSP implementation and the refinements to the integrated model will help refine estimates of inflows and outflows in the Subbasin.	
119	7-11	7.3.2.1			10/21/2021	Tamara Williams, Stakeholder	Well Management Program. Education and Outreach. This program should provide for well-instrumented aquifer testing by third parties in areas where shallow wells are going dry to better understand the local relationship between deep well pumping and shallow groundwater levels. This will enable a more informed approach to cooperative groundwater management and reaching sustainability. Facilitating conversations between domestic well owners and nearby ag well owners is critical to building the trust needed for an effective GSP.	Comment noted.	
120	7-12	7.3.2.1			10/21/2021	Tamara Williams, Stakeholder	Well Incident Reporting System. Last sentence. In addition to well owners and drillers, include pump service folks in the outreach and communication for this action.	Commented	pump service contractors were added.
121	8-3	8.1.2			10/21/2021	Tamara Williams, Stakeholder	4th bullet. Public Outreach and Notification. This is a critical role of the GSAs, and one that needs improvement over the performance during GSP development. Electronic communication is not an effective way to engage the rural community members in this subbasin. Methods such as door-to-door outreach, leafletting or paper mailing, community bulletin boards in local businesses, coverage in local papers (beyond the legal notices that have been placed in the Corning Daily Observer and Red Bluff Daily News), use of marquees, and radio announcements should be budgeted for and pursued.	Comment noted.	This information was added to Section 2.16.
122	8-4	8.1.3			10/21/2021	Tamara Williams, Stakeholder	Communication and Outreach. This effort must improve going forward. While the Corning Subbasin website is useful for those of us who are comfortable with our computers, many stakeholders simply do not get their information that way. It will be imperative for the GSAs to have a face in the communities they serve.	Comment noted.	A sentence was added in response to comment.
123	8-12	8.4.2			10/21/2021	Tamara Williams, Stakeholder	1st paragraph in 8.4.2. The statement, "Results of the various data gaps investigations will be incorporated into the required GSP 5-year update," should be broadened to ensure that annual reports include the evolving understanding of basin conditions. As stated in 8.3.2 Reporting, Annual Reports, "the annual reports may also serve as amendment(s) to the GSP as the monitoring networks are refined and understanding of basin conditions are enhanced."	Comment noted.	Text was added in response to this comment.
124	8-12	8.4.2			10/21/2021	Tamara Williams, Stakeholder	Aquifer Testing. The potential objectives of aquifer testing in this subbasin should be clarified. While the criteria identified for wells suitable for including in a aquifer test are valid, it would be useful to describe the purpose of aquifer testing, along with a brief summary of appropriate test methodologies to answer specific questions about subbasin sustainability should be expanded upon. Do we need pumping tests, step tests, constant head tests? Additionally, if a particular well is suspected of causing unacceptable impacts to other users, it shouldn't be excluded from testing just because it doesn't meet all the criteria listed.	The details of aquifer testing activities will be refined during implementation.	Text was added to the paragraph to include better description of this activity.
125	8-13	8.4.2			10/21/2021	Tamara Williams, Stakeholder	GDE Mapping. GDE mapping shouldn't be limited to areas immediately adjacent to streams. The vigor of native trees and other deep-rooted vegetation should be monitored to ensure that avoidable lowering of shallow groundwater levels aren't contributing to the loss of native vegetation away from streams or wetlands. For example, Valley Oaks are considered groundwater dependent, even though they occur outside the hyporheic zone.	Comment noted.	
126	8-16	8.7			10/21/2021	Tamara Williams, Stakeholder	Implementation of the Corning Subbasin GSP will need to be closely coordinated with the Red Bluff Subbasin GSP. Please consider having the same technical team involved in both subbasins going forward.	Comment noted.	

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127	8-19 and 8-28	8.8 - 8.10			10/21/2021	Tamara Williams, Stakeholder	The description of Implementation of Projects and Management Actions reads as though no corrective actions will be needed/undertaken in the first 5 years of GSP implementation. Given the declining water levels, and the apparent increase in agricultural pumping, the plan should at least provide the framework, and describe the authority and mechanisms for taking immediate action.	Comment noted.	The text was revised for clarity.
128		7			10/24/2021	Matt Hansen, landowner	**Project and Management Actions:** The water budget implies the subbasin appears to have been stable but is now operating at a deficit. The obvious expansion of water intensive crops, the movement from surface water to groundwater and recent drought conditions are to blame.	The water budget does show a recent decline in groundwater in storage (see Section 4).	
129		7			10/24/2021	Matt Hansen, landowner	**Project and Management Actions:** This is not third world agriculture. Management programs aimed at educating local farmers about water efficiency is ludicrous. California farmers are the most efficient users of water because it is expensive. The crops they chose to plant, and ET dictates the amount of water the farmer will need over the course of a year. Because orchardist have developed more efficient micro sprinkler and drip systems, they are capable of planting water intensive orchards in ground that would not otherwise sustain a permanent crop. Management actions need to focus on the groundwater demand and the easiest way to limit the demand is to restrict land use in critically over drafted areas.	Comment noted.	
130		7			10/24/2021	Matt Hansen, landowner	**Project and Management Actions:** A comprehensive grid of monitoring wells must be established as a priority so informed decisions can be made, and domestic wells can be protected.	The monitoring network is pretty robust in the Corning Subbasin, additional wells are proposed to fill localized data gaps (see Section 5).	
131		7			10/24/2021	Matt Hansen, landowner	**Project and Management Actions:** In addition to increased oversight of well construction, orchard development requirements may also benefit groundwater recharge. Containment berms could be built around orchards to hold winter storm water, resulting in more percolation, and less run off.	Comment noted.	
132		7			10/24/2021	Matt Hansen, landowner	**Project and Management Actions:** Production wells in local areas that hit minimum thresholds should be required to meter and reduce consumption until such time the sustainable management criteria is met. Those failing to meet reduction numbers could be charged for their overage. This could be an alternative to a well moratorium.	Comment noted.	
133		General			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	the Draft Plan contemplates neither the existence of the Tribe's water rights nor the impact of those rights on the Draft Plan or the viability of management mechanisms contemplateds therein. Those omissions detract from numerous parts of the Draft Plan. Future iterations of the plan must account for these water rights or the plan will remain fundamentally flawed.	Tribal water use for the Paskenta Reservation is discussed in Section 2.5.2.	A discussion of the Tribe's Federally-protected reserved water rights was added in this section.
134	1-2	1.3.3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The Paskenta Band is developing its own groundwater monitoring and management plans. The Tribe may share details of these plans with the GSAs at a suitable time and provide coordination with the GSP.	Coordination and sharing of information with the Tribe is welcome and encouraged. A Tehama County Board of Director member has written a letter in support of the Paskenta Band's groundwater monitoring and management plan.	
135	2-3	1.3.3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	Groundwater in the subbasin is recharged naturally from precipitation, streams, and rivers. Most precipitation occurs during the winter months in the Coast Range. This precipitation is a component of recharge to the aquifer in the subbasin. There is uncertainty to interconnected surface water in the base of the Coast Range foothills in the western portion of the subbasin and the subbasin aquifer. Recharge may occur a great distance from the location of use. During the implementation of the GSP, a better understanding of the connection of surface water and groundwater from the base of the Coast Range foothills should be included. Understanding the western spatial extent of the aquifer and the inflows from the base of the foothills would also support the uncertainties in the water budget and changes in groundwater storage.	Comment noted. Additional work on this topic is indentified in Section 8.4.	
136	2-4	2.1.3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The Paskenta Bands federally reserved water rights have not been accounted for.	Comment noted.	A discussion of the Tribe's Federally-protected reserved water rights was added in this section.
137	2-26	2.5.2			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The Tribal Lands are completely reliant on groundwater for drinking water and irrigation, making the implementation of groundwater monitoring and management plans a priority for the protection of their water resources. The GSP does not account for the Tribe's federally reserved water rights, which cover additional future development and water use.	Comment noted.	A discussion of the Tribe's Federally-protected reserved water rights was added in this section.
138	3-37	3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	"Substantial" is not defined in terms of ranges of subsurface inflow from the Coast Range foothills and intermittent drainages. Without a range or error measurement, "substantial" is open to interpretation. Infiltration from precipitation in the drainages of the foothills should be accounted for since contributions to groundwater will likely reach the aquifer beneath the Reservation. The GSP states there is a presence of highly permeable alluvial sediments in and along the subbasin's watercourses, including intermittent or ephemeral streams. There are several intermittent drainages in the western area of the subbasin which are connected to the alluvial, Tehama, and Tuscan aquifers. A better understanding of the volume of recharge from the foothills of the Coast Ranges that reaches the aquifer is needed.	Comment noted. Future monitoring data and model updates will help refine subsurface inflow and recharge volumes.	Sentence was revised to delete the word "substantial".
139	3-49	3.2.2.1			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	Groundwater movement is toward the central area of the basin and is directed toward the Reservation. Water quality should be monitored to establish a current baseline, and to recognize any reductions in water quality over time. There is heavy land use for agriculture north of the Reservation and groundwater contamination is possible from pesticides and fertilizers. Groundwater from these agricultural lands flows toward the Reservation, a potential impact to the groundwater supplies for the Reservation.	Groundwater quality monitoring from agricultural fields is conducted by the Sacramento Valley Water Quality Coalition under the Irrigated Lands Regulatory Program Waste Discharge Requirements Order. The GSAs will coordinate with the Coalition on data review and monitor any impacts that could occur due to GSP implementation. See section 8.3.1.4 for more information.	
140	3-49	3.2.2.1			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	As discussed previously, the importance of understanding the volume of water that contributes to the alluvial aquifer will help refine the hydrologic model and ultimately lead to a better understanding of groundwater storage.	Comment noted.	
141	3-82	3.2.2.2			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	There is an apparent lag effect for recovery of groundwater elevation after prolonged drought in the central area of the Subbasin. Better planning for dry years and distributing surface water supplies can lessen the impact to future groundwater recoveries in the central area of the Subbasin.	Comment noted. Section 7 discusses some projects and management actions to help mitigate these issues.	

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142	4-13	4.1.3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The water budgets cumulative and annual change in storage is declining in the current water budget simulation relative to the historical water budget simulation. This decline appears to be a continuing trend in future water budgets and, if so, the subbasin would continue to experience groundwater level and storage declines compared to historical conditions. The model used to estimate the water budgets is designed from uncalibrated estimates and is susceptible to greater error. Numerical or analytical groundwater flow models may be able to better predict future water budget trends in localized areas of the Subbasin. Then sharing the results and data for the regional hydrological model calibration during GSP implementation.	The model used to estimate the groundwater budgets was modified from an existing DWR calibrated numerical groundwater flow model. Enhancements to the model inputs to better represent subbasin conditions, as described in Appendix 4A, provide a reasonable estimate of the Subbasin water budget. Future monitoring data will inform revisions and updates to the model for better predictions of the water budget.	
143	4-16	4.1.4			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The hydrologic model predicts pumping from crop requirements, not real flowrate data. Using actual pumping data and pumping estimates based on well depth and size among other factors, would provide a better estimate of outflow from wells in the water budgets.	Comment noted. Most agricultural irrigation wells are currently not metered in the Subbasin. Exact well construction information for most wells is also not available at this time. If wells are metered in the future, more accurate agricultural water demands estimates could be developed.	
144	5-15	5.2.6			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	Currently there are a few localized spatial data gaps for monitoring wells in the western one-third of the subbasin in the limited agricultural land use areas. Understanding groundwater elevations near recharge areas will help understand the inputs to groundwater storage.	Comment noted.	
145	5-19	5.4			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The well networks should be spatially distributed throughout the Subbasin as data gaps are identified and resolved during implementation of the GSP.	Comment noted.	
146	6-4	6.2			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	This description omits any mention of the Paskenta Band's federally reserved water rights. The Tribe has a right to water resources, including groundwater, necessary to sustain existing and future needs. The Tribe should be included in the list of agencies with whom coordination is needed.	Comment noted.	The Tribe was included in the list of agencies to coordinate with in the Sustainability Goal.
147	6-6 to 6-7	6.5			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The Paskenta Band has a federally reserved water right that includes the availability of groundwater on its Reservations. This should be part of the SMC.	SMC are developed subbasin-wide, and by default take into account all beneficial users of groundwater.	
148	6-7		6-1		10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	Reduction in groundwater storage (second row), Minimum Threshold refers to groundwater levels "same as chronic lowering of groundwater levels minimum thresholds." There are two minimum thresholds for groundwater levels - one for stable wells and one for declining wells. Are there two thresholds for groundwater storage? If so, an explanation of how this would be applied is needed.	Minimum Thresholds are established at each well in the Representive Monitoring Points network; each well has only 1 minimum threshold, based on the characteristics of water levels at that well. The same is true for the reduction in storage minimum threshold.	
149	6-7		6-1		10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	Degraded groundwater quality (third row), Interim Milestone is "Identical to current conditions." Are the TDS values at all wells currently under the SMCL of 500 mg/L? The Undesirable Result is qualified by "where it can be established the GSP implementation is the cause of the exceedance." Why have this qualification? Shouldn't the GSP be concerned about degraded water quality whatever the cause?	A summary of TDS (salinity) water quality information is provided in Section 3.2.6.3.1. SGMA does not directly regulate groundwater quality, as other state agneices and programs are reposnsible for issuing waste discharge orders and regulating water quality (Section 6.8). Therefore, the GSAs are only responsible for any degraded groundwater quality that may occur due to GSP implementation, and will coordinate with other agencies responsible for water quality monitoring and reporting, as needed.	
150	6-7		6-1		10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	Depletion of interconnected surface waters (fifth row). Measurement seems to be missing a word. Should it be "A subset of shallow wells used for *monitoring* the chronic lowering of groundwater levels…?"	Comment noted.	The suggested revision was made.
151	6-13	6.6.2.1			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The minimum threshold for wells with declining groundwater levels was set to the fall of 2012 measurement…" This appears to be different from Table 6-1, which states the minimum threshold for declining wells is "minimum fall groundwater elevation since 2012."	Comment noted; this was an error.	The statement was corrected accordingly.
152	6-26	6.6.2.3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	For land subsidence, the GSP allows that since the groundwater level minimum thresholds are lower than current conditions, that may "temporarily induce additional subsidence in some areas." How do we know this would be temporary?	Since the GSP is set up to reach sustainability in 20 years, by 2042, groundwater levels should no longer decline beyond the minimum threshold. Therefore, subsidence could temporarily occur during the 20-year transition to sustainability, and then groundwater elevations will not induce additional subsidence after sustainability is achieved.	Text was modified for clarity.
153	6-27	6.6.2.5			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The urban land uses and users sub-section states that "excessive urban growth is not predicted." This does not account for the Tribe's federally reserved water rights and may conflict with the Paskenta Band's goals. In general, Indian reservations serve as permanent homelands for tribal members and may encompass a wide array of water uses.	Comment noted. Urban land uses and users refer to the City of Corning and Hamilton City. The Pasketna Band's goals will not be affected.	
154	6-35	6.6.4.3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	This section discusses the undesirability of having the 20% allowable exceedances occur in the same geographic area. "To avoid this, the monitoring system was developed to have broad geographic coverage, ensuring that minimum threshold exceedances will not be clustered in a single area." It is not clear how having broad coverage in the monitoring system prevents exceedances from occurring in the same area. It seems likely that exceedances would occur in the same area given the zones of similar water trends.	Comment noted.	The sentence was deleted.
155	7-1	7.1			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	Second set of bullet points, first bullet point. "Additional vetting by all necessary stakeholders, since implementing projects and management actions will be a collaborative effort between the GSAs and coordinating partners such as the USBR, TCCA, and local water districts." This sentence should also include "tribal" in the list of partners.	Comment noted.	The Paskenta Band was added as a partner.
156	7-2 to 7-7	7.2			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	In general, the Paskenta Band was not consulted or considered in the development of projects and management actions. The Tribe's federally reserved rights are not mentioned in Section 7.2.1. Data from the Tribe is not included in Section 7.2.2. The Tribe is not listed as one of the stakeholders in Section 7.2.3.	Comment noted. The GSAs have no jurisdiction over tribal lands. The GSAs recognize the Tribe's federally reserved water rights, as mentioned in other sections of the GSP. Planning documents for the Paskenta Reservation were reviewed as mentioned in Section 2.5.2, and current ongoing water resources projects or operations within the Reservation were summarized. The GSP does not intend to change anything regarding Tribal projects within the Reservation. Furhter coordination with the Paskenta Band will occur during GSP implementation.	Clarifying text was added to Section 7.2.3.

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157	7-7 to 7-24	7.3			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	While the Paskenta Band is not necessarily opposed to the goals of the GSP, any management actions that impact the Tribe must recognize the Tribe's sovereignty and authority to manage its own resources. The Tribe's participation in the management actions including data sharing, reporting, well management, ordinances, land use, and best management practices must be negotiated independent of any other agency or stakeholder.	Comment noted. That is the intent of the GSAs.	Clarifying text was added to Section 7.3.
158	7-24 to 7-61	7.4			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	See previous comment. Any mitigation project must be evaluated to ensure it does not impact the Paskenta Band's federally reserved water rights or tribal sovereignty. Projects that do potentially impact the Tribe must be negotiated and approved by the Tribe. Otherwise, such activities will risk violating federal law regarding tribal water rights.	Comment noted. That is the intent of the GSAs.	Clarifying text was added to Section 7.4.
159	7-41 to 7-47	7.4.3.4			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	At least one of the mentioned ephemeral creeks (Brannin Creek) has the potential to impact the Paskenta Band. Development of groundwater recharge on this creek and possibly others will require consultation with and approval by the Tribe to the extent they impact the Tribe's interests.	Comment noted. That is the intent of the GSAs.	Clarifying text was added to Section 7.4.3.4.
160	7-47 to 7-51	7.4.3.5			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	At least two of the mentioned ephemeral creeks (Brannin Creek and Rice Creek) have the potential to impact the Paskenta Band. Development of off-storage for these creeks or other unnamed tributaries will require consultation with and approval by the Tribe to the extent they impact the Tribe's interests.	Comment noted. That is the intent of the GSAs.	Clarifying text was added to Section 7.4.3.5.
161	7-61	7.5			10/25/2021	Andrew Alejandre Tribal Chairperson Paskenta Band of Nomlaki Indians	The Paskenta Band should be added as one of the entities with whom collaboration will be required.	Comment noted.	The Paskenta Band was added as a collaborating entity.
162		General			10/25/2021	Holly Dawley Glenn-Colusa Irrigation District Water Resources Manager	GCID provided a comment letter supporting the adoption of the GSP by the GSAs to meet the January 31, 2022 deadline for submittal to DWR. Further, GCID expressed concern about groundwater surface water interactions quantification and potential future impacts.	Comments noted.	
163		7.4.3.6			10/25/2021	Kristina Miller City Manager, City of Corning	**Proposed Priority Project 6** Proposed Priority Project 6 (Section 7.4.3.6) is not thoughtfully considered. All other proposed priority projects include relevant measurable objectives, expected benefits and evaluation of benefits, public noticing, permitting and regulatory processes, circumstances for implementation, implementation schedule, legal authority, and estimated costs. While Priority Project 6 may be a good idea, it needs to be evaluated similar to all other priority projects prior to being included as a priority. Since this project is less developed, Priority Project 6 should be listed as an alternative project.	Comment noted.	The project was moved to the Alternative Projects Section.
164					10/25/2021	Kristina Miller City Manager, City of Corning	**Proposed Priority Project 7** The City of Corning already requires LIDs as part of new development projects. Any requirements or costs to increase LIDS to previously developed parcels or the installation of dry wells should not be worn solely by residents and businesses within the city limits of Corning because it benefits the subbasin as a whole.	Comment noted.	Text was added to include the current LID requirements for new development projects.
165	8-6	8.2			10/25/2021	Kristina Miller City Manager, City of Corning	The GSAs are committed to working collaboratively and meeting regularly with other local agencies and stakeholders to implement projects and management actions that achieve the Sustainability Goal. ~~Some activities carried about by the GSAs may receive funding support from local partners. In addition, some activities may be implemented by a local partner using their own sources of funding and not require a financial contribution from the GSAs.~~The GSAs may coordinate with local partners to incentivize activities that improve sustainable groundwater management and project ~~support their~~ implementation. The GSAs will coordinate with local partners to identify funding mechanisms to support proposed projects and activities located within the respective jurisdictions. Local partners will not be required to solely fund projects within their jurisdiction that benefit the whole.	Comment noted.	Text was revised.
166		8.2.1			10/25/2021	Kristina Miller City Manager, City of Corning	Grants will be pursued as they become available and based on their applicability to priority implementation activities and projects. The GSAs will coordinate with local partners ~~carrying out~~ on proposed activities and projects within their jurisdictions that support sustainable groundwater management.	Comment noted.	Suggested revisions included in text.
167		6.6		6-1 and 6-2	10/25/2021	James Strong General Manager Deseret Farms of California	**Figures 6-1 and 6-2 of the draft GSP should be refined using the "polygon approach."** Section 6.6 of the Sustainable Management Criteria (SMC) chapter, regarding the Chronic Lowering of Groundwater Levels identifies three general zones with similar groundwater level trends. (See Draft GSP, Section 6.6.2.1 (Pg. 6-11).) The grouping of these three general zones, as illustrated in Figures 6-1 and 6-2, demonstrates the variability of groundwater conditions across the Subbasin *using oval shapes*. The "west" general zone demonstrates the area within the Subbasin in which groundwater levels are declining the most. The "central" general zone demonstrates the area within the Subbasin in which groundwater levels are only slightly declining. And finally, the "east" general zone demonstrates the area within the Subbasin in which groundwater levels are stable. Notably, however, this "oval approach" creates overlaps between each of the three general zones. This overlapping could result in unclear data and therefore affect the GSAs' overall understanding of the Subbasin and the unique characteristics of each general zone. To avoid this issue, The GSAs should refine Figures 6-1 and 6-2 using the "polygon approach."	Per the GSP Regulations, SMC are established at each representative monitoring point (RMP) well, that was defined in Section 5. The three general zones of similar groundwater level trends do not provide a specific boundary for each trend, and were not intended to be used as management areas. These generalized zones are for visual representation only. The polygon approach is not a required approach. The approach for setting SMC in this GSP meets GSP Regulations, and was discussed at a number of CSAB meetings.	
168	6-6	6.4			10/25/2021	James Strong General Manager Deseret Farms of California	**The draft GSP should establish management zones using those newly established polygons.** Currently, the GSAs have not established management areas within the Corning Subbasin. (Draft GSP, Section 6.4 (Pg. 6-6).) Notably, however, the GSAs expressly "reserve the right to establish management areas, if deemed necessary." (*Ibid.)* As noted above, the GSAs have already identified significant differences in three areas within the Subbasin. Accordingly, we do not believe that the GSAs should subject the entire Subbasin and its stakeholders to the same management practices. Instead, we believe that management areas are necessary, and therefore recommend that the GSAs establish such management areas as appropriate to reflect the polygons discussed above, once established. Based on some of the already existing data, it seems that organizing these management areas from east (around the Sacramento River) to west (around steeper terrain) would be best.	Comment noted. The need for management areas will be reconsidered during GSP implementation.	

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169					10/25/2021	James Strong General Manager Deseret Farms of California	**The draft GSP should revise the Measurable Objectives and Minimum Thresholds** The draft GSP establishes Measurable Objectives (MO) and Minimum Thresholds (MT) for each SMC beyond what is required to achieve the GSA's sustainability goal for the Subbasin. We strive to work with the GSAs in achieving the sustainability goal for the Subbasin and protecting sustainability constructed domestic wells. To further these pursuits, we recommend that the GSAs revise the MOs and MTs to provide landowners with sufficient operating flexibility to help them realistically and timely achieve the purpose of the MOs and MTs, while allowing for flexibility to weather the next 20 years and beyond as we endeavor together to reach sustainability.	The MOs and MTs were developed with all beneficial users of groundwater in the Subbasin in mind, to balance the needs for all uses, including ag, domestic, municipal, tribal, and environmental groundwater use. The approach for setting SMC in this GSP meets GSP Regulations, and was discussed at a number of CSAB meetings. SMC will be refined as monitoring data are collected and analyzed and better estimates for subbasin water use are available.	
170		2			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Provide a map of tribal lands in the subbasin.	As discussed in Section 2.16.2, the Paskenta Reservation is the only Native American Tribal land present in the Subbasin, and it is shown on most maps in this GSP, starting with Figure 1-1.	
171		2			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendations:** Describe the population of each identified DAC and identify the sources of drinking water for DAC members, including an estimate of how many people rely on groundwater (e.g., domestic wells, state small water systems, and public water systems).	This information is provided in Section 2.16.3.	
172		2			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendations:** Include a map showing domestic well locations and average well depth across the subbasin.	A domestic well density map is provided in Figure 2-15, as required in the GSP Regulations. A map of domestic well location and well depth is provided in Figure 6-5.	
173		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Further describe the groundwater elevation data and stream flow data used in the modeling analysis. Discuss screening depth of monitoring wells and ensure they are monitoring the shallow principal aquifer. Discuss temporal (seasonal and interannual) variability of the data used to calibrate the model.	Model input data and modeling analysis details are provided in Appendix 4A.	
174		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Discuss stream reaches in the interior of the subbasin. For example, discuss whether they were included in the groundwater model and discuss relevant depth to groundwater data. Clearly state that they are considered to be disconnected, if that is the case, and what data was utilized to support that conclusion.	Comment noted. There was missing clarity about this in the text.	Additional information was provied in Section 3.2.7.1 to discuss the ephemeral streams.
175		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** To confirm the results of the groundwater modeling analysis, overlay the stream reaches shown with depth-to-groundwater contour maps to illustrate groundwater depths and the groundwater gradient near the stream reaches. For the depth-to-groundwater contour maps, use the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.	Comment noted. The analysis presented in the GSP meets regulatory requirements, by using an integrated hydrologic model provided by DWR.	
176		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Describe data gaps for the ISW analysis in the ISW section, in addition to the discussion in Section 5 (Monitoring Network). On the ISW map (Figure 3-53), clearly label the areas with data gaps. While the GSP identifies data gaps and their locations in the text, we recommend that the GSP considers any segments with data gaps as potential ISWs and clearly marks them as such on maps provided in the GSP.	Data gaps for stream gauge data are provided in Section 3.2.8.	
177		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Use depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons. We recommend that a baseline period (10 years from 2005 to 2015) be established to characterize groundwater conditions over multiple water year types. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.	The GSP uses a conservative approach by mapping depth to water for a wet spring (2018) to identify the 30-ft depth to groundwater. This approach is more than sufficient to identify areas that may be connected to groundwater. If additional water year types are needed to refine the analysis, this can be done during the GSP update.	
178		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Provide depth-to-groundwater contour maps, noting the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a DEM to estimate depth-to-groundwater contours across the landscape.	As described in Section 3.2.7.2., groundwater contours were subtracted from the DEM, as suggested in the approach from Attachment D. The resulting 30-ft contour extent is provided in Figure 3.58.	Additional explanation of the methodology used was added to Section 3.2.7.2.
179		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Refer to Attachment B for more information on TNC's plant rooting depth database. Deeper thresholds are necessary for plants that have reported maximum root depths that exceed the averaged 30-ft threshold, such as valley oak (Quercus lobata). We recommend that the reported max rooting depth for these deeper-rooted plants be used, if these species are present in the subbasin. For example, a depth-to-groundwater threshold of 80 feet should be used instead of the 30-ft threshold, when verifying whether oak polygons from the NC Dataset are connected to groundwater.	Comment noted. This information was not available during initial GSP development; this revised suggested approach will be considered during GSP implementation and for the 5-yr GSP update.	

Comment Number	Page	Subsection	Table	Figure	Date	Commenter/Affiliation	Comment	GSP Development Team Response	Status/Revisions (as needed)
180		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as "Potential GDEs" in the GSP until data gaps are reconciled in the monitoring network.	Commetn noted. This approach was used in the GSP, in addition to information provided by stakeholders on the location of invasive plants.	
181		3			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Include an inventory of the fauna and flora present within the subbasin's GDEs (see Attachment C of this letter for a list of freshwater species located in the Corning Subbasin).	Thank you for providing this list of freshwater species within the Corning Subbasin.	The provided list of freshwater species was added to the GSP as Appendix 3D.
182		4			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including managed wetlands.	Managed wetlands are currently not distinguished as separate water use sectors in the hydrologic model and therefore cannot be extracted separately. Refinement of this information may be developed during the GSP implementation and for the 5-year udpate.	
183		2			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** In the Communications and Engagement Plan, describe active and targeted outreach to engage DAC members, domestic well owners, and environmental stakeholders throughout the GSP development and implementation phases. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process.	Comment noted. The C&E Plan will be reviewed and revised as necessary during early stages of GSP implementation.	
184		2			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Utilize DWR's tribal engagement guidance to comprehensively address all tribes and tribal interests in the subbasin within the GSP.	Comment noted. Additional engagement with the Paskenta Tribe will be undertaken during GSP implementation.	
185		6			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** **Chronic Lowering of Groundwater Levels** - Describe direct and indirect impacts on drinking water users, DACs, and tribes when describing undesirable results and defining minimum thresholds for chronic lowering of groundwater levels.	This information is provided in Section 6.6.2.5. Drinking water users, DACs, and tribes are considered within the urban and domestic users categories.	
186		6			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** **Degraded Water Quality** Describe direct and indirect impacts on drinking water users, DACs, and tribes when defining undesirable results for degraded water quality. For specific guidance on how to consider these users, refer to "Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act."	This information is provided in Section 6.8.2.4. Drinking water users, DACs, and tribes are considered within the urban and domestic users categories.	
187		6			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** **Degraded Water Quality** Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on drinking water users, DACs, and tribes.	The minimum thresholds for water quality are protective of drinking water standards, and therefore, the GSP should not have any negative impacts on drinking water users, DACs, and tribes.	
188		6			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** **Degraded Water Quality** Set minimum thresholds and measurable objectives for all water quality constituents within the subbasin. Ensure they align with drinking water standards. (12)	As discussed in Section 3.2.6. the only consituent of concern identified in the subbasin is salinity, and therefore the SMC were set specifically for that COC; other programs have jurisdication over the other water quaity constituents.	
189		6			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** Define chronic lowering of groundwater SMC directly for environmental beneficial users of groundwater. When defining undesirable results for chronic lowering of groundwater levels, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact on GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results in the subbasin (13). Defining undesirable results in the crucial first step before the minimum thresholds can be determined. (14)	Per GSP Regulaitons, undesirable results are a combination of minimum thresholds; significant and unreasonable conditions for all sustainability indicators were defined in the applicable section.	
190		6			10/25/2021	NGO Consortium (Clean Water Action, Union of Concerned Scientists, Audubon, Local Government Commission, The Nature Conservancy)	**Recommendation:** When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when minimum thresholds in the subbasin are reached. The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts on environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law.	Comment noted. This was clearly identified in Section 6.	

Appendix 2H

Stakeholder Comment Letters Received Throughout GSP Development

Lisa Porta

From: Lisa Hunter <LHunter@countyofglenn.net>
Sent: Thursday, September 24, 2020 5:43 PM
To: Lisa Porta; 'Ryan Teubert'
Subject: FW: Minimum Threshold

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Follow up

From: Matt Hansen <mhansen7.62@gmail.com>
Sent: Tuesday, September 8, 2020 3:18 PM
To: rteubert@tcpw.ca.gov; Lisa Hunter <LHunter@countyofglenn.net>; bwilliams@co.tehama.ca.us
Subject: Minimum Threshold

Tim, Lisa and Bob,

Please see the attached web article:
https://regionalchange.ucdavis.edu/publication/sustainable-whom-impact-groundwater-sustainability-plans-domestic-wells

Soon the GSA will be tasked with identifying minimum thresholds (MT) that will hopefully trigger action by the water authority to keep water level from falling below the total completed depth of domestic wells. The article outlines the importance of setting the MTs above where most domestic pumps are set, or have the ability to be set, in order to extract domestic water.

The article warns about setting MT too low. This creates a "business as usual" attitude which could cause significant loss of domestic wells because it does little to slow or reverse the effects of over--pumping.

We are currently in a drought and the County continues to allow the redevelopment of grazing land into orchards. Surface water use is nearly non-existent compared to the past and the water is coming from the ground in extraordinary amounts. I recommend the GSA adopt the current levels as the MT threshold. Doing so would protect domestic wells, many of which are already threatened. I understand it would be bold move because at the current course the water level will predictably continue to fall below the MT forcing the County to take some sort or regulatory action to turn things around.

It is also important to have more information before setting the MT in the GSP. A few monitoring wells close to the River do not paint an accurate picture about how the draw is affecting residents in the outlying areas such as Rancho Tehama Reserve. Monitoring wells in these areas are important to the over-development groundwater use and should also be included in the plan..

The last point I took away from this article was that DWR has the authority to reject GSPs where the MT is too low. This is likely because several GSAs developed plans in the San Joaquin Valley with low MTs which did not protect domestic water and thousands of wells have run dry. In this regard, I ask the Red Bluff and Corning Subbasin GSA to take responsible action in accordance with our local resources.

Please pass on this information to the Committee and Board members so they may make educated decisions.

Respectfully,

Matt Hansen

From: Jenny Scheer
To: Lisa Porta; Nichole Bethurem
Cc: Tommy Ostrowski; Pete Dennehy
Subject: RE: California Olive Ranch recharge project
Date: Tuesday, August 17, 2021 10:01:21 AM
Attachments: image001.jpg
COR 3_Recharge Pond.pdf

Hi Lisa,

I am so sorry for my late reply, this somehow fell off my to-do list. Below is a description of the California Olive Ranch Corning recharge project. Attached is a map showing the T-C canal and the existing channel and pond on the ranch. We are working on more detailed feasibility now, so we do not have an estimate for annual recharge at this time.

An artificial recharge project at the California Olive Ranch property on South Avenue near Corning is proposed for inclusion in the Corning Subbasin GSP. This project involves diverting water from the Tehama-Colusa Canal (Canal) through an existing channel on the ranch into an existing basin on the ranch for infiltration. The source of water could include Section 215 flood flows and possibly other water sources conveyed through the canal such as CVP supplemental contract water.

Feasibility analysis on this project is ongoing. Work is underway to determine the frequency of Section 215 flood flows in the area, to make projections about how frequently recharge could take place for this project. Discussions have been had with the Tehama Colusa Canal Authority (TCCA) regarding Canal conveyance. A turnout from the Canal would be required for this project. To establish infiltration rates in the proposed basin and estimate annual recharge, COR is considering conducting an on-farm ponding test this winter using water from an nearby groundwater well.

Please let me know if there is any other information that would be helpful to include, and I'll see if we can get that for you.

Many thanks,

Jenny Scheer
Ag Water Specialist

Water & Land Solutions, LLC
(530) 720-0553
jscheer@waterandlandsolutions.com

From: Lisa Porta <lporta@elmontgomery.com>
Sent: Wednesday, July 28, 2021 4:43 PM
To: Jenny Scheer <jscheer@waterandlandsolutions.com>; Nichole Bethurem <nbethurem@tcpw.ca.gov>
Cc: Tommy Ostrowski <tommy@davidsengineering.com>; Pete Dennehy <pdennehy@elmontgomery.com>
Subject: RE: California Olive Ranch recharge project

Hello Jenny,

Thank you for reaching out and apologies for my late response.

I think the survey monkey form you filled out went to the other GSPs within Tehama County. We did not develop a survey form for the Corning Subbasin GSP, but we are taking feedback as you are doing now.
We are interested in adding your project into the Corning Subbasin GSP, but would need more information.
Could you send us the information your submitted via the survey form or send us any other documentation that would help us describe the project?
For example, map of location for the recahrge project, and volume of water to be recharged, and where the water would come from.

Thank you,
Lisa

Lisa Porta, P.E.
MONTGOMERY & ASSOCIATES
(916) 701-0398 (mobile)
lporta@elmontgomery.com
www.elmontgomery.com

From: Jenny Scheer <jscheer@waterandlandsolutions.com>
Sent: Thursday, July 15, 2021 2:50 PM
To: Lisa Porta <lporta@elmontgomery.com>; Ryan Teubert <rteubert@tcpw.ca.gov>
Cc: Tommy Ostrowski <tommy@davidsengineering.com>
Subject: California Olive Ranch recharge project

Hi Lisa,

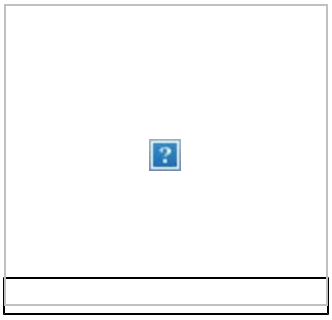
Our client, California Olive Ranch, is interested in a recharge project at their ranch east of Corning. I just submitted this through the survey monkey form, but there was no confirmation so I wanted to make sure it was received. We are doing some feasibility analysis on the concept right now, and we wanted to make sure to include it for the PMA chapter because we know recharge projects will be so important for managing the subbasin.

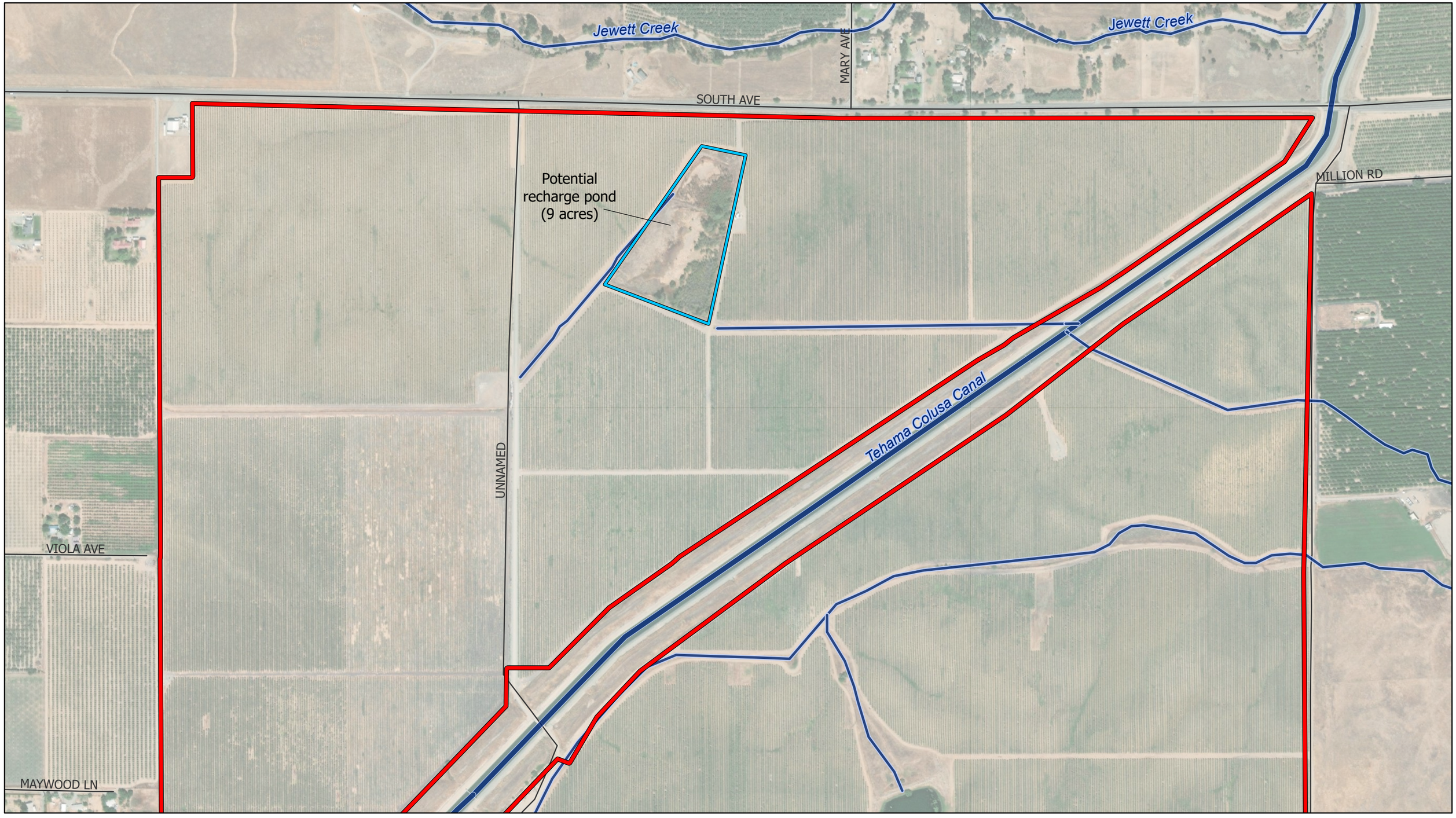
If you have any questions, please feel free to call or email me.

Best,

Jenny Scheer
Ag Water Specialist

Water & Land Solutions, LLC
(530) 720-0553
jscheer@waterandlandsolutions.com





COR 3 Ranch

N

Scale: 1:6,000

0 0.05 0.1 Miles

Corning 3 Ranch
Recharge Pond

Spatial Reference: NAD 1983
CA StatePlane Zone I

Created by: Water & Land Solutions
Date exported: 8/17/2021

Thursday, August 26, 2021

Corning GSA (both Glenn and Tehama) TAC and Board,

We appreciate the dialog, the acknowledgement that the Corning Sub Basin has different dynamics than that of the Glenn and Colusa Sub Basins, and for the opportunity to discuss this with the TAC Committee and Board to work together to come to an equitable decision.

Foothill non irrigated lands do not have usable water in any sort of quantity to sustain long term crops such as orchards. When water is found, it's quality is often unusable. Currently, West side dry land owners pump very little, if any, from our groundwater basin. There are a handful of domestic wells, as well as a minimal number of small-diameter wells for livestock and wildlife watering only. As the Legislative definition explains below, how can we charge thousands of acres for small wells that are de minimis only? For the few wells that do supply water to livestock for sale, the amount is still so few acre feet per year that it is negligible. Maybe an option of a meter to prove this would suffice to allow these landowners a way out of a per acre fee.

> ***WATER CODE - DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999]***
> ***PART 2.74. Sustainable Groundwater Management [10720 - 10737.8]***
> ***CHAPTER 2. Definitions [10721- 10721.]***
> ***(e) "*De minimis extractor*" means a person who extracts, for domestic purposes, two acre-feet or less per year***

We do not consider the currently proposed per acre fee to be a viable option. The primary source of income on these West side dry land areas comes from livestock grazing leases; the proposed $2.90/acre fee represents greater than 32% of the current income on average. The cattle industry can not sustain that sort of increase, especially when there is no tangible benefit to such an assessment in our area. West side dry land owners would be forced to pump whatever little water they do have to help pay the unsustainable costs imposed on them. This additional pumping over all does not work toward the goals of the GSA's in the long run.

We do not feel that allowing West side non-irrigated landowners to sell or transfer their water rights is a viable solution to the problem, though it has been brought up as an option to help them recoup the proposed fees. Encouraging sales or transfers of the water in our basin does not help to fulfill the desired end results of the GSA. This concept is already addressed in Tehama County, under Ordinance #2006 Section 3. We anticipate that similar guidance may come about in Glenn County.
Tehama County's ordinance #2006 Section 3 states:

> *9.40.030 It shall be unlawful to extract groundwater of any nature or description, or for a property owner to allow such extraction on his land, or for any person to knowingly cause, permit, aid, abet, suffer, or furnish equipment or labor for such extraction, for the purpose of using the water or selling the water for use on other than the parcel of land upon which the extraction occurs, or contiguous parcels of*

land under the same ownership as the parcel from which the extraction occurs, without first obtaining a permit as provided in this chapter. It shall be unlawful to knowingly use water extracted in violation of this section on other than the parcel of land upon which the extraction occurs, or contiguous parcels of land under the same ownership as the parcel from which the extraction occurs, or for a property owner to knowingly allow such use on their land, or for any person to knowingly cause, permit, aid, abet, suffer, or furnish equipment or labor for such use, without first obtaining a permit as provided in this chapter. This provision does not apply to the extraction of water for the purposes of supplying a "public water system", a " community water system," a "non-community water system," or "state water system"

In addition, we are concerned about the costs to be incurred by surface water users only that do not pump. Will considerations be given for the groundwater recharge that they are providing to the basin? Will there be any options for surface water only users to be excluded from the SGMA requirements of the basin? Possibly an incentive program for these non pumpers?

Some proposed solutions to these challenges we present are as follows:

- We acknowledge that a basin boundary modification is probably not a realistic step in the immediate future. We also know that there will be some administration costs that must be absorbed by the West side dry land parcels. Maybe a shared administration fee for basic/minimum reporting that is spread out equally, but the rest of the fees fall on only those that are pumping the water? However, with the high proportion of non-irrigated acres in the basin, we are concerned that this fee may still be exorbitantly high vs. the actual value of the land and the income potential.

- A fee per well option, maybe based off of size or well type? According to a slide presented during the August 4th meeting, this cost estimate was $139.63/well. This seems like a good option to keep the fees off of those that do not even have a well on their property and are not pumping at all.
    - Do we understand correctly that if the state intervenes, i.e. we are allowed out of the basin, the state charges $100/well for de minimis users?

- A defined line, which is fairly easy to see from Google Earth maps/satellite imagery, distinguishes lands that have reasonable groundwater and opportunities for development from those lands that are dry in nature and are not suitable for developing permanent irrigated crops. Landowner's can have the option to sign an agreement to not pump over de minimis user amounts in these dry areas. It might be feasible to establish a defined line based on a technical evaluation of well logs and other relevant data to justify the position of the line. Landowners

sign a contract agreeing to not pump groundwater or plant permanent irrigated crops, with an option for those who somehow miraculously find water and decide to pump more, pay a back fee/fine for getting out of the agreement. Something along the lines of the stipulations stated in the Williamson Act. This could possibly also include those lands/acres that only have access to/or irrigate with surface water. This option offers flexibility - those who choose to pump in the future can do so, but discourages additional groundwater use thus helping the GSP goals overall.

  - Another possibility is to have pump owners show a log verifying that the well does not yield, and is not used for, anything more that de minimis use to allow it to be treated as such.

- We realize that meters are not a popular idea, but might that be something that, if per acre foot charges were enacted, people opting out of the per acre fee could use, as an alternate fee structure, so that they are only charged for what they pump?

Furthermore, we are concerned about the West side / dry land landowners being inadequately represented on the GSA Boards. Currently, there is nobody representing the westside / dryland landowners, even though a local landowner offered to represent at the beginning of this process. Over 50% of the Glenn County acreage in the Corning Sub-basin is non-irrigated (source: 8/4 slideshow, slide #17, see chart below). In addition, over 70% of the Tehama County acreage is non-irrigated, without adequate representation. Is this taxation without representation?

Water Use Type	Tehama, Acres (% total)	Glenn, Acres (% total)	Total, Acres (% total)
Surface Water, Access	9,416 (5%)	5,650 (3%)	**15,066** (7%)
Groundwater, Exclusive	31,580 (15%)	15,897 (8%)	**47,477** (23%)
Irrigated, All	40,997 (20%)	21,548 (10%)	**62,544** (30%)
Urban & Rural Residential	~6,000 (~3%)	~1,200 (<1%)	**~7,200** (~3%)
Non-Irrigated	114,308 (55%)	22,968 (11%)	**137,276** (66%)
Total Acreage	**161,305** (78%)	**45,715** (12%)	**207,020** (100%)

In closing, we (landowners representing 30,000 +/- acres) are not asking anything unreasonable, just proposing a more equitable cost breakdown for irrigated vs. non-irrigated lands. This particular sub-basin is distinctly different from the neighboring sub basins, since the majority of acres are non-irrigated, and non-irrigable. A one size fits all plan does not work here. Thank you for your consideration of our situation and possible solutions.

Jaime Lely for the West Side Landowners and Tenants group in the Corning GSA

Thursday, August 26, 2021

Corning GSA (both Glenn and Tehama) TAC and Board,

I appreciate the dialog, the acknowledgement that the Corning Sub Basin has different dynamics than that of the Glenn and Colusa Sub Basins, and for the opportunity to discuss this with the TAC Committee and Board to work together to come to an equitable decision.

Currently, West side dry land owners pump very little from our groundwater basin. There are a handful of domestic wells, as well as a minimal number of small-diameter wells for livestock watering. As the Legislative definition explains below, how can we charge thousands of acres for small wells that are de minimis only? For the few wells that do supply water to livestock for sale, the amount is still so few acre feet per year that it is negligible. Maybe an option of a meter to prove this would suffice to allow these landowners a way out of a per acre fee.

> ***WATER CODE - DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999]***
> ***PART 2.74. Sustainable Groundwater Management [10720 - 10737.8]***
> ***CHAPTER 2. Definitions [10721- 10721.]***
> ***(e) "De minimis extractor" means a person who extracts, for domestic purposes, two acre-feet or less per year***

I do not consider the currently proposed per acre fee to be a viable option. The primary source of income on these West side dry land areas comes from livestock grazing leases; the proposed $2.90/acre fee represents approximately 48% of the current income on my property. The cattle industry can not sustain that sort of increase, especially when there is no tangible benefit to such an assessment in our area. West side dry land owners would be forced to pump whatever little water they do have to help pay the unsustainable costs imposed on them. This additional pumping over all does not work toward the goals of the GSA's in the long run.

I do not feel that allowing West side non-irrigated landowners to sell or transfer their water rights is a viable solution to the problem, though it has been brought up as an option to help them recoup the proposed fees. Encouraging sales or transfers of the water in our basin does not help to fulfill the desired end results of the GSA. This concept is already addressed in Tehama County, under Ordinance #2006 Section 3. We anticipate that similar guidance may come about in Glenn County.
Tehama County's ordinance #2006 Section 3 states:

> *9.40.030 It shall be unlawful to extract groundwater of any nature or description, or for a property owner to allow such extraction on his land, or for any person to knowingly cause, permit, aid, abet, suffer, or furnish equipment or labor for such extraction, for the purpose of using the water or selling the water for use on other than the parcel of land upon which the extraction occurs, or contiguous parcels of land under the same ownership as the parcel from which the extraction occurs, without first obtaining a permit as provided in this chapter. It shall be unlawful to knowingly use water extracted in violation of this section on other than the parcel of land upon which the extraction occurs, or contiguous parcels of land under the same ownership as the parcel from which the extraction occurs, or for*

a property owner to knowingly allow such use on their land, or for any person to knowingly cause, permit, aid, abet, suffer, or furnish equipment or labor for such use, without first obtaining a permit as provided in this chapter. This provision does not apply to the extraction of water for the purposes of supplying a "public water system", a " community water system," a "non-community water system," or "state water system"

In addition, I am concerned about the costs to be incurred by surface water users only that do not pump. Will considerations be given for the groundwater recharge that they are providing to the basin? Will there be any options for surface water only users to be excluded from the SGMA requirements of the basin? Possibly an incentive program for these non pumpers?

Some proposed solutions to these challenges we present are as follows:

- We acknowledge that a basin boundary modification is probably not a realistic step in the immediate future. We also know that there will be some administration costs that must be absorbed by the West side dry land parcels. Maybe a shared administration fee for basic/minimum reporting that is spread out equally, but the rest of the fees fall on only those that are pumping the water? However, with the high proportion of non-irrigated acres in the basin, we are concerned that this fee may still be exorbitantly high vs. the actual value of the land and the income potential.

- A one time fee per well option, maybe based off of size or well type? According to a slide presented during the August 4th meeting, this cost estimate was $139.63/well. This seems like a good option to keep the fees off of those that do not even have a well on their property and are not pumping at all.
    - Do we understand correctly that if the state intervenes, i.e. we are allowed out of the basin, the state charges $100/well for de minimis users?

- A defined line, which is fairly easy to see from Google Earth maps/satellite imagery, distinguishes lands that have reasonable groundwater and opportunities for development from those lands that are dry in nature and are not suitable for developing permanent irrigated crops. Landowner's can have the option to sign an agreement to not pump over de minimis user amounts in these dry areas. It might be feasible to establish a defined line based on a technical evaluation of well logs and other relevant data to justify the position of the line. Landowners sign a contract agreeing to not pump groundwater or plant permanent irrigated crops, with an option for those who somehow miraculously find water and decide to pump more, pay a back fee/fine for getting out of the agreement. Something along the lines of the stipulations stated in the Williamson Act. This could possibly also include those lands/acres that only have access to/or irrigate with surface water. This option offers flexibility - those who choose to pump in the future can do so, but discourages additional groundwater use thus helping the GSP goals overall.

- Another possibility is to have pump owners show a log verifying that the well does not yield, and is not used for, anything more that de minimis use to allow it to be treated as such.

- I realize that meters are not a popular idea, but might that be something that, if per acre foot charges were enacted, people opting out of the per acre fee could use, as an alternate fee structure, so that they are only charged for what they pump?

Furthermore, we are concerned about the West side / dry land landowners being inadequately represented on the GSA Boards. Currently, there is nobody representing the westside / dry land landowners, even though a local landowner offered to represent at the beginning of this process. Over 50% of the Glenn County acreage in the Corning Sub-basin is non-irrigated (source: 8/4 slideshow, slide #17, see chart below). In addition, over 70% of the Tehama County acreage is non-irrigated, without adequate representation. Is this taxation without representation and therefore opening up the possibility for legal challenges?

Water Use Type	Tehama, Acres (% total)	Glenn, Acres (% total)	Total, Acres (% total)
Surface Water, Access	9,416 (5%)	5,650 (3%)	**15,066** (7%)
Groundwater, Exclusive	31,580 (15%)	15,897 (8%)	**47,477** (23%)
Irrigated, All	40,997 (20%)	21,548 (10%)	**62,544** (30%)
Urban & Rural Residential	~6,000 (~3%)	~1,200 (<1%)	**~7,200** (~3%)
Non-Irrigated	114,308 (55%)	22,968 (11%)	**137,276** (66%)
Total Acreage	161,305 (78%)	45,715 (12%)	207,020 (100%)

In closing, representing 2200 +/- acres, I am not asking anything unreasonable, just proposing a more equitable cost breakdown for irrigated vs. non-irrigated lands. This particular sub-basin is distinctly different from the neighboring sub basins, since the majority of acres are non-irrigated, and non-irrigable. A one size fits all plan does not work here. Thank you for your consideration of this situation and possible solutions.

I am able to supply proof from metered wells as to the yearly less than de minimis usage of water on my property over the last 7 to 15 years.

Dennis Barkley

Dennis Barkley

Lisa Porta

From: Lisa Hunter <LHunter@countyofglenn.net>
Sent: Wednesday, September 1, 2021 10:31 AM
To: Lisa Porta; Nichole Bethurem; jsimon@tcpw.ca.gov; mcateer@waterexchange.com
Cc: Thad Bettner; Holly Dawley; Monroeville Water District; Donald Rust
Subject: FW: Letter from Mickael Barkley regarding Corning GSA

Please see message below.
Thank you,

Lisa Hunter
Glenn County
Water Resource Coordinator
(530) 934-6540 (office)
(530) 624-1074 (cell)

From: Jaime Lely <jllely@sbcglobal.net>
Sent: Tuesday, August 31, 2021 1:43 PM
To: Lisa Hunter <LHunter@countyofglenn.net>
Subject: Letter from Mickael Barkley regarding Corning GSA

I have been asked to pass the following on from a local West Side landowner.

Jaime Lely

530.865.4171

From: Michael J Barkley
Sent: Monday, August 30, 2021 7:26 PM
To: D Barkley
Subject: Re: SGMA GSA Letter to present to the Board

Another property tax violating Prop. 13?

On top of the increasingly onerous taxes and reporting burdens imposed by the SWRCB on stock ponds?

Our range land ranch barely supports the existing property taxes and you impose more? What tillable we have was relegated to dry farming by the predatory attacks of Reclamation and OUWUA in the Angle Decree which took virtually all water from the 700 square mile basin upstream of Black Butte despite Orland sitting on 25 million acre-feet in the Stony Creek Fan, 6 maf of which is fresh water.

Fairness does not seem to be a factor in land and water behavior by governments in these two counties.

--Michael Barkley, 167 N. Sheridan Ave., Manteca, CA 95336 209/823-4817
mjbarkl@inreach.com SBN 122433

GLENN COUNTY RANGELAND ASSOCIATION
P.O. Box 432
Elk Creek, CA 95939

September 7, 2021

RE: Corning Subbasin, Fair Representation & Fee Structure

Dear Corning Subbasin Advisory Board & Committee:

The Glenn County Rangeland Association, representing over 80 ranches and rural landowners in the western foothills of Glenn County, is writing to you in support of fair representation and cost distribution within the Corning Subbasin.

Foothill non-irrigated lands do not have usable water in any sort of quantity to sustain long term crops such as orchards. When water is found, it's quality is often unusable. There are a handful of domestic wells, as well as a minimal number of small-diameter wells for livestock and wildlife watering only. For the few wells that do supply water to livestock for sale, the amount is still so few acre feet per year that it is negligible.

We do not consider the currently proposed per acre fee to be a viable option. The primary source of income on these West side dry land areas comes from livestock grazing leases; **the proposed $2.90/acre fee represents greater than 32% of the current income on average**. The cattle industry can not sustain that sort of increase, especially when there is no tangible benefit to such an assessment in our area. West side dry land owners would be forced to pump whatever little water they do have to help pay the unsustainable costs imposed on them. This additional pumping over all does not work toward the goals of the GSA's in the long run.

Furthermore, we are concerned about the westside / dryland landowners being inadequately represented on the GSA Boards. Currently, there is nobody representing the westside / dryland landowners, even though a local landowner offered to represent at the beginning of this process. Over 50% of the Glenn County acreage in the Corning Sub-basin is non-irrigated. In addition, over 70% of the Tehama County acreage is non-irrigated, without adequate representation.

In closing, we are asking that you consider a more equitable cost breakdown for irrigated vs. non-irrigated lands. This subbasin is distinctly different from the neighboring subbasins, since the majority of acres are non-irrigated, and non-irrigable. A one size fits all plan does not work here. Thank you for your consideration of our unique situation.

Sincerely,

John Whitney

John Whitney
President, Glenn County Rangeland Association

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

September 29, 2021

Lisa Hunter
Water Resources Coordinator
Corning Subbasin GSA
720 North Colusa Street
Willows, California 95988

Electronic transmittal only

Re: NOAA's National Marine Fisheries Service Comments on the Draft Section 6 of the Groundwater Sustainability Plan for the Corning Subbasin.

Dear Ms. Hunter:

NOAA's National Marine Fisheries Service (NMFS) is the federal agency responsible for managing, conserving, and protecting living marine resources in inland, coastal, and offshore waters of the United States. We derive our mandates from numerous statutes, including the Federal Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The purpose of the ESA is to conserve threatened and endangered species and their ecosystems.

In June 2021, the Corning Subbasin Groundwater Sustainability Agency (hereafter, "GSA") released their "draft Section 6: Sustainable Management Criteria" for public comment. The California Department of Water Resources (DWR) has designated the Corning subbasin a "high" priority for groundwater management, necessitating the development of a Groundwater Sustainability Plan (GSP) by January 2022, as required under California's Sustainable Groundwater Management Act of 2014 (SGMA). Several waterways that overlie portions of the Corning subbasin support federally threatened California Central Valley (CCV) steelhead (*Oncorhynchus mykiss*), threatened Central Valley (CV) spring-run Chinook salmon (*O. tshawytscha*), the threatened Southern Distinct Population Segment (sDPS) of North American green sturgeon (*Acipenser medirostris*), and federally endangered Sacramento River winter-run Chinook salmon (*O. tshawytscha*). In addition, the Corning subbasin is designated as Essential Fish Habitat (EFH) for Pacific Coast Chinook salmon, including CV fall-run Chinook salmon (*O. tshawytscha*) and CV late fall-run Chinook salmon (*O. tshawytscha*), which are managed under the MSA. This letter transmits NMFS' comments regarding the Draft Section 6.

Surface water and groundwater are hydrologically linked in the Corning subbasin, and this linkage is critically important in creating seasonal habitat for Chinook salmon, steelhead, and green sturgeon. Where the groundwater aquifer supplements streamflow, the influx of cold, clean water is critically important for maintaining temperature and flow volume. Pumping water from these aquifer-stream complexes has the potential to affect Chinook salmon, steelhead, and

green sturgeon habitat by lowering groundwater levels and interrupting the hyporheic flow between the aquifer and stream. NMFS is concerned that groundwater extraction in the Corning subbasin is currently impacting salmonid and green sturgeon instream habitat, and that the draft GSP does not adequately address and minimize these impacts.

Comments

Page 58: The locally defined significant and unreasonable conditions for depletions of interconnected surface water (*i.e.*, avoiding depletions beyond those observed in 2015) are likely to negatively affect ESA-listed fish and their habitat, and thus are inappropriate. Basic hydraulic principles dictate that groundwater flow is proportional to the difference between groundwater elevations at different locations along a flow path. Using this basic principle, groundwater flow to a stream or, conversely, seepage from a stream to the underlying aquifer is proportional to the difference between water elevation in the stream and groundwater elevations at locations away from the stream. 2015 was the fifth year of California's recent historical drought, meaning that groundwater levels during fall 2015 likely represent the lowest groundwater elevations ever recorded. These groundwater levels would create historically high streamflow depletion rates, resulting in instream conditions that negatively affect ESA-listed salmonids and green sturgeon, and their critical habitat, including EFH. During the first few years of GSP implementation, the GSA should design and implement studies that better inform appropriate minimum thresholds and measurable objectives for streamflow depletion. Studies should investigate what streamflow depletion rate or volume avoids significantly and unreasonably impacting surface water beneficial uses (*e.g.*, migration, cold-water fishery, and spawning/early development) that support ESA-listed species. In the interim, we suggest the GSA follow guidance by the California Department of Fish and Wildlife (2019) that recommends conservative sustainability management criteria be established to ensure groundwater dependent ecosystem protection.

Page 59: The proposed minimum thresholds and measurable objectives for streamflow depletion are also inappropriate for the same reasons as outlined above. A groundwater elevation threshold set at "the minimum fall groundwater elevation since 2012 minus a 20-foot buffer" will lead to historically high streamflow depletion consistent with California's recent historical drought.

Furthermore, the draft section does not appear to adequately address the following requirement for minimum thresholds as spelled out in the SGMA regulations:

> "The relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators." (CCR 23 §354.28(b)(2))

Any proposed minimum threshold for streamflow depletion should include a rational, fact-based discussion of how the threshold will avoid significant and unreasonable impacts to surface water beneficial uses. The draft Section 6 does not include this required component.

Page 60: Please include ESA-listed salmon, steelhead, and sturgeon as identified beneficial users of interconnected surface water.

Page 61: The draft section contains the following sentence:

> "Considering all the beneficial uses and users, the CSAB determined that surface water depletion was not significant and unreasonable in 2015 for the Subbasin stream reaches of the Sacramento River, Stony Creek, or Thomes Creek."

The above sentence begs several questions. Were salmon, steelhead, and green sturgeon considered as a beneficial user of surface water? What identified beneficial uses were considered? What monitoring for undesirable results was undertaken in 2015, and what were the results of that monitoring? What reasoning was offered by the Corning Subbasin Advisory Board (CSAB) regarding why 2015 depletion rates, which again were likely historically high, were not significant and unreasonable? The GSA should elaborate fully on the reasoning why surface water depletion was not significant and unreasonable in 2015.

NMFS recommendation for future Projects and Management Actions: We suspect that groundwater recharge projects are likely to be an important action implemented as part of the effort to achieve groundwater sustainability in the Corning subbasin. NMFS encourages the GSA to consider implementing recharge projects that facilitate floodplain inundation, which offer multiple benefits including downstream flood attenuation, groundwater recharge, and ecosystem service. Managed floodplain inundation can recharge floodplain aquifers, which in turn slowly release stored water back to the stream during summer months. These projects also reconnect the stream channel with floodplain habitat, which can benefit juvenile salmon, steelhead, and sturgeon by creating off-channel habitat characterized by slow water velocities, ample cover in the form of submerged vegetation, and high food availability. As an added bonus, these types of multi-benefit projects likely have more diverse grant funding streams that can lower their cost as compared to traditional off-channel recharge projects. NMFS stands ready to work with any GSA interested in designing and implementing floodplain recharge projects.

Please direct questions regarding this letter to Amanda Cranford, of my staff, at Amanda.Cranford@noaa.gov or (916) 930-3706.

Sincerely,

A. Catherine Marcinkevage

Cathy Marcinkevage
Assistant Regional Administrator
California Central Valley Office

References:

California Department of Fish and Wildlife. 2019. Fish & Wildlife Groundwater Planning Considerations. California Department of Fish and Wildlife, Groundwater Program. June 2019. 28 pp. Available at: https://cawaterlibrary.net/document/fish-wildlife-groundwater-planning-considerations/

Cc: To the File ARN 151422-WCR2021-SA00121

Electronic copy only:

Angela Murvine, California Department of Fish and Wildlife Statewide SGMA Coordinator, Angela.Murvine@wildlife.ca.gov

Bridget Gibbons, California Department of Fish and Wildlife Central Valley SGMA Biologist, Bridget.Gibbons@wildlife.ca.gov

Craig Altare, California Department of Water Resources, Supervising Engineering Geologist, Craig.Altare@water.ca.gov

Brandon Davison, Corning Subbasin SGMA Point of Contact, California Department of Water Resources Brandon.Davison@water.ca.gov

Glenn-Colusa Irrigation District
Serving Our Lands and Environment Sustainably
Water Rights Established in 1883

DATE: October 25, 2021

TO: Colusa Groundwater Authority
Glenn Groundwater Authority
Corning Subbasin Groundwater Sustainability Agency
Tehama County Flood Control & Water Conservation District Groundwater Sustainability Agency
Butte Subbasin Groundwater Sustainability Agencies (all eleven)
Vina and Rock Creek Reclamation District Groundwater Sustainability Agencies

FROM: Holly Dawley, GCID Water Resources Manager

SUBJECT: Support for Groundwater Sustainability Plans and Concern about Groundwater Surface Water Interactions

Glenn-Colusa Irrigation District (GCID) is located in the heart of the Sacramento Valley; we are the largest and one of the oldest diverters of water from the Sacramento River. GCID diverts water from the Sacramento River through a 65-mile long irrigation canal into a complex system of nearly 500 miles of laterals. The water is delivered to more than 1,200 families who farm approximately 141,000 acres of valuable, productive agricultural land. More than $270 million of agricultural products are produced annually on Glenn-Colusa Irrigation District farms, helping to sustain an estimated 12,000 jobs in the region. GCID is also the sole source of surface water deliveries for three wildlife refuges – the Sacramento, Delevan and Colusa National Wildlife Refuges that comprise over 20,000 acres of critical wildlife habitat. Winter water supplied by GCID to thousands of acres of rice land also provides a rich oasis for migrating waterfowl.

GCID is an active member of the Colusa Groundwater Authority, the Glenn Groundwater Authority, and the Corning Subbasin Groundwater Sustainability Agency.

Support for Groundwater Sustainability Plans

GCID appreciates the opportunity to provide comment to your agency for Groundwater Sustainability Planning in the Sacramento Valley (Valley). As a member of three Groundwater Sustainability Agencies (GSAs) within the Valley, GCID staff have valued our participation in the development of two Draft Groundwater Sustainability Plans (GSPs) and support a collaborative approach to management across a shared resource. We support the adoption of the GSPs by each of the GSAs to meet the January 31, 2022, deadline and we look forward to continued participation during implementation.

Concern about Groundwater Surface Water Interactions

While we support the adoption of the GSPs, this communication serves as a formal written comment to highlight and express a particular area of concern that could lead

to the development of an incomplete decision framework and compromise the stability afforded to groundwater users in the various Sacramento Valley subbasins and more specifically to surface water users and senior water right holders which includes our District. We are writing to express deep concern regarding the lack of consideration in the GSPs about stream-aquifer interactions and impacts from unrestricted groundwater pumping.

This year in response to historically dry conditions, GCID and our fellow Sacramento River Settlement Contractors (SRSCs) took a multitude of voluntary actions significantly reducing the supply to our water users. These actions collaboratively supported watershed objectives in the face of declining storage and identified environmental concerns. While GCID and its partners were working daily for months with Central Valley Project (CVP) operators and State resource agencies to reduce surface water use and stabilize flows in the Sacramento River to help with Delta outflows and environmental needs, groundwater pumpers accessed the resource unabated impacting the stream flows we were actively working to stabilize.

As a significant contributor to groundwater recharge within the Valley, we only utilize that resource in years of shortage. We contribute every year to over 100,000 acre-feet (*Colusa GSP Draft, Appendix 3D, pg. 27*) of groundwater recharge even in Shasta critically dry years. However, we only utilize the resource when our surface water supplies are diminished by drought. Even with all of our voluntary surface water reductions in 2021, we only utilized 20,000 ac-ft of groundwater, while taking over 20,000 acres of land out of production to balance our supply and demand.

According to the Draft GSPs for Vina, Butte, Corning, and Colusa Subbasins, current year estimates of groundwater pumping, summarized in the table below, are over 1 million acre-feet per year (ac-ft/yr) in the region that surrounds our District.

Table 1, Groundwater Pumping in Subbasins in and around GCID (TAF)

	Historical	Current	Future, No Climate Change	Future, 2030 Climate Change	Future, 2070 Climate Change
Butte[a]	142.2	162.8	162.6	189.4	210.5
Vina[b]	243.5	209.2	215.8	225.9	238
Colusa[c]	502	499	499	525	559
Corning[d]	132.3	153		159.3	167.3
Totals (TAF)	***1020***	***1024***	***877.4***	***1099.6***	***1174.8***

Notes

[a]Butte Groundwater Sustainability Plan, Public Review Draft, Section 2, pg. 2-65

[b]Vina Groundwater Sustainability Plan, Public Final Draft, Section 2, pg. 82

[c]Colusa Groundwater Sustainability Plan, Final Draft Report, Section 3, pg. 3-96

[d]Corning Groundwater Sustainability Plan, Public Review Draft, Section 4, pg. 4-69

This groundwater pumping impacts groundwater storage as evidenced by declining groundwater levels and impacts surface-groundwater interactions as evidenced by decreased streamflow and more reaches becoming losing streams. These numbers

indicate a need to understand the origin of groundwater pumping and the potential impacts to the subbasins as water users pull from a shared resource. In looking at these pumping numbers, a particular concern that becomes palpable is that all the GSPs identify increased groundwater pumping which will result in groundwater storage impacts and will result in increased streamflow depletion.

After reviewing the documents, senior surface water rights holders and their operations seem to be a minor share of the use of the resource, but a significant contributor to the replenishment of the resource. We ask that as GSAs move from planning to implementation and continue to look for opportunities to leverage surface water over groundwater, you consider those members and partners with senior water rights and stable contracts that contribute to our shared aquifers and provide high quality environmental habitat. We look forward to better identifying and quantifying this benefit for the subbasins during implementation. Further, we ask that GSAs work with their County partners to consider land use planning and accountability.

Thank you for your consideration of these concerns. We urge you to consider language to address or at least acknowledge this issue in the GSPs. We look forward to working through this issue during implementation.

From: Kathryn Vogt-Haefelfinger <kathrynvogthaefelfinger@gmail.com>
Sent: Sunday, October 17, 2021 7:17 PM
To: nbethurem@tcpw.ca.gov; Lisa Hunter <LHunter@countyofglenn.net>
Subject: Groundwater Sustainability Plan Draft / Tehema County and Glenn County

Dear Ms. Bethurem
Dear Ms. Hunter
GSA Staff Tehema County and Glenn County

We are reaching out to you regarding the Groundwater Sustainability Plan Draft for the Corning Subbasin.
As Westside landowners, we would like to voice our concerns regarding the following issues:

1. **Communication with Landowners on the Westside**

We are joining the conversation regarding the Groundwater Sustainability Plan Draft late in the process. This is not due to lack of interest in the subject matter. Far from that. We simply did not receive information making it clear to us that our property is in the Corning Subbasin GSP.
It was not until it was pointed out to us in late August of 2021 by a wesside Landowner, that we were made aware of such and of the possibility of being affected by a per acre tax.
Moving forward, we would suggest that all Landowners receive information and notifications directly from you by mail. In addition, GSP information should be shared with the public and stakeholders via local newspapers.
It is our understanding that to this day not all stakeholders are aware of the direct impact the GSP will have on them. We believe that it is of the utmost importance that GSP information reaches all Landowners and domestic well owners. Stakeholders need to understand the process and the funding mechanisms and must be made aware of the impact the GSP will have on them and on their livelihood.

2. **Funding --- per acre fee**

We would like to voice our concerns regarding the funding of the GSP, specifically the possible per acre fee.
We must point out and underline the unfairness a per acre fee would have on Westside and Dryland Landowners.

We understand that there are several ways to fund the GSP capital projects, activities, and management. Funding mechanisms like taxes, fees and assessment each having its own benefits, limitations, and problems.

Fairness and equity are paramount because a “one size fits all” will have potentially profound consequences for property owners and the type of land owned, including uses thereof. For instance, some landowners such as those at Quiet Hills Ranch (established in 1930), now have numerous family members as minority owners. Due to water limitations, the land can only be used for cattle operations. Income is therefore limited. If a flat tax were imposed on a per acre basis, the result would be a permanent financial loss from operations. Such a condition is not sustainable or correctable. Fairness and equity demand a funding process which does not destroy this nearly 100 year ownership. Moreover, QHR provides substantial community benefits from its operation. Wildlife is provided protection, feed, and water. Fire danger, which could have a devastating effect on numerous other people, is minimized by the annual grazing of cattle. Roads are maintained so that emergency vehicles can easily and quickly get where they need to go.

Other landowners, with more water, would be forced to convert from cattle grazing to orchards, with a substantial negative impact on groundwater.

The owner adjacent to QHR for example owns 509 acres, which is leased out to third party cattlemen. There are no structures on that property. There is one pond, with water only if there is sufficient run-off from the rains. A $2.00 per acre tax would consume the entire lease income, a result which would be unfair, unjust, and inequitable in the extreme. The GSP plan for capital projects and activities would provide no benefits whatsoever to the type of owners listed above. Those benefits should be paid by those who actually benefit therefrom, not allow them to benefit at a lower effective cost at the expense of poorer landowners who receive no benefit whatsoever.

A tax-based system would be the most unfair and inequitable. Taxes need not be directly tied to benefits or costs. The negative consequences described above would be guaranteed results, with the further effect of potentially draining water tables and enhancing fire danger and threatening wildlife otherwise provided for.

In short, it is of critical importance that GSP funding programs-whether of taxes, fees or assessments-take account of the actual and practical effects on landowners in a Water Basin with so many different land sizes, uses, and additional community benefits.

Thank you.

Sincerely,

Kathryn Vogt-Haefelfinger & Monika Haefelfinger

Co-Presidents

Quiet Hills Ranch Co.
3800 County Road 200
Orland, CA 95963

Comments on the Corning Subbasin GSA
Comments by Holly E. Reimers, Landowner

Page	Subsection	Table	Figure	Comments
ES-1			ES-1	The map of the Corning Subbasin shows a lot of ground on the west side of the basin. Most of the ground in the western part of the basin and those lands west and south of Black Butte Lake has little if any groundwater. These land owners are receiving no benefit from being included in this basin and should be removed.
ES-3				The move away from surface water to the use of ground water in the past several years should be alarming. There has been a major change away from annual crops to perennial crops. With the increase of planting of perennial crops - ie trees - the overdraft of the ground water is happening now. The use of surface water should be addressed and encouraged.
2-41	2.7.4			The Arundo is a major hazard. Especially during this very dry year as most has died and would explode should it ever should catch fire. The Glenn County RCD, especially Kandi Manhart-Belding has done extensive work regarding the removal of this pest. Some land owners would be willing to accept the costs while others may need some type of financial aid. Not only is this a major user of groundwater but an extreme fire hazard and should be removed and controlled.
2-44	2.7.8			The use of pressurized water sources to be able to use the surface water provided from the OUWUA in Place of ground water should be encouraged. The OUWUA system is in place to also move high water during the winter months to areas that can help in the recharge of the ground water.
8.2				What does not seem to be addressed is a "fee"/"tax" on those lands within the basin. This would add to the cost with no additional benefit to the landowner. It is noted that the west side of the basin is marginal

ground used primarily for the grazing of livestock. To increase the amounts that we are already paying per acre would force some to look for other means to try and hold on to their ranches. As in selling their groundwater which would not benefit the groundwater situation in the Corning Subbasin.

An Additional thought

It has come to mine and other attention that there are groups that have been formed to "farm groundwater". **Exporting ground water outside of the basin should not be allowed**, especially when it is leaving the Northern California area. This is **NOT SUPPORTABLE!**

Final Thoughts

Reading through the Corning Subbasin GSP is somewhat of a monumental task. Reading through sections 3, 4 and 5 one should at least have a graduate degree in Engineering, Hydrology and Geology just for starters. So much of this is way over the comprehension level of the normal landowner of Northern California. I overall feeling is that what you are doing is too little too late, as domestic wells are going dry and landowners/homeowners are having to drill deeper just to find enough water to flush their toilets. It seems that the only way to correct this is a path that none of us want to go down, meters on wells and being told what **we can or can not do with the ground we own.**

Tehama County
Corning Subbasin GSP, Attn: Nichole Bethurem
9380 San Benito Ave.
Gerber, CA 96035

Glenn County
Corning Subbasin GSP, Attn: Lisa Hunter
225 N Tehama St.
Willows, CA 95988

RE: Comments of the Paskenta Band of Nomlaki Indians on the Draft Groundwater Sustainability Plan for the Corning Subbasin

Dear Members of the Corning Subbasin Groundwater Sustainability Agency

On behalf of the Paskenta Band of Nomlaki Indians (the "Tribe"), a federally recognized tribal nation, I am providing you this letter and the enclosed comments from Natural Resources Consulting Engineers, Inc. ("NRCE") regarding the Draft Groundwater Sustainability Plan for the Corning Subbasin (the "Draft Plan"). As described below and in the enclosed comments, the Tribe is primarily concerned with how the Plan fails to account for the existence of federally protected tribal water rights within the Corning Subbasin. As a federally recognized tribal nation and the beneficial owner of lands held in trust by the United States, the Tribe possesses reserved water rights for which the United States has a trust responsibility. The current version of the Draft Plan does not acknowledge the existence of these rights in the Corning Subbasin. Any final plan should account for such reserved water rights and address the other data deficiencies outlined below and more fully discussed in the enclosed NRCE comments.

Background on the Tribe

The Nomlaki are one of the principal groups of indigenous people with traditional lands in the northern Sacramento Valley and eastern foothills of the northern California Coastal Mountain Ranges. We have inhabited this region, which encompasses the Corning Subbasin, since time immemorial.

As more and more settlers entered California, native peoples, including the Nomlaki, were removed from their traditional lands to make way for American farms and ranches. Over time, the Nomlaki people were moved to the Nome Lackee Reservation along with all other neighboring native peoples. The Tribe was subsequently forced over the mountains to the west and were placed on the Nome Cult (Round Valley)

Reservation. During these difficult times, many Nomlaki perished and those who survived were forced to assimilate by working for local farmers and ranchers.[1]

Nomlaki culture was almost lost completely but survivors of this era held on to what was left of our traditions and endured. By the beginning of the twentieth century, efforts to reverse the situation were underway.[2] In 1906 and 1908, funds were appropriated by Congress to purchase lands for Native Americans and, by 1917, a special commissioner was appointed to purchase land and provide homes for the Paskenta Indians who at this time only numbered 53.[3] In 1958, Congress terminated the federally recognized status of the Tribe and ordered the sale of the Paskenta Rancheria. In 1994, the Tribe's tribal status was restored pursuant to the Paskenta Band Restoration Act ("PBRA").[4] Pursuant to the PBRA, the Tribe acquired a 2,000-acre reservation to the southwest of Corning, California, where the Rolling Hills Casino is currently located (the "Paskenta Reservation"). Today, the Tribe and its growing economy is a major contributor to the economic stability of Corning and the region.

Jurisdiction over the Tribe's Federally-Protected Reserved Water Rights

The Tribe exercises inherent governmental authority over the Paskenta Reservation, which includes lands and natural resources within the Reservation held in trust by the United States for our benefit.[5] Tribal nations are sovereign governments and property owners, which have retained the inherent power to regulate their territory, exclusive of state and local governments.[6] As such, State and local governments generally *lack* regulatory authority and other forms of civil jurisdiction over tribes, tribal citizens and tribally-owned resources located on trust lands, including groundwater.

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[1] Walter Goldschmidt, Nomlaki Ethnography, University of California Publications in American Archaeology and Anthropology, 42(4), 303-443 (1951); Walter Goldschmidt, Nomlaki in California, Handbook of North American Indians, Vol. 8 Smithsonian Institution 341-349 (1978); Donald Lindsay Hislop, The Nome Lackee Indian Reservation 1854 – 1870, Association for Northern California Records and Research (1978); Benjamin Madley, Unholy Traffic in Human Blood and Souls: Systems of California Indian Servitude under U.S. Rule, 83 Pacific Historical Review, 626-667 (2014); Article, Indenturing Indians – A Nice System of Slavery, Sacramento Daily Union, Jan. 30, 1861; William Shelton, Images of America: Red Bluff, Arcadia Publishing (2006); Josie Smith and Tehama County Genealogical & Historical Society, Images of America: Tehama County, Arcadia Publishing (2016).

[2] Indian Welfare Meeting Closes: Home Mission Urges Better Care of Children of Red Men, Sacramento Daily Union, March 25, 1922.

[3] Paskenta Indians To Be Provided Homes, Red Bluff Daily News, Feb. 11, 1917.

[4] Pub. L. No. 103–454, §§ 301–03, 108 Stat. 4791 (codified as amended at 25 U.S.C. §§ 1300m *et seq.*).

[5] *See, e.g.*, *New Mexico v. Mescalero Apache Tribe*, 462 U.S. 324, 335–36 (1983) ("tribes have the power to manage the use of its territory and resources by both members and nonmembers [and] to undertake and regulate economic activity within the reservation"); *Merrion v. Jicarilla Apache Tribe*, 455 U.S. 130, 137 (1982) (same).

[6] *See* COHEN'S HANDBOOK OF FEDERAL INDIAN LAW §2.02, at 118 (Nell Jessup Newton ed., 2012) (citing *Worcester v. Georgia*, 31 U.S. 515, 552-553 (1832)).

Thus, tribal nations "may legislate to ensure environmental protection" independent of state and local law.[7] In particular, tribal governments possess the authority to establish comprehensive natural resource ordinances or laws that can touch upon all aspects of natural resource regulation, including water resource management.

Laws passed by Congress restored the Tribe's ability to protect its reserved water rights on the Paskenta Reservation. One such law is the PBRA, which restored the Tribe's federal recognition status. The PBRA expressly states that any lands taken into federal trust for the Tribe "shall be part of the Tribe's reservation." The PBRA also restored all the federal rights and privileges of the Tribe and repealed the California Rancheria Termination Act of 1958. The PBRA specifically states,

> [A]ll rights and privileges of the Tribe and its members under any Federal treaty, Executive order, agreement, or statute, or under any other authority which were *diminished or lost* under the Act of August 18, 1958 (Public Law 85-671; 72 Stat. 619), are hereby restored and the provision of such Act shall be inapplicable to the Tribe and its members after the date of enactment of this Act.

Id. (emphasis added). The Tribe reestablished its reservation lands in 2001 pursuant to the PBRA and, since then, has continued to grow its economy in partnership with Tehama County through the acquisition and development of additional trust lands.

Federal law further provides that the United States owes a special trust responsibility to federally recognized tribal nations, such as the Tribe. As applicable here, this trust responsibility requires the United States to protect tribally owned resources and assets, and to manage such resources for the benefit of the Tribe. The United States Supreme Court has made clear that when the federal government withdraws its land from the public domain and reserves it for the purpose of an Indian reservation, the federal government also reserves the water resources appurtenant to those lands.[8] As discussed above, the Tribe is the beneficial owner of lands that the United States has acquired in trust on its behalf. The Tribe possesses federally reserved water rights, including groundwater rights, which are appurtenant to these lands.

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[7] *Id.*

[8] *See Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water District,* 849 F.3d 1262 (9th Cir. 2017), cert denied, 138 S. Ct. 469, 199 L. Ed. 2d 356 (2017) and cert. denied, 138 S. Ct. 468, 199 L. Ed. 2d 356 (2017) *see also Cappaert v. United States*, 426 U.S. 128, 138, 96 S.Ct. 2062, 48 L.Ed.2d 523 (1976) (citing U.S. Const. art. I, § 8; U.S. Const. art. IV, § 3); *Winters v. United States*, 207 U.S. 564, 575–78, 28 S.Ct. 207, 52 L.Ed. 340 (1908); *Colville Confederated Tribes v. Walton*, 647 F.2d 42, 46 (9th Cir. 1981).

Thus, the Tribe and the United States, as opposed to state and local governments, possess exclusive authority to regulate and to protect the Tribe's ability to utilize its reserved water rights on the Paskenta Reservation. Any groundwater sustainability plan for the Corning Subbasin must consider these facts as part of any groundwater planning for the region.

Comments on the Draft Plan

As discussed in greater depth in the enclosed comments, the Draft Plan contemplates neither the existence of the Tribe's water rights nor the impact of those rights on the Draft Plan or the viability of management mechanisms contemplated therein. Those omissions detract from numerous parts of the Draft Plan. Future iterations of the plan must account for these rights or the plan will remain fundamentally flawed.

In addition, NRCE has identified other data gaps to address prior to the completion of a final groundwater sustainability plan for the Corning Subbasin. For example, the enclosed comments point out data deficiencies that undermine conclusions regarding groundwater recharge from precipitation and groundwater movement within the Subbasin. In general, these comments illustrate that assumptions made in the Draft Plan regarding groundwater volumes and flows within the Corning Subbasin must be further substantiated if they are to be relied upon for accurate groundwater management.

In closing, the Tribe objects to the Draft Plan because of the deficiencies referenced above and in the enclosed comments. While we support a policy of sustainable groundwater management, the Tribe does not consent to any state or local control over its federally protected water resources. The Tribe is separately pursuing a plan to establish our own groundwater management planning efforts. We look forward to future opportunities to coordinate and collaborate with our neighbors in these regards.

Sincerely,

Andrew Alejandre
Tribal Chairperson

Enclosure:

- 10.25.2021 Letter from Natural Resources Consulting Engineers, Inc.

Paskenta Band of Nomlaki Indians Comments to the Corning Subbasin Draft Groundwater Sustainability Plan

1.0 INTRODUCTION

The Paskenta Band of Nomlaki Indians has contracted services from Natural Resources Consulting Engineers, Inc. (NRCE) to perform a technical review of the Corning Subbasin Draft Groundwater Sustainability Plan (GSP). This technical review is in response to the Groundwater Sustainability Agencies (GSAs) solicitation of comments from the Paskenta Band regarding the Draft GSP. The Draft GSP was prepared to comply with the Sustainable Groundwater Management Act, passed by the California State Legislature in 2014. That law requires the formation of Groundwater Sustainability Agencies (GSAs) to prepare a GSP for all high- and medium- priority groundwater basins in the state. The Corning Subbasin is a high-priority basin and is managed by two GSAs: Tehama County Flood Control & Water Conservation District and Corning Sub-basin GSA. The focus of GSPs is to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Basins must reach sustainability within 20 years of implementing their plans.

NRCE has reviewed and evaluated the GSP and associated appendices. The following sections include comments to each section of the GSP. The GSP is organized in the following sections: Introduction, Description of the Plan Area, Basin Setting, Water Budgets, Monitoring Network, Sustainable Management Criteria, Projects and Management Actions, and GSP Implementation. NRCE focused its efforts with regards to reviewing the GSP by assessing the possible impacts to the Paskenta Band's interests, including groundwater quantity and quality, water demands, and water rights.

2.0 SECTION SPECIFIC COMMENTS

The following comments are specific comments to each section of the GSP.

2.1 Section 1 and 2 – Introduction and Description of Plan Area.

The Corning Subbasin is bound by the Coast Range to the west, Thomes Creek to the north, Sacramento River to the east, and Black Butte Lake, Orland Buttes, Stony Creek, and the Tehama-Glenn County line to the south. The GSAs sustainability goal is defined as the absence of six undesirable results throughout the subbasin. The six undesirable results are chronic lowering of groundwater levels, significant and unreasonable reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletion of interconnected surface water.

1. P. 1-2, 1.3.3 Memorandum of Understanding Among Groundwater Sustainability Agencies in the Corning Subbasin. MOU legal framework, item number 4 states, "To coordinate basin-wide public involvement and public outreach and engagement for developing and implementing the Corning Subbasin GSP."

Comment: The Paskenta Band is developing its own groundwater monitoring and management plans. The Tribe may share details of these plans with the GSAs at a suitable time and provide coordination with the GSP.

2. Page 2-3 states, "The Coast Range mountains to the west and the Orland Buttes to the south of Black Butte Lake are not defined as groundwater basins by DWR and consequently are not subject to SGMA."

   Comment: Groundwater in the subbasin is recharged naturally from precipitation, streams and rivers. Most precipitation occurs during the winter months in the Coast Range. This precipitation is a component of recharge to the aquifer in the subbasin. There is uncertainty to interconnected surface water in the base of the Coast Range foothills in the western portion of the subbasin and the subbasin aquifer. Recharge may occur a great distance from the location of use. During the implementation of the GSP, a better understanding of the connection of surface water and groundwater from the base of the Coast Range foothills should be included. Understanding the western spatial extent of the aquifer and the inflows from the base of the foothills would also support the uncertainties in the water budget and changes in groundwater storage.

3. P.2-4, 2.1.3 Adjudicated Areas and Alternative Plans

   Comment: The Paskenta Bands federally reserved water rights have not been accounted for.

4. P. 2-26, 2.5.2 Tribal Lands.

   Comment: The Tribal Lands are completely reliant on groundwater for drinking water and irrigation, making the implementation of groundwater monitoring and management plans a priority for the protection of their water resources. The GSP does not account for the Tribe's federally reserved water rights, which cover additional future development and water use.

2.2 Section 3 – Basin Setting

A conceptual model was developed that describes the basin setting boundaries, topography, soils, geology, and aquifers withing the subbasin. The hydrogeologic conceptual model also describes the data gaps and uncertainties related to the model. The historical and current groundwater conditions are detailed further by analyzing groundwater elevations, storage, subsidence, seawater intrusion, groundwater quality, interconnected surface water, and data gaps and uncertainties are discussed.

5. P. 3-27 states, "As the Tehama Formation pinches out at the Subbasin's western boundary, substantial subsurface inflow from that direction is unlikely."

   Comment: "Substantial" is not defined in terms of ranges of subsurface inflow from the Coast Range foothills and intermittent drainages. Without a range or error measurement, "substantial" is open to interpretation. Infiltration from precipitation in the drainages of the foothills should be accounted for since contributions to groundwater will likely reach the aquifer beneath the Reservation. The GSP states there is a presence of highly permeable alluvial sediments in and along the subbasin's watercourses, including intermittent or ephemeral streams. There are several intermittent drainages in the western area of the subbasin which are connected to the alluvial, Tehama, and Tuscan aquifers. A better understanding of the volume of recharge from the foothills of the Coast Ranges that reaches the aquifer is needed.

6. P. 3-49, 3.2.2.1 Current Groundwater Elevation Contours and Flow Direction. "During both spring and fall, groundwater elevations are higher in the north and west of the subbasin, reflecting regional gradients that drive groundwater toward the center of the valley."

7. Comment: Groundwater movement is toward the central area of the basin and is directed toward the Reservation. Water quality should be monitored to establish a current baseline, and to recognize any reductions in water quality over time. There is heavy land use for agriculture north of the Reservation and groundwater contamination is possible from pesticides and fertilizers. Groundwater from these agricultural lands flows toward the Reservation, a potential impact to the groundwater supplies for the Reservation.

8. P. 3-49, 3.2.2.1 Current Groundwater Elevation Contours and Flow Direction. "Groundwater elevation contours in the far western portion of the Subbasin are not available, due to the lack of wells that are monitored in this area."

   Comments: As discussed previously, the importance of understanding the volume of water that contributes to the alluvial aquifer will help refine the hydrologic model and ultimately lead to a better understanding of groundwater storage.

9. P.3-82, Section 3.2.2.2 Subbasin-Wide Historical Groundwater Elevations.
   This section describes the groundwater elevation responses to dry, average, and wet years. During dry water years, surface water is less reliable and groundwater extractions increase. Groundwater elevations dropped as much as 30 feet during dry years in areas north and south of the subbasin. During wet years the groundwater elevations increased recovered by as much as 10 feet, however wells in the central area of the basin continue to decline 3 to 10 feet.

Comment: There is an apparent lag effect for recovery of groundwater elevation after prolonged drought in the central area of the Subbasin. Better planning for dry years and distributing surface water supplies can lessen the impact to future groundwater recoveries in the central area of the Subbasin.

2.3 Section 4 – Water Budgets

Water budgets were developed for groundwater, surface water, and land use water and are presented in this section of the GSP. Water budgets were developed using an integrated regional hydrologic model that simulates water movement through the land surface, surface water, and groundwater flow systems. The model does not appear to be calibrated or has limited data for calibration to any real time data, historical, current, or otherwise.

10. P.4-13, 4.1.3 Water Budget Timeframes.

Historic, current, and future water budgets provide important timeframes. Comparing the timeframes can show potential trends in water budget gains and losses which can be used for future groundwater management decisions. The historical period groundwater has not been subjected to overdraft and has maintained positive storage. Water levels have been dropping the last 15 years in some areas of the subbasin, reflecting a negative storage for the current groundwater budget. Future water budgets project storage declines.

Comment: The water budgets cumulative and annual change in storage is declining in the current water budget simulation relative to the historical water budget simulation. This decline appears to be a continuing trend in future water budgets and, if so, the subbasin would continue to experience groundwater level and storage declines compared to historical conditions. The model used to estimate the water budgets is designed from uncalibrated estimates and is susceptible to greater error. Numerical or analytical groundwater flow models may be able to better predict future water budget trends in localized areas of the Subbasin. Then sharing the results and data for the regional hydrological model calibration during GSP implementation.

11. P. 4-16, Section 4.1.4 Key Water Budget Take-Aways, third bullet.

Comment: The hydrologic model predicts pumping from crop requirements, not real flowrate data. Using actual pumping data and pumping estimates based on well depth and size among other factors, would provide a better estimate of outflow from wells in the water budgets.

2.4 Section 5 – Monitoring Networks

This section discusses the monitoring network and the methods of data collection. The section includes the locations of the monitoring networks and any data gaps that exist relating to sustainability indicators described in the GSP. The monitoring networks data is used to characterize the aquifer and related surface water conditions and evaluate any changes that occur

during implementation of the GSP. Data gaps are identified where data is insufficient quality or frequency to support characterizing groundwater conditions or trends.

12. P. 5-15, 5.2.6 Groundwater Level Monitoring Data Gaps.

    Comment: Currently there are a few localized spatial data gaps for monitoring wells in the western one-third of the subbasin in the limited agricultural land use areas. Understanding groundwater elevations near recharge areas will help understand the inputs to groundwater storage.

13. Page 5-19, Section 5.4 Groundwater Quality Monitoring Network states, "The sustainability indicator for degraded groundwater quality is evaluated by collecting and analyzing samples from a network of groundwater quality monitoring wells."

    Comment: The well networks should be spatially distributed throughout the Subbasin as data gaps are identified and resolved during implementation of the GSP.

2.5 Section 6 – Sustainable Management Criteria

The sustainability goal that culminates with no undesirable results during planning and implementation horizon. The GSP discusses minimum thresholds, measurable objectives, interim milestones, and undesirable results from each sustainability indicator.

Comments:

14. P. 6-4, Section 6.2. Description of the Sustainability Goal for the Corning Subbasin

    Comment: This description omits any mention of the Paskenta Band's federally reserved water rights. The Tribe has a right to water resources, including groundwater, necessary to sustain existing and future needs. The Tribe should be included in the list of agencies with whom coordination is needed.

15. P. 6-6 to 67, Section 6.5. Sustainable Management Criteria Summary

    Comment: The Paskenta Band has a federally reserved water right that includes the availability of groundwater on its Reservation. This should be part of the SMC.

16. P. 6-7. Table 6-1. Sustainable Management Criteria Summary

    Comment: Reduction in groundwater storage (second row), Minimum Threshold refers to groundwater levels "same as chronic lowering of groundwater levels minimum thresholds". There are two minimum thresholds for groundwater levels – one for stable wells and one for declining wells. Are there two thresholds for groundwater storage? If so, an explanation of how this would be applied is needed.

17. P. 6-7. Table 6-1. Sustainable Management Criteria Summary

Comment: Degraded groundwater quality (third row), Interim Milestone is "Identical to current conditions". Are the TDS values at all wells currently under the SMCL of 500 mg/L? The Undesirable Result is qualified by "where it can be established that GSP implementation is the cause of the exceedance". Why have this qualification? Shouldn't the GSP be concerned about degraded water quality whatever the cause?

18. P. 6-7. Table 6-1. Sustainable Management Criteria Summary
    Comment: Depletion of interconnected surface water (fifth row), Measurement seems to be missing a word. Should it be "A subset of shallow wells used for *monitoring* the chronic lowering of groundwater levels…"?

19. P. 6-13, Section 6.6.2.1, Assign Revised minimum thresholds and measurable objectives
    Comment: "The minimum threshold for wells with declining groundwater levels was set to the fall of 2012 measurement…" This appears to be different from Table 6-1, which states the minimum threshold for declining wells is "minimum fall groundwater elevation since 2012".

20. P. 6-26, Section 6.6.2.3 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators
    Comment: For land subsidence, the GSP allows that since the groundwater level minimum thresholds are lower than current conditions, that may "temporarily induce additional subsidence in some areas". How do we know this would be temporary?

21. P. 6-27, Section 6.6.2.5 Effects of Minimum Thresholds on Beneficial Users and Land Uses
    Comment: The urban land uses and users sub-section states that "extensive urban growth is not predicted". This does not account for the Tribe's federally reserved water rights and may conflict with the Paskenta Band's goals. In general, Indian reservations serve as permanent homelands for tribal members and may encompass a wide array of water uses.

22. P. 6-35. Section 6.6.4.3 Effects on Beneficial Users and Land Uses
    Comment: This section discusses the undesirability of having the 20% allowable exceedances occur in the same geographic area. "To avoid this, the monitoring system was developed to have broad geographic coverage, ensuring that minimum threshold exceedances will not be clustered in a single area." It is not clear how having broad coverage in the monitoring system prevents exceedances from occurring in the same area. It seems likely that exceedances would occur in the same area given the zones of similar water level trends.

2.6 Section 7 – Projects and Management Actions

Projects and management actions are described for meeting sustainability goals of key elements for implementing the proposed strategies, costs, benefits, schedule, permitting requirements, legal framework, and logistics such as water availability and coordination with other agencies.

Comment:

23. P. 7-1, Section 7.1. Introduction
    Comment: First set of bullet points, fifth bullet point. "Set the stage for cooperation and collaboration for local, state, and federal agencies in successful water resources management in the Subbasin." This sentence should also include "tribal" in the list of agencies. Please also consider whether the United States Bureau of Indian Affairs should be included given its role as a trustee of water rights in the Subbasin.
24. P. 7-1, Section 7.1. Introduction
    Comment: Second set of bullet points, first bullet point. "Additional vetting by all necessary stakeholders, since implementing projects and management actions will be a collaborative effort between the GSAs and coordinating partners such as the USBR, TCCA, and local water districts." This sentence should also include "tribal" in the list of partners.
25. Pages 7-2 to 7-7. Section 7.2 Process for Identifying and Developing Projects and Management Actions
    Comment: In general, the Paskenta Band was not consulted or considered in the development of projects and management actions. The Tribe's federally reserved rights are not mentioned in Section 7.2.1. Data from the Tribe is not included in Section 7.2.2. The Tribe is not listed as one of the stakeholders in Section 7.2.3.

26. Pages 7-7 to 7-24. Section 7.3 Management Actions
    Comment: While the Paskenta Band is not necessarily opposed to the goals of the GSP, any management actions that impact the Tribe must recognize the Tribe's sovereignty and authority to manage its own resources. The Tribe's participation in the management actions including data sharing, reporting, well management, ordinances, land use, and best management practices must be negotiated independent of any other agency or stakeholder..

27. Pages 7-24 to 7-61. Section 7.4 Projects
    Comment: See previous comment. Any mitigation project must be evaluated to ensure it does not impact the Paskenta Band's federally reserved water rights or tribal sovereignty. Projects that do potentially impact the Tribe must be negotiated and approved by the Tribe. Otherwise, such activities will risk violating federal law regarding tribal water rights.

28. Pages 7-41 to 7-47. Section 7.4.3.4 Priority Project 4: Groundwater Recharge through Unlined Conveyance Features
    Comment: At least one of the mentioned ephemeral creeks (Brannin Creek) has the potential to impact the Paskenta Band. Development of groundwater recharge on this

creek and possibly others will require consultation with and approval by the Tribe to the extent they impact the Tribe's interests.

29. Pages 7-47 to 7-51. Section 7.4.3.5 Priority Project 5: Off-Stream Surface Water Storage Comment: At least two of the mentioned ephemeral creeks (Brannin Creek and Rice Creek) have the potential to impact the Paskenta Band. Development of off-stream storage for these creeks or other unnamed tributaries will require consultation with and approval by the Tribe to the extent they impact the Tribe's interests.

2.7 Section 8 – GPS Implementation

The costs, schedule, and framework of the GSP implementation for annual and 5-year evaluations.

Comment:

30. Page 7-61. Section 7.5 Funding and Collaboration Opportunities

The Paskenta Band should be added as one of the entities with whom collaboration will be required.

Glenn County
FARM BUREAU

October 25, 2021

Corning Subbasin GSA TAC and Board,

RE: Non-irrigated Acres within the Corning Sub-basin

Glenn County Farm Bureau, representing nearly 700 local farmers and ranchers, is writing to you in support of fair representation and cost distribution within the Corning Sub-basin.

The non-irrigated lands, on the western side of Black Butte Lake, do not have usable groundwater in any sort of quantity to sustain permanent crops such as orchards. When water is found, it's quality is often unusable. Currently, west side dry land owners pump very little, if any, from our groundwater basin. There are a handful of domestic wells, as well as a minimal number of small-diameter wells for livestock and wildlife watering only. For the few wells that do supply water to livestock, the amount pumped is so few acre feet per year that it is negligible.

We do not consider the currently proposed per acre fee to be a viable option. The primary source of income of these dry land areas comes from livestock grazing leases; the **proposed $2.90/acre fee represents greater than 32% of the current income on average**. The cattle industry simply can not support that sort of expense. West side dry land owners would be forced to pump whatever little water they can access, to help pay the unsustainable costs imposed on them. This additional pumping does not work toward the goals of the GSA's in the long run.

We are also concerned about the dry-land landowners being inadequately represented on the Corning Subbasin board. Currently, there is no one representing the westside / dryland landowners, even though a local landowner offered to represent at the beginning of this process. Over 50% of the Glenn County acreage in the Corning Sub-basin is non-irrigated. In addition, over 70% of the Tehama County acreage is non-irrigated, also without adequate representation.

In closing, thank you for considering the unique situation of the dry land, westside landowners. As is clear from the irrigated vs. non-irrigated acreage breakdown, as well as the distinct geographic separation, a one size fits all plan does not work here. We appreciate the continued dialogue for a more equitable cost breakdown for irrigated vs. non-irrigated lands.

Sincerely,

Ritta Martin

Ritta Martin, President
Glenn County Farm Bureau

831 5th Street, Orland, Ca 95963 | gcfb@glennfarmbureau.com since 1914 office 530.865.9636 | fax 530.865.7182

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Deseret Farms of California

OCTOBER 25, 2021

VIA E-MAIL and U.S. MAIL

Tehama County
c/o: Nichole Bethurem
9380 San Benito Avenue
Gerber, CA 96035
Email: nbethurem@tcpw.ca.gov

Glenn County
c/o: Lisa Hunter
225 N. Tehama Street
Willows, CA 95988
Email: lhunter@countyofglenn.net

RE: Corning Subbasin GSP Comments

Dear Board Members:

The purpose of this letter is to provide Tehama County Flood Control & Water Conservation District Groundwater Sustainability Agency and Corning Subbasin Groundwater Sustainability Agency, collectively the "GSAs," with the comments of Deseret Farms of California to the GSAs' draft groundwater sustainability plan (GSP).

First and foremost, we appreciate the time and effort the GSAs' management staff, committees, and consultants have committed to preparing this draft GSP. Further, we appreciate the opportunity to provide comments to the GSAs regarding this draft GSP. We hope the GSAs will consider the following comments in finalizing this draft GSP for submission to the Department of Water Resources (DWR). In considering the following comments, we recognize that this draft GSP is a "living document," and will undergo updates and modifications as more information is gathered to help the Corning Subbasin reach sustainability by 2042 and beyond.

Our comments are as follows:

1. **Figures 6-1 and 6-2 of the draft GSP should be refined using the "polygon approach."**

Section 6.6 of the Sustainable Management Criteria (SMC) chapter, regarding the Chronic Lowering of Groundwater Levels identifies three general zones with similar groundwater level trends. (See Draft GSP, Section 6.6.2.1 (Pg. 6-11).) The grouping of these three general zones, as illustrated in Figures 6-1 and 6-2, demonstrates the variability of groundwater conditions across the

Subbasin *using oval shapes*. The "west" general zone demonstrates the area within the Subbasin in which groundwater levels are declining the most. The "central" general zone demonstrates the area within the Subbasin in which groundwater levels are only slightly declining. And finally, the "east" general zone demonstrates the area within the Subbasin in which groundwater levels are stable. Notably, however, this "oval approach" creates overlaps between each of the three general zones. This overlapping could result in unclear data and therefore affect the GSAs' overall understanding of the Subbasin and the unique characteristics of each general zone. To avoid this issue, the GSAs should refine Figures 6-1 and 6-2 using the "polygon approach."

The "polygon approach" will allow the GSAs to better define areas related to selected representative monitoring points (RMP). It will also help to avoid overlap of information, and tie in land and aquifer characteristics based on established RMPs. Vina Groundwater Sustainability Agency's (Vina GSA) use of the "polygon approach" provides a good example of how this approach can be used successfully. There, Vina GSA created management areas by dividing the subbasin into polygons. Each polygon, being different in shape and size, was determine by the distribution of the representative monitoring site wells in the area. Vina GSA found that its use of this approach resulted in a more refined data set for use in its GSP. Therefore, we recommend that the GSAs refine Figures 6-1 and 6-2 using the "polygon approach," and in doing so, refer to Vina GSA's development and use of this approach.

2. **The draft GSP should establish management zones using those newly established polygons.**

Currently, the GSAs have not established management areas within the Corning Subbasin. (Draft GSP, Section 6.4 (Pg. 6-6).) Notably, however, the GSAs expressly "reserve the right to establish management areas, if deemed necessary." (*Ibid.*)

As noted above, the GSAs have already identified significant differences in three areas within the Subbasin. Accordingly, we do not believe that the GSAs should subject the entire Subbasin and its stakeholders to the same management practices. Instead, we believe that management areas are necessary, and therefore recommend that the GSAs establish such management areas as appropriate to reflect the polygons discussed above, once established. Based on some of the already existing data, it seems that organizing these management areas from east (around the Sacramento River) to west (around steeper terrain) would be best.

3. **The draft GSP should revise the Measurable Objectives and the Minimum Thresholds.**

The draft GSP establishes Measurable Objectives (MO) and Minimum Thresholds (MT) for each SMC beyond what is required to achieve the GSA's sustainability goal for the Subbasin. For example, the MTs for the Chronic Lowering of Groundwater SMC are set as follows:

- For wells that had recent historical (between 2010 and 2019) stable groundwater elevations (stable wells): Minimum fall groundwater elevation since 2012 minus 20-foot buffer.
- For wells that had recent historical (between 2010 and 2019) declining groundwater elevations (declining wells): Minimum fall groundwater elevation since 2012 minus 20% of minimum groundwater level depth.

In contrast, draft GSPs of neighboring GSAs, such as the Red Bluff Subbasin and the Antelope Subbasin, provide less drastic MTs. Both GSAs have set the MTs for the Chronic Lowering of Groundwater SMC as follows:

- Upper Aquifer: Spring groundwater elevation where less than 10 - 20% (on average) of domestic wells could potentially be impacted.
- Lower Aquifer: Spring groundwater elevation minus 20 to 120 feet.

We strive to work with the GSAs in achieving the sustainability goal for the Subbasin and protecting sustainability constructed domestic wells. To further these pursuits, we recommend that the GSAs revise the MOs and MTs to provide landowners with sufficient operating flexibility to help them realistically and timely achieve the purpose of the MOs and MTs, while allowing for flexibility to weather the next 20 years and beyond as we endeavor together to reach sustainability.

Thank you for the opportunity to provide these comments. We appreciate the significance of the considerations and decisions the GSAs must undertake, and we look forward to working with you further regarding these matters.

Very truly yours,

James Strong

James Strong
General Manager

October 25, 2021

Tehama County Flood Control and Water Conservation District GSA
9380 San Benito Ave
Gerber, CA 96035

Submitted via email: nbethurem@tcpw.ca.gov; lhunter@countyofglenn.net

Re: Public Comment Letter for Corning Subbasin Draft GSP

Dear Nicole Bethurem,

On behalf of the above-listed organizations, we appreciate the opportunity to comment on the Draft Groundwater Sustainability Plan (GSP) for the Corning Subbasin being prepared under the Sustainable Groundwater Management Act (SGMA). Our organizations are deeply engaged in and committed to the successful implementation of SGMA because we understand that groundwater is critical for the resilience of California's water portfolio, particularly in light of changing climate. Under the requirements of SGMA, Groundwater Sustainability Agencies (GSAs) must consider the interests of all beneficial uses and users of groundwater, such as domestic well owners, environmental users, surface water users, federal government, California Native American tribes and disadvantaged communities (Water Code 10723.2).

As stakeholder representatives for beneficial users of groundwater, our GSP review focuses on how well disadvantaged communities, drinking water users, tribes, climate change, and the environment were addressed in the GSP. While we appreciate that some basins have consulted us directly via focus groups, workshops, and working groups, we are providing public comment letters to all GSAs as a means to engage in the development of 2022 GSPs across the state. Recognizing that GSPs are complicated and resource intensive to develop, the intention of this letter is to provide constructive stakeholder feedback that can improve the GSP prior to submission to the State.

Based on our review, we have significant concerns regarding the treatment of key beneficial users in the Draft GSP and consider the GSP to be **insufficient** under SGMA. We highlight the following findings:

1. Beneficial uses and users **are not sufficiently** considered in GSP development.
    a. Human Right to Water considerations **are not sufficiently** incorporated.
    b. Public trust resources **are not sufficiently** considered.
    c. Impacts of Minimum Thresholds, Measurable Objectives and Undesirable Results on beneficial uses and users **are not sufficiently** analyzed.
2. Climate change **is not sufficiently** considered.

3. Data gaps **are not sufficiently** identified and the GSP **needs additional plans** to eliminate them.
4. Projects and Management Actions **do not sufficiently consider** potential impacts or benefits to beneficial uses and users.

Our specific comments related to the deficiencies of the Corning Subbasin Draft GSP along with recommendations on how to reconcile them, are provided in detail in **Attachment A.**

Please refer to the enclosed list of attachments for additional technical recommendations:

Attachment A	GSP Specific Comments
Attachment B	SGMA Tools to address DAC, drinking water, and environmental beneficial uses and users
Attachment C	Freshwater species located in the basin
Attachment D	The Nature Conservancy's "Identifying GDEs under SGMA: Best Practices for using the NC Dataset"
Attachment E	Maps of representative monitoring points in relation to key beneficial users

Thank you for fully considering our comments as you finalize your GSP.

Best Regards,

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Water Policy Analyst
Clean Water Action/Clean Water Fund

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Attachment A

Specific Comments on the Corning Subbasin Draft Groundwater Sustainability Plan

1. Consideration of Beneficial Uses and Users in GSP development

Consideration of beneficial uses and users in GSP development is contingent upon adequate identification and engagement of the appropriate stakeholders. The (A) identification, (B) engagement, and (C) consideration of disadvantaged communities, drinking water users, tribes,[1] groundwater dependent ecosystems, streams, wetlands, and freshwater species are essential for ensuring the GSP integrates existing state policies on the Human Right to Water and the Public Trust Doctrine.

A. Identification of Key Beneficial Uses and Users

Disadvantaged Communities, Drinking Water Users, and Tribes

The identification of Disadvantaged Communities (DACs), drinking water users, and tribes is **insufficient**. The GSP provides information on DACs, including identification by name and location on a map. However, the GSP fails to document the size of the population for each DAC, and include the population dependent on groundwater as their source of drinking water in the subbasin.

The GSP states (p. 2-26): "The Paskenta Band has jurisdiction over the Paskenta Reservation (Tribal Lands). This approximately 2,000-acre Reservation is located in the center of the Subbasin, southwest of the City of Corning and is completely reliant on groundwater for drinking water and irrigation supplies." The GSP does not, however, provide a map of tribal lands in the subbasin or state the tribal population.

While the plan provides a density map of domestic wells in the subbasin, the GSP fails to provide depth of these wells (such as minimum well depth, average well depth, or depth range) within the subbasin.

These missing elements are required for the GSA to fully understand the specific interests and water demands of these beneficial users, and to support the consideration of beneficial users in the development of sustainable management criteria and selection of projects and management actions.

RECOMMENDATIONS
• Provide a map of tribal lands in the subbasin. • Describe the population of each identified DAC and identify the sources of drinking water for DAC members, including an estimate of how many people rely on

[1] Our letter provides a review of the identification and consideration of federally recognized tribes (Data source: SGMA Data viewer) within the GSP from non-tribal members and NGOs. Based on the likely incomplete information available to our organizations for this review, we recommend that the GSA utilize the California Department of Water Resources' "Engagement with Tribal Governments" Guidance Document (https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents) to comprehensively address these important beneficial users in their GSP.

groundwater (e.g., domestic wells, state small water systems, and public water systems).

- Include a map showing domestic well locations and average well depth across the subbasin.

Interconnected Surface Waters

The identification of Interconnected Surface Waters (ISWs) is **insufficient**, due to lack of supporting information provided for the ISW analysis. To assess ISWs, the North Sacramento IWFM Model (NSac) was used. The GSP lacked a clear summary of the locations of groundwater wells and their screen depths used in the analysis, and description of temporal (seasonal and interannual) variability of the data used to calibrate the model. This information should be provided in the GSP to support the conclusions presented. Additionally, no analysis or discussion is provided for stream reaches in the interior of the subbasin.

The GSP is not clear regarding its conclusions about connectivity of Thomes Creek. Certain reaches shown on Figure 3-53 are connected for some percentage of time. The GSP states (p. 3-109): "*There is not enough groundwater level data, particularly along Thomes Creek, to know with certainty if and when groundwater and surface water are interconnected.*" We recommend that reaches with data gaps are retained as potential ISWs in the GSP.

We commend the GSAs for confirming the results of the ISW analysis with TNC's Interconnected Surface Water in the Central Valley (ICONS) website, as presented on Figure 3-54 of the GSP.[2]

RECOMMENDATIONS

- Further describe the groundwater elevation data and stream flow data used in the modeling analysis. Discuss screening depth of monitoring wells and ensure they are monitoring the shallow principal aquifer. Discuss temporal (seasonal and interannual) variability of the data used to calibrate the model.

- Discuss stream reaches in the interior of the subbasin. For example, discuss whether they were included in the groundwater model and discuss relevant depth to groundwater data. Clearly state that they are considered to be disconnected, if that is the case, and what data was utilized to support that conclusion.

- To confirm the results of the groundwater modeling analysis, overlay the stream reaches shown with depth-to-groundwater contour maps to illustrate groundwater depths and the groundwater gradient near the stream reaches. For the depth-to-groundwater contour maps, use the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the landscape. This will provide accurate contours of depth to groundwater along streams and other land surface depressions where GDEs are commonly found.

[2]Available online at: https://icons.codefornature.org/

- Describe data gaps for the ISW analysis in the ISW section, in addition to the discussion in Section 5 (Monitoring Network). On the ISW map (Figure 3-53), clearly label the areas with data gaps. While the GSP identifies data gaps and their locations in the text, we recommend that the GSP considers any segments with data gaps as potential ISWs and clearly marks them as such on maps provided in the GSP.

Groundwater Dependent Ecosystems

The identification of Groundwater Dependent Ecosystems (GDEs) is **insufficient**. The GSP took initial steps to identify and map GDEs using the Natural Communities Commonly Associated with Groundwater dataset (NC dataset). However, we found that some mapped features in the NC dataset were improperly disregarded due to lack of data. The GSP states (p. 3-119): *"GDE extent in general is not well refined in the Subbasin and is a data gap that will be addressed during GSP implementation with additional data collection and ground-truthing. For example, Thomes Creek does not have enough shallow groundwater level monitoring to evaluate changes in groundwater levels relative to GDE vegetation vigor."* However, the GSP should not ignore these GDEs just because there is a lack of data to support their characterization. The absence of evidence is not the evidence of absence.

The GSP does not present an inventory of flora and fauna species present in the subbasin's GDEs, except for critical and threatened species in the subbasin that rely on GDEs (Table 3-10).

The GSP states (p. 3-119): *"There is some evidence that the deepest roots of valley oaks and possibly other mature GDE species can reach depths up to 80 feet, though most vegetative species do not have this capacity, and it is not known if rooting depths deeper than 30 feet are found in the Subbasin."* Without an inventory of flora species in the subbasin's GDEs, however, it is impossible to know if these deep-rooted species are present in the subbasin.

Data from spring 2018 was used to map the 30-foot depth-to-water contour shown on Figure 3-58. Even though the GSP points out that this is conservative because 2018 was a wet year, we recommend using groundwater data from multiple seasons and water year types to determine the range of depth to groundwater around NC dataset polygons.

RECOMMENDATIONS

- Use depth-to-groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons. We recommend that a baseline period (10 years from 2005 to 2015) be established to characterize groundwater conditions over multiple water year types. Refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.

- Provide depth-to-groundwater contour maps, noting the best practices presented in Attachment D. Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a DEM to estimate depth-to-groundwater contours across the landscape.

- Refer to Attachment B for more information on TNC's plant rooting depth database. Deeper thresholds are necessary for plants that have reported maximum root depths that exceed the averaged 30-ft threshold, such as valley oak (*Quercus lobata*). We recommend that the reported max rooting depth for these deeper-rooted plants be used, if these species are present in the subbasin. For example, a depth-to-groundwater threshold of 80 feet should be used instead of the 30-ft threshold, when verifying whether valley oak polygons from the NC Dataset are connected to groundwater.

- If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as "Potential GDEs" in the GSP until data gaps are reconciled in the monitoring network.

- Include an inventory of the fauna and flora present within the subbasin's GDEs (see Attachment C of this letter for a list of freshwater species located in the Corning Subbasin).

Native Vegetation and Managed Wetlands

Native vegetation and managed wetlands are water use sectors that are required to be included in the water budget.[3,4] The integration of these ecosystems into the water budget is **insufficient**. The water budget did explicitly include the current, historical, and projected demands of native vegetation, but did not explicitly include the current, historical, and projected demands of managed wetlands. The GSP states that managed wetlands exist along the Sacramento River and are managed by the Sacramento River National Wildlife Refuge. The omission of explicit water demands for managed wetlands is problematic because key environmental uses of groundwater are not being accounted for as water supply decisions are made using this budget, nor will they likely be considered in project and management actions.

RECOMMENDATION

- Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including managed wetlands.

[3] "'Water use sector' refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation." [23 CCR §351(al)]

[4] "The water budget shall quantify the following, either through direct measurements or estimates based on data: (3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow." [23 CCR §354.18]

B. Engaging Stakeholders

Stakeholder Engagement during GSP development

Stakeholder engagement during GSP development is **insufficient**. SGMA's requirement for public notice and engagement of stakeholders is not fully met by the description in the Communications and Engagement Plan (Appendix 2A).[5]

We note the following deficiencies with the overall stakeholder engagement process:

- The opportunities for public involvement and engagement with DACs, domestic well owners, and environmental stakeholders are described in very general terms. There are no details of outreach specifically directed to members of these stakeholder communities in the GSP.

- The Communications and Engagement Plan does not include specific plans during the implementation phase that differ from the GSP development phase for continual engagement with DACs, tribes, domestic well owners, and environmental stakeholders.

RECOMMENDATION

- In the Communications and Engagement Plan, describe active and targeted outreach to engage DAC members, domestic well owners, and environmental stakeholders throughout the GSP development and implementation phases. Refer to Attachment B for specific recommendations on how to actively engage stakeholders during all phases of the GSP process.

- Utilize DWR's tribal engagement guidance to comprehensively address all tribes and tribal interests in the subbasin within the GSP.[6]

C. Considering Beneficial Uses and Users When Establishing Sustainable Management Criteria and Analyzing Impacts on Beneficial Uses and Users

The consideration of beneficial uses and users when establishing sustainable management criteria (SMC) is **insufficient**. The consideration of potential impacts on all beneficial users of groundwater in the basin are required when defining undesirable results and establishing minimum thresholds.[7,8,9]

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[5] "A communication section of the Plan shall include a requirement that the GSP identify how it encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin." [23 CCR §354.10(d)(3)]

[6] Engagement with Tribal Governments Guidance Document. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Guidance-Doc-for-SGM-Engagement-with-Tribal-Govt_ay_19.pdf

[7] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results." [23 CCR §354.26(b)(3)]

[8] "The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

[9] "The description of minimum thresholds shall include [...] how state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the agency shall explain the nature of and the basis for the difference." [23 CCR §354.28(b)(5)]

Disadvantaged Communities and Drinking Water Users

For chronic lowering of groundwater levels, the GSP presents an analysis of minimum thresholds impact on domestic wells (p. 6-20). The GSP states (p. 6-21): "*When intersecting the groundwater elevation contours at the minimum threshold for shallow RMPs with the domestic wells, approximately 16% of domestic wells are at risk of getting impacted (Figure 6-6* [Domestic Wells at Risk of being Impacted if Groundwater Levels Reach Minimum Thresholds]*). As a comparison, fall 2015 groundwater elevation intersected with domestic wells depths showed approximately 4% of domestic wells potentially dry, excluding a large data gap area to the west (Figure 6-7* [Domestic Wells that Likely were Impacted During 2015 Drought]*)."* Despite this well impact analysis, the GSP does not sufficiently describe whether minimum thresholds will avoid significant and unreasonable loss of drinking water to domestic well users in those 16% not protected by the MT, and whether the undesirable results are consistent with Human Right to Water policy.[10]

The GSP does not sufficiently describe or analyze direct or indirect impacts on DACs, drinking water users, or tribes when defining undesirable results, nor does it describe how the existing minimum threshold groundwater levels are consistent with avoiding undesirable results to DACs, drinking water users, or tribes in the subbasin.

The GSP provides conflicting information regarding constituents of concern (COCs) in the subbasin. The GSP states (p. 3-94): *"Constituents identified as groundwater quality concerns within the Subbasin are identified in the bullets below and summarized in the following subsections: Salinity (EC and TDS), Nitrate, Arsenic."* However, the GSP states (p. 6-39): "*Salinity was identified as the only COC in the Subbasin. Therefore, TDS will be used as a salinity indicator to measure groundwater quality in the Subbasin to assess potential effects of GSP implementation."* The minimum threshold for TDS is set to 750 mg/L, lower than the upper limit secondary maximum contaminant level (SMCL) of 1,000 mg/L. SMC should be established for the additional identified COCs in the subbasin, including nitrate and arsenic.

The GSP only includes a very general discussion of impacts to drinking water users when defining undesirable results and evaluating the impacts of proposed minimum thresholds. The GSP does not, however, mention or discuss direct and indirect impacts on DACs, drinking water users, or tribes when defining undesirable results for degraded water quality, nor does it evaluate the cumulative or indirect impacts of proposed minimum thresholds on DACs, drinking water users, or tribes.

RECOMMENDATIONS

Chronic Lowering of Groundwater Levels

- Describe direct and indirect impacts on drinking water users, DACs, and tribes when describing undesirable results and defining minimum thresholds for chronic lowering of groundwater levels.

Degraded Water Quality

- Describe direct and indirect impacts on drinking water users, DACs, and tribes when defining undesirable results for degraded water quality. For specific guidance on how to

[10] California Water Code §106.3. Available at: https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=WAT&sectionNum=106.3

consider these users, refer to "Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act."[11]

- Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on drinking water users, DACs, and tribes.

- Set minimum thresholds and measurable objectives for all water quality constituents within the subbasin. Ensure they align with drinking water standards.[12]

Groundwater Dependent Ecosystems and Interconnected Surface Waters

The GSP only considers GDEs with respect to the depletion of interconnected surface water sustainability indicator, but not the chronic lowering of groundwater levels sustainability indicator. No analysis or discussion is provided in the GSP that describes impacts on GDEs or establishes SMC for GDEs that are directly dependent on groundwater. This is problematic because without identifying potential impacts on GDEs, minimum thresholds may compromise these environmental beneficial users. Since GDEs are present in the subbasin, they must be considered when developing SMC for chronic lowering of groundwater levels. The GSP mentions, but does not further discuss, the potential impact on GDEs (p. 6-28): *"Since groundwater elevation minimum thresholds near interconnected streams are lower than current groundwater elevations, there may be some impacts on GDEs in the Subbasin."*

Sustainable management criteria for depletion of interconnected surface water are established by proxy using groundwater levels. Groundwater level minimum thresholds were established in depletion of interconnected surface water RMP wells near interconnected stream reaches. The GSP states (6-60): *"Since the shallow wells near the streams were categorized as stable wells in the chronic lowering of groundwater levels SMC, the minimum threshold at these wells is the minimum fall groundwater elevation since 2012 minus a 20-foot buffer."* However, no analysis or discussion is presented to describe how the SMC will affect GDEs, or the impact of these minimum thresholds on GDEs in the subbasin. Furthermore, the GSP makes no attempt to evaluate the impacts of the proposed minimum threshold on environmental beneficial users of surface water. The GSP does not explain how the chosen minimum thresholds and measurable objectives avoid significant and unreasonable effects on surface water beneficial users in the subbasin, such as increased mortality and inability to perform key life processes (e.g., reproduction, migration).

RECOMMENDATIONS

- Define chronic lowering of groundwater SMC directly for environmental beneficial users of groundwater. When defining undesirable results for chronic lowering of groundwater levels, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact on GDEs. Undesirable results to environmental users occur when 'significant and unreasonable' effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or

[11] Guide to Protecting Water Quality under the Sustainable Groundwater Management Act https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858.

[12] "Degraded Water Quality [...] collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues." [23 CCR §354.34(c)(4)]

depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and users need to be considered when defining undesirable results in the subbasin.[13] Defining undesirable results is the crucial first step before the minimum thresholds can be determined.[14]

- When defining undesirable results for depletion of interconnected surface water, include a description of potential impacts on instream habitats within ISWs when minimum thresholds in the subbasin are reached.[15] The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts on environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law.[6,16]

- When establishing SMC for the basin, consider that the SGMA statute [Water Code §10727.4(l)] specifically calls out that GSPs shall include "impacts on groundwater dependent ecosystems".

2. Climate Change

The SGMA statute identifies climate change as a significant threat to groundwater resources and one that must be examined and incorporated in the GSPs. The GSP Regulations[17] require integration of climate change into the projected water budget to ensure that projects and management actions sufficiently account for the range of potential climate futures.[18] The effects of climate change will intensify the impacts of water stress on GDEs, making available shallow groundwater resources especially critical to their survival. Condon *et al.* (2020) shows that GDEs are more likely to succumb to water stress and rely more on groundwater during times of drought.[19] When shallow groundwater is unavailable, riparian forests can die off and key life processes (e.g., migration and spawning) for aquatic organisms, such as steelhead, can be impeded.

[13] "The description of undesirable results shall include [...] potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results". [23 CCR §354.26(b)(3)]
[14] The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]
[15] "The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." [23 CCR §354.28(c)(6)]
[16] Rohde MM, Seapy B, Rogers R, Castañeda X, editors. 2019. Critical Species LookBook: A compendium of California's threatened and endangered species for sustainable groundwater management. The Nature Conservancy, San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/Critical_Species_LookBook_91819.pdf
[17] "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow." [23 CCR §354.18(e)]
[18] "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow." [23 CCR §354.18(e)]
[19] Condon et al. 2020. Evapotranspiration depletes groundwater under warming over the contiguous United States. Nature Communications. Available at: https://www.nature.com/articles/s41467-020-14688-0

The integration of climate change into the projected water budget is **insufficient**. The GSP incorporates climate change into the projected water budget using DWR change factors for 2030 and 2070. However, the plan does not consider multiple climate scenarios (e.g., the 2070 extremely wet and extremely dry climate scenarios) in the projected water budget. The GSP should clearly and transparently incorporate the extremely wet and dry scenarios provided by DWR into projected water budgets or select more appropriate extreme scenarios for the subbasin. While these extreme scenarios may have a lower likelihood of occurring, their consequences could be significant and their inclusion can help identify important vulnerabilities in the basin's approach to groundwater management.

The sustainable yield is calculated based on the projected water budget with climate change incorporated. However, if the water budgets are incomplete, including the omission of extremely wet and dry scenarios, then there is increased uncertainty in virtually every subsequent calculation used to plan for projects, derive measurable objectives, and set minimum thresholds. Plans that do not adequately include climate change projections may underestimate future impacts on vulnerable beneficial users of groundwater such as ecosystems, DACs, tribes, and domestic well owners.

RECOMMENDATIONS

- Integrate climate change, including extremely wet and dry scenarios, into all elements of the projected water budget to form the basis for development of sustainable management criteria and projects and management actions.
- Incorporate climate change scenarios into projects and management actions.

3. Data Gaps

The consideration of beneficial users when establishing monitoring networks is **insufficient**, due to lack of specific plans to increase the Representative Monitoring Points (RMPs) in the monitoring network that represent water quality conditions and shallow groundwater elevations around DACs, domestic wells, tribes, GDEs, and ISWs in the subbasin.

Figure 5-2 (Shallow Groundwater RMP Well Locations) and Figure 5-8 (Groundwater Quality RMP Well Locations) show that no monitoring wells are located across portions of the subbasin near DACs, domestic wells, and tribes (see maps provided in Attachment E). Beneficial users of groundwater may remain unprotected by the GSP without adequate monitoring and identification of data gaps in the shallow aquifer. The Plan therefore fails to meet SGMA's requirements for the monitoring network.[20]

The GSP provides some discussion of data gaps for GDEs and ISWs in Sections 5.2.6 (Groundwater Level Monitoring Data Gaps) and Section 5.6.3 (Interconnected Surface Water Monitoring Data Gaps), however does not provide specific plans, such as locations or a timeline, to fill the data gaps.

[20] "The monitoring network objectives shall be implemented to accomplish the following: [...] (2) Monitor impacts to the beneficial uses or users of groundwater." [23 CCR §354.34(b)(2)]

RECOMMENDATION

- Provide maps that overlay current and proposed monitoring well locations with the locations of DACs, domestic wells, tribes, GDEs, and ISWs to clearly identify potentially impacted areas.

- Increase the number of RMPs in the shallow aquifer across the subbasin as needed to adequately monitor all groundwater condition indicators across the basin and at appropriate depths. Prioritize proximity to DACs, domestic wells, tribes, and GDEs when identifying new RMPs.

4. Addressing Beneficial Users in Projects and Management Actions

The consideration of beneficial users when developing projects and management actions is **insufficient**, due to the failure to completely identify benefits or impacts of identified projects and management actions, including water quality impacts, to key beneficial users of groundwater such as GDEs, aquatic habitats, surface water users, DACs, tribes, and drinking water users. Therefore, potential project and management actions may not protect these beneficial users. Groundwater sustainability under SGMA is defined not just by sustainable yield, but by the avoidance of undesirable results for *all* beneficial users.

We commend the GSAs for including several projects and management actions with explicit benefits to the environment (e.g., Priority Project 3: Invasive Plant Removal, Priority Project 4: Groundwater Recharge through Unlined Conveyance Features). Additionally, the GSP includes a drinking water well mitigation program (Management Action 1: Well Management Program) to protect drinking water users.

RECOMMENDATIONS

- For DACs and domestic well owners, include a discussion of whether potential impacts to water quality from projects and management actions could occur and how the GSA plans to mitigate such impacts.

- The GSP discusses potential options for additional surface water storage. Note that recharge ponds, reservoirs, and facilities for managed aquifer recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the “Multi-Benefit Recharge Project Methodology Guidance Document.”[21]

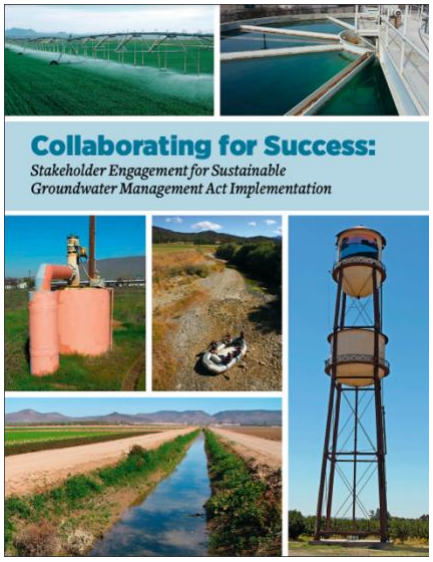
- Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results.

[21] The Nature Conservancy. 2021. Multi-Benefit Recharge Project Methodology for Inclusion in Groundwater Sustainability Plans. Sacramento. Available at: https://groundwaterresourcehub.org/sgma-tools/multi-benefit-recharge-project-methodology-guidance/

Attachment B

SGMA Tools to address DAC, drinking water, and environmental beneficial uses and users

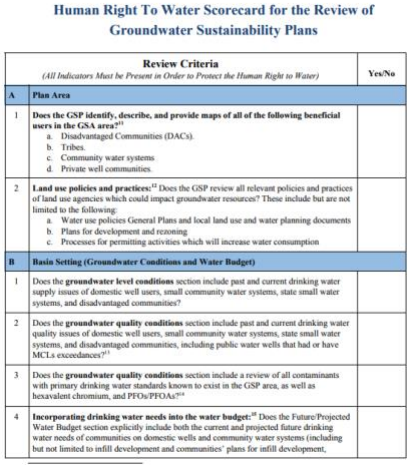
Stakeholder Engagement and Outreach



Clean Water Action, Community Water Center and Union of Concerned Scientists developed a guidance document called Collaborating for success: Stakeholder engagement for Sustainable Groundwater Management Act Implementation. It provides details on how to conduct targeted and broad outreach and engagement during Groundwater Sustainability Plan (GSP) development and implementation. Conducting a targeted outreach involves:

- Developing a robust Stakeholder Communication and Engagement plan that includes outreach at frequented locations (schools, farmers markets, religious settings, events) across the plan area to increase the involvement and participation of disadvantaged communities, drinking water users and the environmental stakeholders.
- Providing translation services during meetings and technical assistance to enable easy participation for non-English speaking stakeholders.
- GSP should adequately describe the process for requesting input from beneficial users and provide details on how input is incorporated into the GSP.

The Human Right to Water

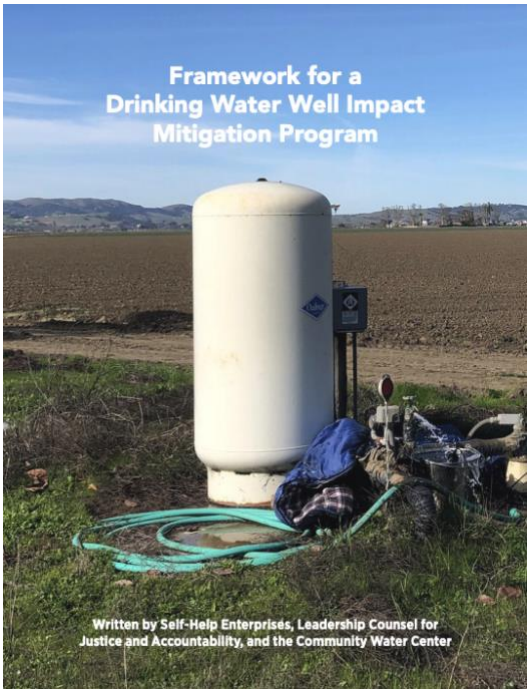


Human Right To Water Scorecard for the Review of Groundwater Sustainability Plans

	Review Criteria *(All Indicators Must be Present in Order to Protect the Human Right to Water)*	Yes/No
A	**Plan Area**	
1	**Does the GSP identify, describe, and provide maps of all of the following beneficial users in the GSA area?**[43] a. Disadvantaged Communities (DACs). b. Tribes. c. Community water systems. d. Private well communities.	
2	**Land use policies and practices:**[44] Does the GSP review all relevant policies and practices of land use agencies which could impact groundwater resources? These include but are not limited to the following: a. Water use policies General Plans and local land use and water planning documents b. Plans for development and rezoning c. Processes for permitting activities which will increase water consumption	
B	**Basin Setting (Groundwater Conditions and Water Budget)**	
1	Does the **groundwater level conditions** section include past and current drinking water supply issues of domestic well users, small community water systems, state small water systems, and disadvantaged communities?	
2	Does the **groundwater quality conditions** section include past and current drinking water quality issues of domestic well users, small community water systems, state small water systems, and disadvantaged communities, including public water wells that had or have MCLs exceedances?[45]	
3	Does the **groundwater quality conditions** section include a review of all contaminants with primary drinking water standards known to exist in the GSP area, as well as hexavalent chromium, and PFOs/PFOAs?[46]	
4	**Incorporating drinking water needs into the water budget:**[47] Does the Future/Projected Water Budget section explicitly include both the current and projected future drinking water needs of communities on domestic wells and community water systems (including but not limited to infill development and communities' plans for infill development,	

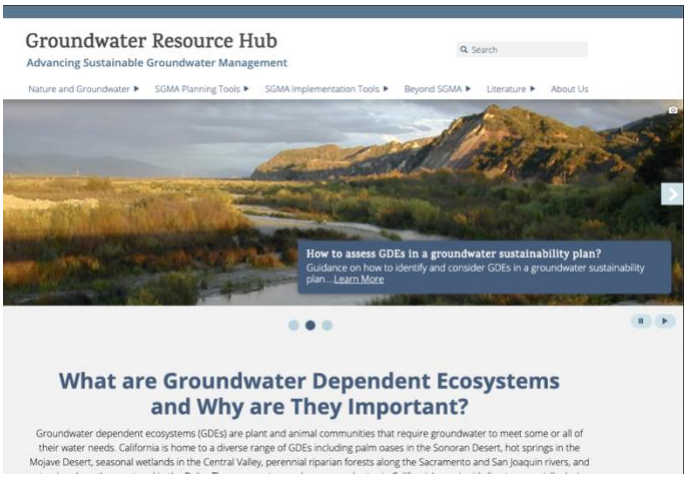
The [Human Right to Water Scorecard] was developed by Community Water Center, Leadership Counsel for Justice and Accountability and Self Help Enterprises to aid Groundwater Sustainability Agencies (GSAs) in prioritizing drinking water needs in SGMA. The scorecard identifies elements that must exist in GSPs to adequately protect the Human Right to Drinking water.

Drinking Water Well Impact Mitigation Framework



The [Drinking Water Well Impact Mitigation Framework] was developed by Community Water Center, Leadership Counsel for Justice and Accountability and Self Help Enterprises to aid GSAs in the development and implementation of their GSPs. The framework provides a clear roadmap for how a GSA can best structure its data gathering, monitoring network and management actions to proactively monitor and protect drinking water wells and mitigate impacts should they occur.

Groundwater Resource Hub



The Nature Conservancy has developed a suite of tools based on best available science to help GSAs, consultants, and stakeholders efficiently incorporate nature into GSPs. These tools and resources are available online at GroundwaterResourceHub.org. The Nature Conservancy's tools and resources are intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Rooting Depth Database

The Plant Rooting Depth Database provides information that can help assess whether groundwater-dependent vegetation are accessing groundwater. Actual rooting depths will depend on the plant species and site-specific conditions, such as soil type and

availability of other water sources. Site-specific knowledge of depth to groundwater combined with rooting depths will help provide an understanding of the potential groundwater levels are needed to sustain GDEs.

How to use the database

The maximum rooting depth information in the Plant Rooting Depth Database is useful when verifying whether vegetation in the Natural Communities Commonly Associated with Groundwater (NC Dataset) are connected to groundwater. A 30 ft depth-to-groundwater threshold, which is based on averaged global rooting depth data for phreatophytes[1], is relevant for most plants identified in the NC Dataset since most plants have a max rooting depth of less than 30 feet. However, it is important to note that deeper thresholds are necessary for other plants that have reported maximum root depths that exceed the averaged 30 feet threshold, such as valley oak (*Quercus lobata*), Euphrates poplar (*Populus euphratica*), salt cedar (*Tamarix spp.*), and shadescale (*Atriplex confertifolia*). The Nature Conservancy advises that the reported max rooting depth for these deeper-rooted plants be used. For example, a depth-to groundwater threshold of 80 feet should be used instead of the 30 ft threshold, when verifying whether valley oak polygons from the NC Dataset are connected to groundwater. It is important to re-emphasize that actual rooting depth data are limited and will depend on the plant species and site-specific conditions such as soil and aquifer types, and availability to other water sources.

The Plant Rooting Depth Database is an Excel workbook composed of four worksheets:

1. California phreatophyte rooting depth data (included in the NC Dataset)
2. Global phreatophyte rooting depth data
3. Metadata
4. References

How the database was compiled

The Plant Rooting Depth Database is a compilation of rooting depth information for the groundwater-dependent plant species identified in the NC Dataset. Rooting depth data were compiled from published scientific literature and expert opinion through a crowdsourcing campaign. As more information becomes available, the database of rooting depths will be updated. Please Contact Us if you have additional rooting depth data for California phreatophytes.

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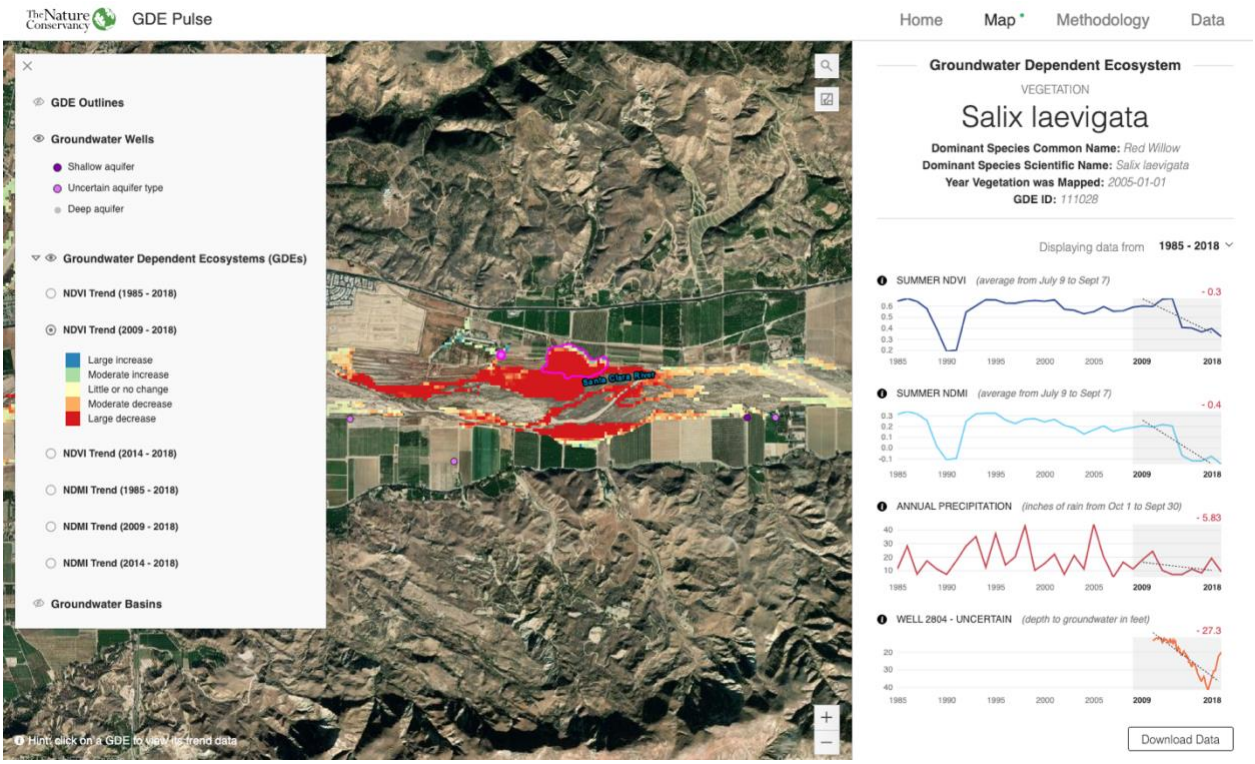
[1] Canadell, J., Jackson, R.B., Ehleringer, J.B. et al. 1996. Maximum rooting depth of vegetation types at the global scale. Oecologia 108, 583–595. https://doi.org/10.1007/BF00329030

GDE Pulse



GDE Pulse is a free online tool that allows Groundwater Sustainability Agencies to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data. Remote sensing data from satellites has been used to monitor the health of vegetation all over the planet. GDE pulse has compiled 35 years of satellite imagery from NASA's Landsat mission for every polygon in the Natural Communities Commonly Associated with Groundwater Dataset. The following datasets are available for downloading:

Normalized Difference Vegetation Index (NDVI) is a satellite-derived index that represents the greenness of vegetation. Healthy green vegetation tends to have a higher NDVI, while dead leaves have a lower NDVI. We calculated the average NDVI during the driest part of the year (July - Sept) to estimate vegetation health when the plants are most likely dependent on groundwater.

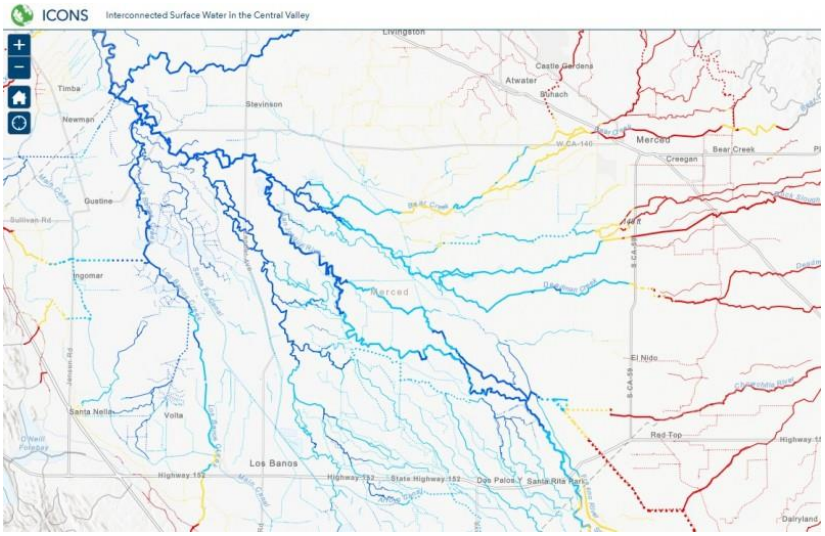
Normalized Difference Moisture Index (NDMI) is a satellite-derived index that represents water content in vegetation. NDMI is derived from the Near-Infrared (NIR) and Short-Wave Infrared (SWIR) channels. Vegetation with adequate access to water tends to have higher NDMI, while vegetation that is water stressed tends to have lower NDMI. We calculated the average NDVI during the driest part of the year (July–September) to estimate vegetation health when the plants are most likely dependent on groundwater.

Annual Precipitation is the total precipitation for the water year (October 1st – September 30th) from the PRISM dataset. The amount of local precipitation can affect vegetation with more precipitation generally leading to higher NDVI and NDMI.

Depth to Groundwater measurements provide an indication of the groundwater levels and changes over time for the surrounding area. We used groundwater well measurements from nearby (<1km) wells to estimate the depth to groundwater below the GDE based on the average elevation of the GDE (using a digital elevation model) minus the measured groundwater surface elevation.

ICONOS Mapper

Interconnected Surface Water in the Central Valley



ICONS maps the likely presence of interconnected surface water (ISW) in the Central Valley using depth to groundwater data. Using data from 2011-2018, the ISW dataset represents the likely connection between surface water and groundwater for rivers and streams in California's Central Valley. It includes information on the mean, maximum, and minimum depth to groundwater for each stream segment over the years with available data, as well as the likely presence of ISW based on the minimum depth to groundwater. The Nature Conservancy developed this database, with guidance and input from expert academics, consultants, and state agencies.

We developed this dataset using groundwater elevation data available online from the California Department of Water Resources (DWR). DWR only provides this data for the Central Valley. For GSAs outside of the valley, who have groundwater well measurements, we recommend following our methods to determine likely ISW in your region. The Nature Conservancy's ISW dataset should be used as a first step in reviewing ISW and should be supplemented with local or more recent groundwater depth data.

Attachment C

Freshwater Species Located in the Corning Subbasin

To assist in identifying the beneficial users of surface water necessary to assess the undesirable result "depletion of interconnected surface waters", Attachment C provides a list of freshwater species located in the Corning Subbasin. To produce the freshwater species list, we used ArcGIS to select features within the California Freshwater Species Database version 2.0.9 within the basin boundary. This database contains information on ~4,000 vertebrates, macroinvertebrates and vascular plants that depend on fresh water for at least one stage of their life cycle. The methods used to compile the California Freshwater Species Database can be found in Howard et al. 2015[1]. The spatial database contains locality observations and/or distribution information from ~400 data sources. The database is housed in the California Department of Fish and Wildlife's BIOS[2] as well as on The Nature Conservancy's science website[3].

Scientific Name	Common Name	Legal Protected Status		
		Federal	State	Other
BIRDS				
Agelaius tricolor	Tricolored Blackbird	Bird of Conservation Concern	Special Concern	BSSC - First priority
Coccyzus americanus occidentalis	Western Yellow-billed Cuckoo	Candidate - Threatened	Endangered	
Riparia riparia	Bank Swallow		Threatened	
Actitis macularius	Spotted Sandpiper			
Aechmophorus clarkii	Clark's Grebe			
Aechmophorus occidentalis	Western Grebe			
Aix sponsa	Wood Duck			
Anas acuta	Northern Pintail			
Anas americana	American Wigeon			
Anas clypeata	Northern Shoveler			
Anas crecca	Green-winged Teal			
Anas cyanoptera	Cinnamon Teal			
Anas platyrhynchos	Mallard			
Anas strepera	Gadwall			
Anser albifrons	Greater White-fronted Goose			
Ardea alba	Great Egret			
Ardea herodias	Great Blue Heron			
Aythya affinis	Lesser Scaup			
Aythya collaris	Ring-necked Duck			
Aythya marila	Greater Scaup			
Aythya valisineria	Canvasback		Special	

[1] Howard, J.K. et al. 2015. Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California. PLoSONE, 11(7). Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130710

[2] California Department of Fish and Wildlife BIOS: https://www.wildlife.ca.gov/data/BIOS

[3] Science for Conservation: https://www.scienceforconservation.org/products/california-freshwater-species-database

Botaurus lentiginosus	American Bittern			
Bucephala albeola	Bufflehead			
Bucephala clangula	Common Goldeneye			
Butorides virescens	Green Heron			
Calidris alpina	Dunlin			
Calidris mauri	Western Sandpiper			
Calidris minutilla	Least Sandpiper			
Chen caerulescens	Snow Goose			
Chen rossii	Ross's Goose			
Chlidonias niger	Black Tern		Special Concern	BSSC - Second priority
Chroicocephalus philadelphia	Bonaparte's Gull			
Cistothorus palustris palustris	Marsh Wren			
Cygnus columbianus	Tundra Swan			
Egretta thula	Snowy Egret			
Empidonax traillii	Willow Flycatcher	Bird of Conservation Concern	Endangered	
Fulica americana	American Coot			
Gallinago delicata	Wilson's Snipe			
Geothlypis trichas trichas	Common Yellowthroat			
Grus canadensis	Sandhill Crane			
Haliaeetus leucocephalus	Bald Eagle	Bird of Conservation Concern	Endangered	
Himantopus mexicanus	Black-necked Stilt			
Icteria virens	Yellow-breasted Chat		Special Concern	BSSC - Third priority
Limnodromus scolopaceus	Long-billed Dowitcher			
Lophodytes cucullatus	Hooded Merganser			
Megaceryle alcyon	Belted Kingfisher			
Mergus merganser	Common Merganser			
Mergus serrator	Red-breasted Merganser			
Numenius americanus	Long-billed Curlew			
Numenius phaeopus	Whimbrel			
Nycticorax nycticorax	Black-crowned Night-Heron			
Oxyura jamaicensis	Ruddy Duck			
Pandion haliaetus	Osprey		Watch list	
Pelecanus erythrorhynchos	American White Pelican		Special Concern	BSSC - First priority
Phalacrocorax auritus	Double-crested Cormorant			

Phalaropus tricolor	Wilson's Phalarope			
Plegadis chihi	White-faced Ibis		Watch list	
Pluvialis squatarola	Black-bellied Plover			
Podiceps nigricollis	Eared Grebe			
Podilymbus podiceps	Pied-billed Grebe			
Porzana carolina	Sora			
Recurvirostra americana	American Avocet			
Setophaga petechia	Yellow Warbler			BSSC - Second priority
Tachycineta bicolor	Tree Swallow			
Tringa melanoleuca	Greater Yellowlegs			
Xanthocephalus xanthocephalus	Yellow-headed Blackbird		Special Concern	BSSC - Third priority
CRUSTACEANS				
Branchinecta lynchi	Vernal Pool Fairy Shrimp	Threatened	Special	IUCN - Vulnerable
Lepidurus packardi	Vernal Pool Tadpole Shrimp	Endangered	Special	IUCN - Endangered
Linderiella occidentalis	California Fairy Shrimp		Special	IUCN - Near Threatened
FISH				
Oncorhynchus mykiss irideus	Coastal rainbow trout			Least Concern - Moyle 2013
Acipenser medirostris ssp. 1	Southern green sturgeon	Threatened	Special Concern	Endangered - Moyle 2013
Oncorhynchus mykiss - CV	Central Valley steelhead	Threatened	Special	Vulnerable - Moyle 2013
Oncorhynchus tshawytscha - CV spring	Central Valley spring Chinook salmon	Threatened	Threatened	Vulnerable - Moyle 2013
Oncorhynchus tshawytscha - CV winter	Central Valley winter Chinook salmon	Endangered	Endangered	Vulnerable - Moyle 2013
HERPS				
Actinemys marmorata marmorata	Western Pond Turtle		Special Concern	ARSSC
Anaxyrus boreas boreas	Boreal Toad			
Rana boylii	Foothill Yellow-legged Frog	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Rana draytonii	California Red-legged Frog	Threatened	Special Concern	ARSSC
Spea hammondii	Western Spadefoot	Under Review in the Candidate or	Special Concern	ARSSC

		Petition Process		
Thamnophis gigas	Giant Gartersnake	Threatened	Threatened	
Thamnophis sirtalis sirtalis	Common Gartersnake			
Pseudacris regilla	Northern Pacific Chorus Frog			
INSECTS & OTHER INVERTS				
Anax junius	Common Green Darner			
Argia emma	Emma's Dancer			
Argia lugens	Sooty Dancer			
Sympetrum corruptum	Variegated Meadowhawk			
Tramea lacerata	Black Saddlebags			
MAMMALS				
Castor canadensis	American Beaver			Not on any status lists
Lontra canadensis canadensis	North American River Otter			Not on any status lists
Neovison vison	American Mink			Not on any status lists
Ondatra zibethicus	Common Muskrat			Not on any status lists
MOLLUSKS				
Anodonta californiensis	California Floater		Special	
Gonidea angulata	Western Ridged Mussel		Special	
Margaritifera falcata	Western Pearlshell		Special	
PLANTS				
Downingia pusilla	Dwarf Downingia		Special	CRPR - 2B.2
Alisma triviale	Northern Water-plantain			
Alopecurus saccatus	Pacific Foxtail			
Ammannia robusta	Grand Redstem			
Arundo donax	NA			
Azolla filiculoides	NA			
Baccharis salicina				Not on any status lists
Bergia texana	Texas Bergia			
Callitriche heterophylla bolanderi	Large Water-starwort			
Callitriche heterophylla heterophylla	Northern Water-starwort			
Callitriche marginata	Winged Water-starwort			
Carex densa	Dense Sedge			
Carex vulpinoidea	NA			
Cicendia quadrangularis	Oregon Microcala			
Crassula aquatica	Water Pygmyweed			
Crypsis vaginiflora	NA			

Cyperus erythrorhizos	Red-root Flatsedge			
Cyperus squarrosus	Awned Cyperus			
Downingia bella	Hoover's Downingia			
Downingia cuspidata	Toothed Calicoflower			
Echinodorus berteroi	Upright Burhead			
Eleocharis acicularis acicularis	Least Spikerush			
Eleocharis macrostachya	Creeping Spikerush			
Eleocharis radicans	Rooted Spikerush			
Epilobium cleistogamum	Cleistogamous Spike-primrose			
Eragrostis hypnoides	Teal Lovegrass			
Eryngium vaseyi vaseyi	Vasey's Coyote-thistle			Not on any status lists
Gratiola ebracteata	Bractless Hedge-hyssop			
Gratiola heterosepala	Boggs Lake Hedge-hyssop		Endangered	CRPR - 1B.2
Hypericum anagalloides	Tinker's-penny			
Isoetes howellii	NA			
Juncus acuminatus	Sharp-fruit Rush			
Juncus uncialis	Inch-high Rush			
Lasthenia fremontii	Fremont's Goldfields			
Legenere limosa	False Venus'-looking-glass		Special	CRPR - 1B.1
Lemna minor	Lesser Duckweed			
Ludwigia peploides peploides	NA			Not on any status lists
Marsilea vestita vestita	NA			Not on any status lists
Mimulus pilosus				Not on any status lists
Myosurus minimus	NA			
Myosurus sessilis	Sessile Mousetail			
Navarretia heterandra	Tehama Navarretia			
Navarretia leucocephala leucocephala	White-flower Navarretia			
Navarretia leucocephala minima	Least Navarretia			
Persicaria amphibia				Not on any status lists
Phyla lanceolata	Fog-fruit			
Phyla nodiflora	Common Frog-fruit			
Pilularia americana	NA			
Plagiobothrys austiniae	Austin's Popcorn-flower			
Plagiobothrys greenei	Greene's Popcorn-flower			

Plagiobothrys leptocladus	Alkali Popcorn-flower			
Pleuropogon californicus californicus				Not on any status lists
Pogogyne douglasii	NA			
Pogogyne zizyphoroides				Not on any status lists
Potamogeton nodosus	Longleaf Pondweed			
Psilocarphus brevissimus brevissimus	Dwarf Woolly-heads			
Psilocarphus oregonus	Oregon Woolly-heads			
Rorippa curvisiliqua curvisiliqua	Curve-pod Yellowcress			
Sagittaria latifolia latifolia	Broadleaf Arrowhead			
Sagittaria longiloba	Longbarb Arrowhead			
Salix exigua exigua	Narrowleaf Willow			
Salix gooddingii	Goodding's Willow			
Salix laevigata	Polished Willow			
Salix lasiolepis lasiolepis	Arroyo Willow			
Salix melanopsis	Dusky Willow			
Schoenoplectus acutus occidentalis	Hardstem Bulrush			
Sidalcea hirsuta	Hairy Checker-mallow			
Stachys stricta	Sonoma Hedge-nettle			
Typha latifolia	Broadleaf Cattail			
Zannichellia palustris	Horned Pondweed			

Attachment D

The Nature Conservancy

July 2019

IDENTIFYING GDEs UNDER SGMA

Best Practices for using the NC Dataset

The Sustainable Groundwater Management Act (SGMA) requires that groundwater dependent ecosystems (GDEs) be identified in Groundwater Sustainability Plans (GSPs). As a starting point, the Department of Water Resources (DWR) is providing the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) online[1] to help Groundwater Sustainability Agencies (GSAs), consultants, and stakeholders identify GDEs within individual groundwater basins. To apply information from the NC Dataset to local areas, GSAs should combine it with the best available science on local hydrology, geology, and groundwater levels to verify whether polygons in the NC dataset are likely supported by groundwater in an aquifer (Figure 1)[2]. This document highlights six best practices for using local groundwater data to confirm whether mapped features in the NC dataset are supported by groundwater.

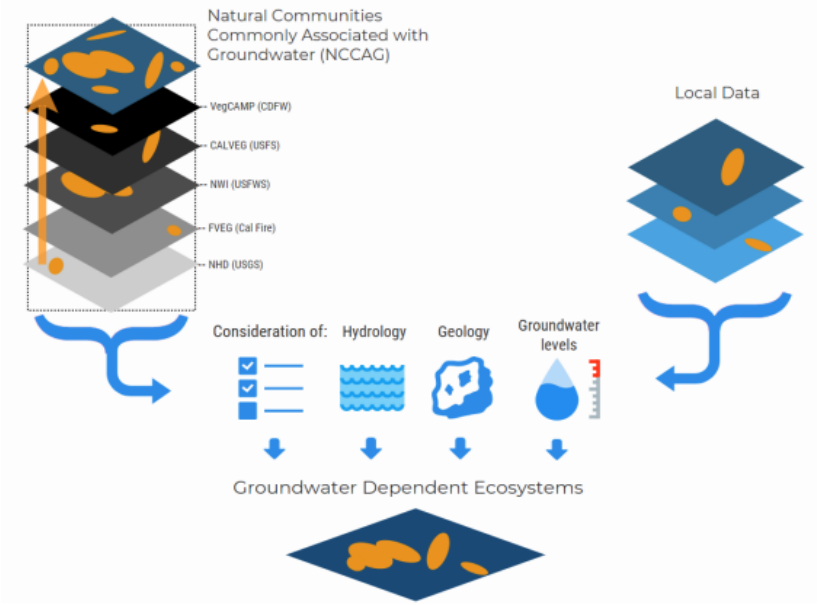


Figure 1. Considerations for GDE identification.
Source: DWR[2]

[1] NC Dataset Online Viewer: https://gis.water.ca.gov/app/NCDatasetViewer/
[2] California Department of Water Resources (DWR). 2018. Summary of the "Natural Communities Commonly Associated with Groundwater" Dataset and Online Web Viewer. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Statewide-Reports/Natural-Communities-Dataset-Summary-Document.pdf

The NC Dataset identifies vegetation and wetland features that are good indicators of a GDE. The dataset is comprised of 48 publicly available state and federal datasets that map vegetation, wetlands, springs, and seeps commonly associated with groundwater in California[3]. It was developed through a collaboration between DWR, the Department of Fish and Wildlife, and The Nature Conservancy (TNC). TNC has also provided detailed guidance on identifying GDEs from the NC dataset[4] on the Groundwater Resource Hub[5], a website dedicated to GDEs.

BEST PRACTICE #1. Establishing a Connection to Groundwater

Groundwater basins can be comprised of one continuous aquifer (Figure 2a) or multiple aquifers stacked on top of each other (Figure 2b). In unconfined aquifers (Figure 2a), using the depth-to-groundwater and the rooting depth of the vegetation is a reasonable method to infer groundwater dependence for GDEs. If groundwater is well below the rooting (and capillary) zone of the plants and any wetland features, the ecosystem is considered disconnected and groundwater management is not likely to affect the ecosystem (Figure 2d). However, it is important to consider local conditions (e.g., soil type, groundwater flow gradients, and aquifer parameters) and to review groundwater depth data from multiple seasons and water year types (wet and dry) because intermittent periods of high groundwater levels can replenish perched clay lenses that serve as the water source for GDEs (Figure 2c). Maintaining these natural groundwater fluctuations are important to sustaining GDE health.

Basins with a stacked series of aquifers (Figure 2b) may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, such as perched aquifers, that support springs, surface water, domestic wells, and GDEs (Figure 2). This is because vertical groundwater gradients across aquifers may result in pumping from deeper aquifers to cause adverse impacts onto beneficial users reliant on shallow aquifers or interconnected surface water. The goal of SGMA is to sustainably manage groundwater resources for current and future social, economic, and environmental benefits. While groundwater pumping may not be currently occurring in a shallower aquifer, use of this water may become more appealing and economically viable in future years as pumping restrictions are placed on the deeper production aquifers in the basin to meet the sustainable yield and criteria. Thus, identifying GDEs in the basin should done irrespective to the amount of current pumping occurring in a particular aquifer, so that future impacts on GDEs due to new production can be avoided. A good rule of thumb to follow is: *if groundwater can be pumped from a well - it's an aquifer*.

[3] For more details on the mapping methods, refer to: Klausmeyer, K., J. Howard, T. Keeler-Wolf, K. Davis-Fadtke, R. Hull, A. Lyons. 2018. Mapping Indicators of Groundwater Dependent Ecosystems in California: Methods Report. San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/iGDE_data_paper_20180423.pdf
[4] "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans" is available at: https://groundwaterresourcehub.org/gde-tools/gsp-guidance-document/
[5] The Groundwater Resource Hub: www.GroundwaterResourceHub.org

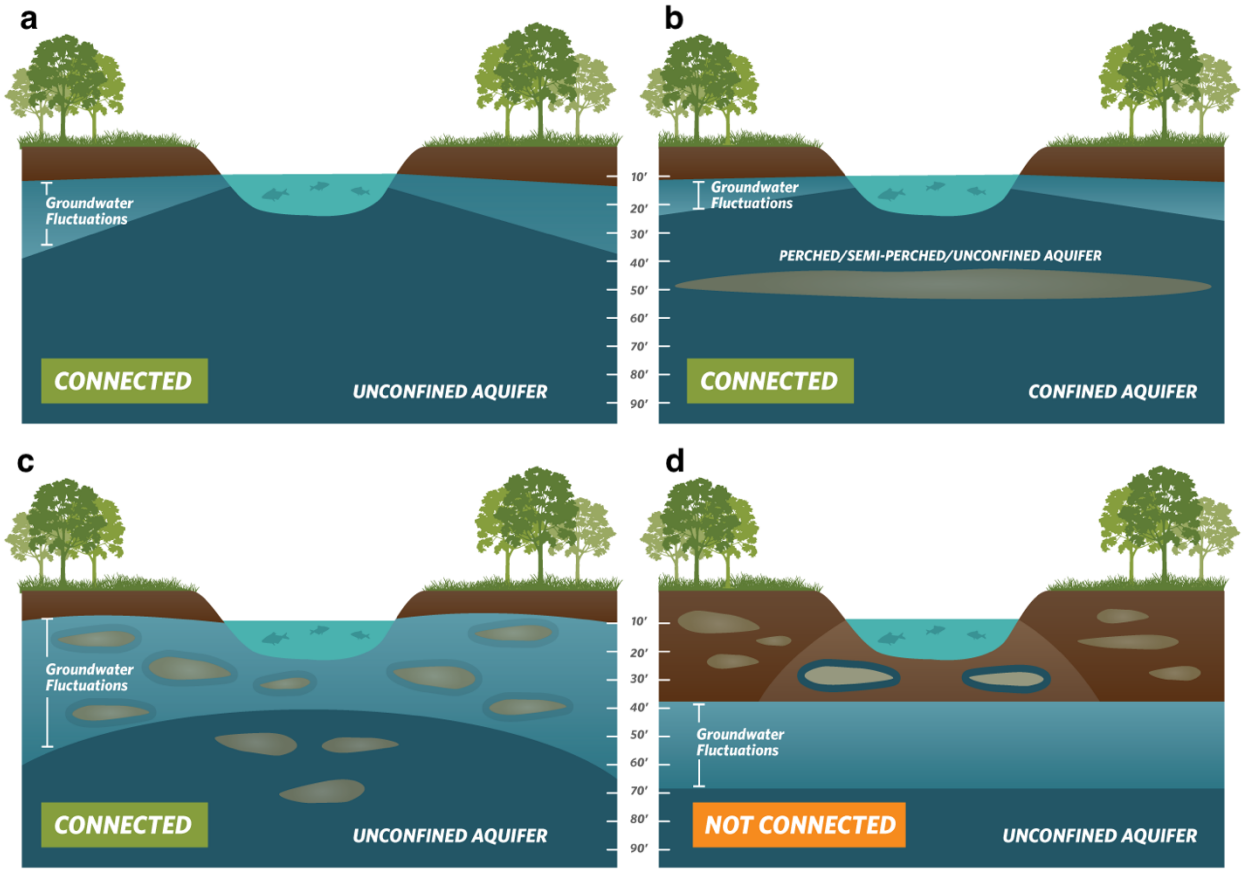


Figure 2. Confirming whether an ecosystem is connected to groundwater. Top: (a) Under the ecosystem is an unconfined aquifer with depth-to-groundwater fluctuating seasonally and interannually within 30 feet from land surface. **(b)** Depth-to-groundwater in the shallow aquifer is connected to overlying ecosystem. Pumping predominately occurs in the confined aquifer, but pumping is possible in the shallow aquifer. **Bottom: (c)** Depth-to-groundwater fluctuations are seasonally and interannually large, however, clay layers in the near surface prolong the ecosystem's connection to groundwater. **(d)** Groundwater is disconnected from surface water, and any water in the vadose (unsaturated) zone is due to direct recharge from precipitation and indirect recharge under the surface water feature. These areas are not connected to groundwater and typically support species that do not require access to groundwater to survive.

BEST PRACTICE #2. Characterize Seasonal and Interannual Groundwater Conditions

SGMA requires GSAs to describe current and historical groundwater conditions when identifying GDEs [23 CCR §354.16(g)]. Relying solely on the SGMA benchmark date (January 1, 2015) or any other single point in time to characterize groundwater conditions (e.g., depth-to-groundwater) is inadequate because managing groundwater conditions with data from one time point fails to capture the seasonal and interannual variability typical of California's climate. DWR's Best Management Practices document on water budgets[6] recommends using 10 years of water supply and water budget information to describe how historical conditions have impacted the operation of the basin within sustainable yield, implying that a baseline[7] could be determined based on data between 2005 and 2015. Using this or a similar time period, depending on data availability, is recommended for determining the depth-to-groundwater.

GDEs depend on groundwater levels being close enough to the land surface to interconnect with surface water systems or plant rooting networks. The most practical approach[8] for a GSA to assess whether polygons in the NC dataset are connected to groundwater is to rely on groundwater elevation data. As detailed in TNC's GDE guidance document[4], one of the key factors to consider when mapping GDEs is to contour depth-to-groundwater in the aquifer that is supporting the ecosystem (see Best Practice #5).

Groundwater levels fluctuate over time and space due to California's Mediterranean climate (dry summers and wet winters), climate change (flood and drought years), and subsurface heterogeneity in the subsurface (Figure 3). Many of California's GDEs have adapted to dealing with intermittent periods of water stress, however if these groundwater conditions are prolonged, adverse impacts to GDEs can result. While depth-to-groundwater levels within 30 feet[4] of the land surface are generally accepted as being a proxy for confirming that polygons in the NC dataset are supported by groundwater, it is highly advised that fluctuations in the groundwater regime be characterized to understand the seasonal and interannual groundwater variability in GDEs. Utilizing groundwater data from one point in time can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Time series data on groundwater elevations and depths are available on the SGMA Data Viewer[9]. However, if insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in the GSP until data gaps are reconciled in the monitoring network (see Best Practice #6).

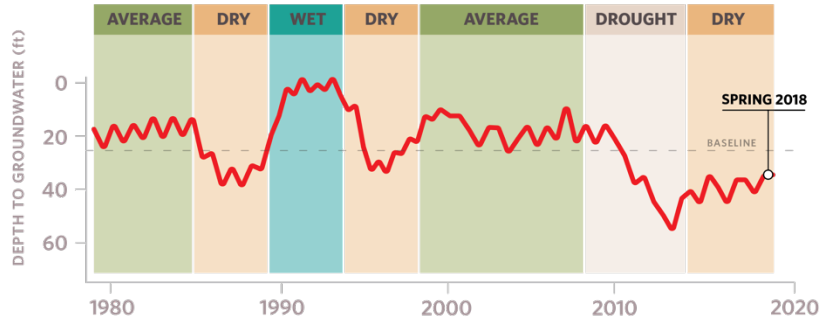


Figure 3. Example seasonality and interannual variability in depth-to-groundwater over time. Selecting one point in time, such as Spring 2018, to characterize groundwater conditions in GDEs fails to capture what groundwater conditions are necessary to maintain the ecosystem status into the future so adverse impacts are avoided.

[6] DWR. 2016. Water Budget Best Management Practice. Available at: https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Water_Budget_Final_2016-12-23.pdf

[7] Baseline is defined under the GSP regulations as "historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin." [23 CCR §351(e)]

[8] Groundwater reliance can also be confirmed via stable isotope analysis and geophysical surveys. For more information see The GDE Assessment Toolbox (Appendix IV, GDE Guidance Document for GSPs[4]).

[9] SGMA Data Viewer: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer

BEST PRACTICE #3. Ecosystems Often Rely on Both Groundwater and Surface Water

GDEs are plants and animals that rely on groundwater for all or some of its water needs, and thus can be supported by multiple water sources. The presence of non-groundwater sources (e.g., surface water, soil moisture in the vadose zone, applied water, treated wastewater effluent, urban stormwater, irrigated return flow) within and around a GDE does not preclude the possibility that it is supported by groundwater, too. SGMA defines GDEs as "ecological communities and species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" [23 CCR §351(m)]. Hence, depth-to-groundwater data should be used to identify whether NC polygons are supported by groundwater and should be considered GDEs. In addition, SGMA requires that significant and undesirable adverse impacts to beneficial users of surface water be avoided. Beneficial users of surface water include environmental users such as plants or animals[10], which therefore must be considered when developing minimum thresholds for depletions of interconnected surface water.

GSAs are only responsible for impacts to GDEs resulting from groundwater conditions in the basin, so if adverse impacts to GDEs result from the diversion of applied water, treated wastewater, or irrigation return flow away from the GDE, then those impacts will be evaluated by other permitting requirements (e.g., CEQA) and may not be the responsibility of the GSA. However, if adverse impacts occur to the GDE due to changing groundwater conditions resulting from pumping or groundwater management activities, then the GSA would be responsible (Figure 4).

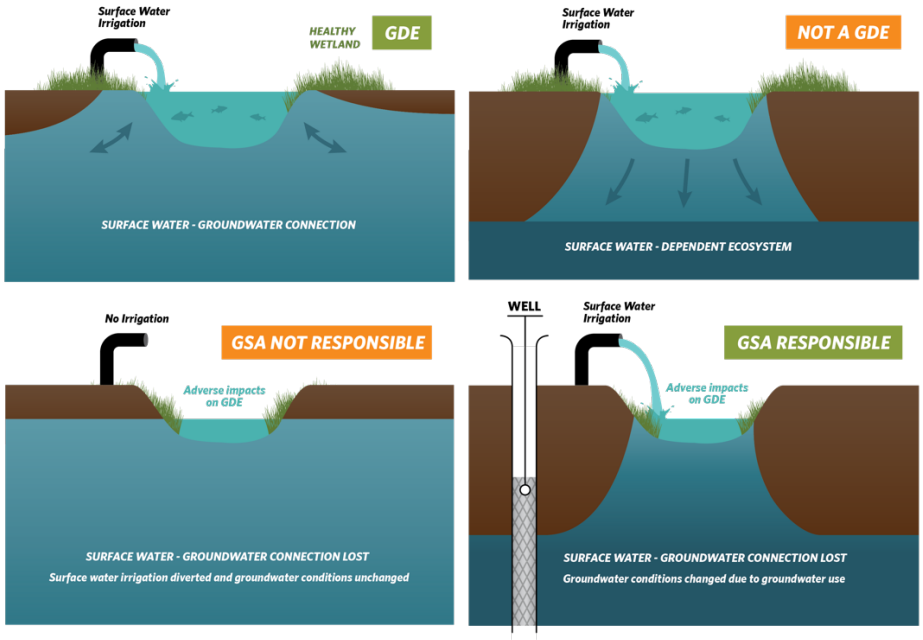


Figure 4. Ecosystems often depend on multiple sources of water. Top: (Left) Surface water and groundwater are interconnected, meaning that the GDE is supported by both groundwater and surface water. **(Right)** Ecosystems that are only reliant on non-groundwater sources are not groundwater-dependent. **Bottom: (Left)** An ecosystem that was once dependent on an interconnected surface water, but loses access to groundwater solely due to surface water diversions may not be the GSA's responsibility. **(Right)** Groundwater dependent ecosystems once dependent on an interconnected surface water system, but loses that access due to groundwater pumping is the GSA's responsibility.

[10] For a list of environmental beneficial users of surface water by basin, visit: https://groundwaterresourcehub.org/gde-tools/environmental-surface-water-beneficiaries/

BEST PRACTICE #4. Select Representative Groundwater Wells

Identifying GDEs in a basin requires that groundwater conditions are characterized to confirm whether polygons in the NC dataset are supported by the underlying aquifer. To do this, proximate groundwater wells should be identified to characterize groundwater conditions (Figure 5). When selecting representative wells, it is particularly important to consider the subsurface heterogeneity around NC polygons, especially near surface water features where groundwater and surface water interactions occur around heterogeneous stratigraphic units or aquitards formed by fluvial deposits. The following selection criteria can help ensure groundwater levels are representative of conditions within the GDE area:

- Choose wells that are within 5 kilometers (3.1 miles) of each NC Dataset polygons because they are more likely to reflect the local conditions relevant to the ecosystem. If there are no wells within 5km of the center of a NC dataset polygon, then there is insufficient information to remove the polygon based on groundwater depth. Instead, it should be retained as a potential GDE until there are sufficient data to determine whether or not the NC Dataset polygon is supported by groundwater.

- Choose wells that are screened within the surficial unconfined aquifer and capable of measuring the true water table.

- Avoid relying on wells that have insufficient information on the screened well depth interval for excluding GDEs because they could be providing data on the wrong aquifer. This type of well data should not be used to remove any NC polygons.

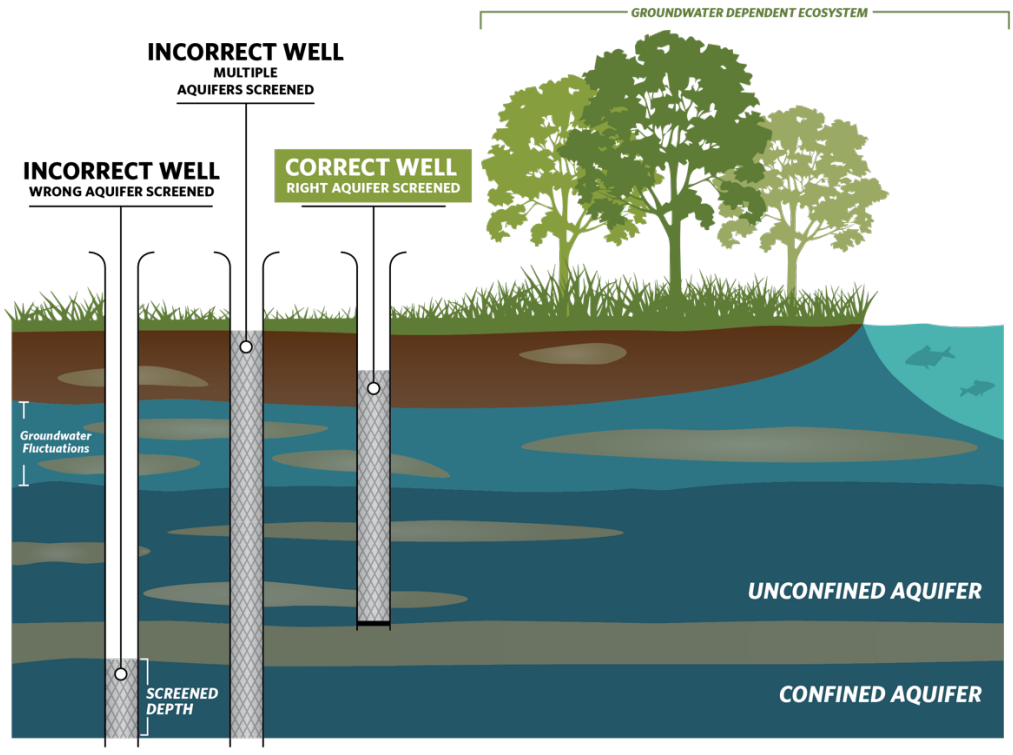


Figure 5. Selecting representative wells to characterize groundwater conditions near GDEs.

BEST PRACTICE #5. Contouring Groundwater Elevations

The common practice to contour depth-to-groundwater over a large area by interpolating measurements at monitoring wells is unsuitable for assessing whether an ecosystem is supported by groundwater. This practice causes errors when the land surface contains features like stream and wetland depressions because it assumes the land surface is constant across the landscape and depth-to-groundwater is constant below these low-lying areas (Figure 6a). A more accurate approach is to interpolate **groundwater elevations** at monitoring wells to get groundwater elevation contours across the landscape. This layer can then be subtracted from land surface elevations from a Digital Elevation Model (DEM)[11] to estimate depth-to-groundwater contours across the landscape (Figure b; Figure 7). This will provide a much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.

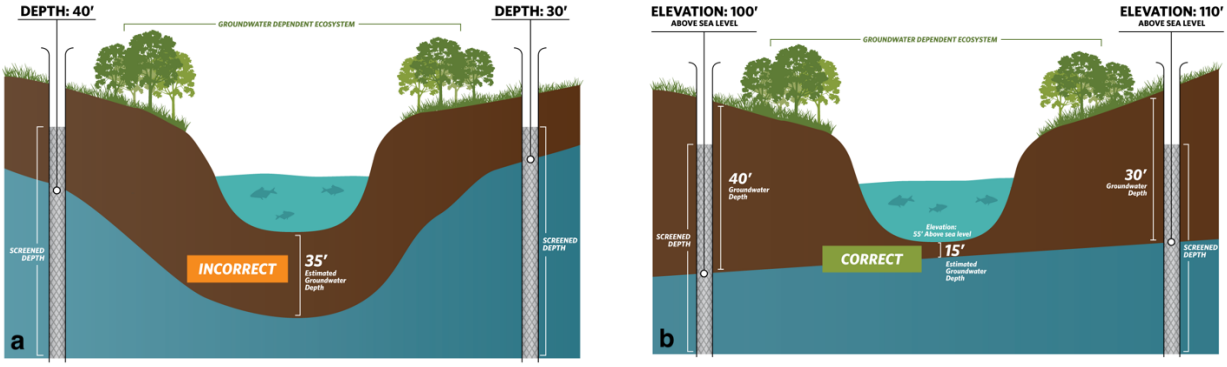


Figure 6. Contouring depth-to-groundwater around surface water features and GDEs. (a) Groundwater level interpolation using depth-to-groundwater data from monitoring wells. **(b)** Groundwater level interpolation using groundwater elevation data from monitoring wells and DEM data.

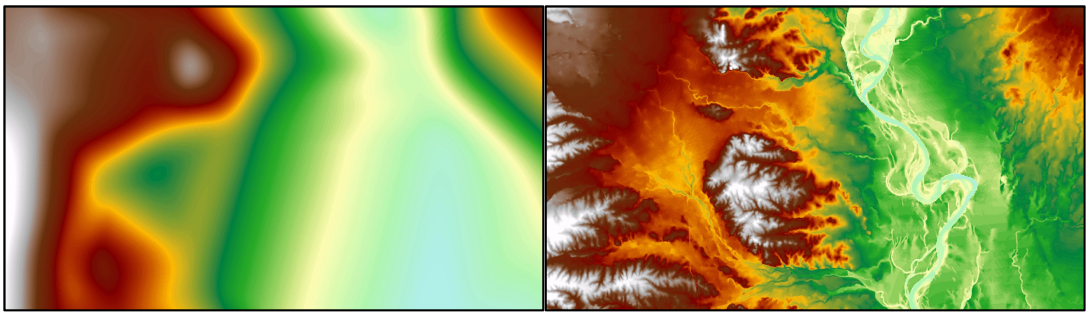


Figure 7. Depth-to-groundwater contours in Northern California. (Left) Contours were interpolated using depth-to-groundwater measurements determined at each well. **(Right)** Contours were determined by interpolating groundwater elevation measurements at each well and superimposing ground surface elevation from DEM spatial data to generate depth-to-groundwater contours. The image on the right shows a more accurate depth-to-groundwater estimate because it takes the local topography and elevation changes into account.

[11] USGS Digital Elevation Model data products are described at: https://www.usgs.gov/core-science-systems/ngp/3dep/about-3dep-products-services and can be downloaded at: https://iewer.nationalmap.gov/basic/

BEST PRACTICE #6. Best Available Science

Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decisions, and using the data collected through monitoring programs to revise decisions in the future. In many situations, the hydrologic connection of NC dataset polygons will not initially be clearly understood if site-specific groundwater monitoring data are not available. If sufficient data are not available in time for the 2020/2022 plan, **The Nature Conservancy strongly advises that questionable polygons from the NC dataset be included in the GSP until data gaps are reconciled in the monitoring network.** Erring on the side of caution will help minimize inadvertent impacts to GDEs as a result of groundwater use and management actions during SGMA implementation.

KEY DEFINITIONS

Groundwater basin is an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom. *23 CCR §341(g)(1)*

Groundwater dependent ecosystem (GDE) are ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface. *23 CCR §351(m)*

Interconnected surface water (ISW) surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted. *23 CCR §351(o)*

Principal aquifers are aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems. *23 CCR §351(aa)*

ABOUT US

The Nature Conservancy is a science-based nonprofit organization whose mission is *to conserve the lands and waters on which all life depends*. To support successful SGMA implementation that meets the future needs of people, the economy, and the environment, TNC has developed tools and resources (www.groundwaterresourcehub.org) intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Attachment E

Maps of representative monitoring sites in relation to key beneficial users

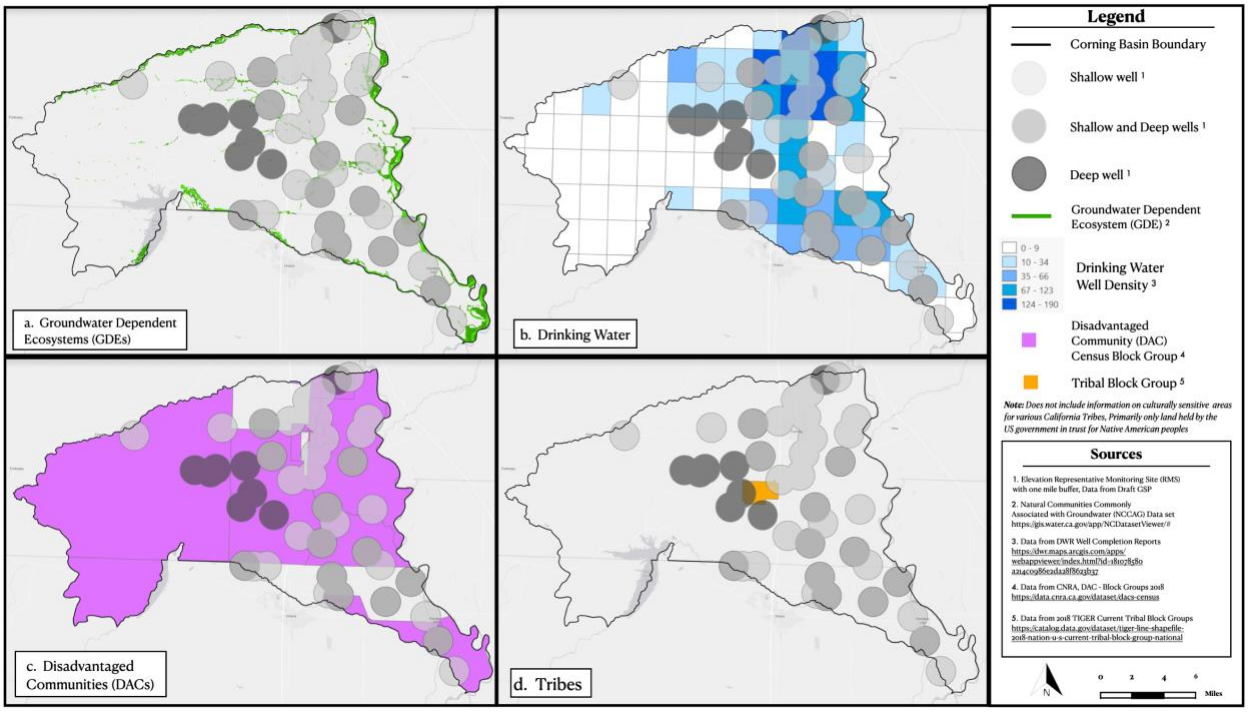


Figure 1. Groundwater elevation representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

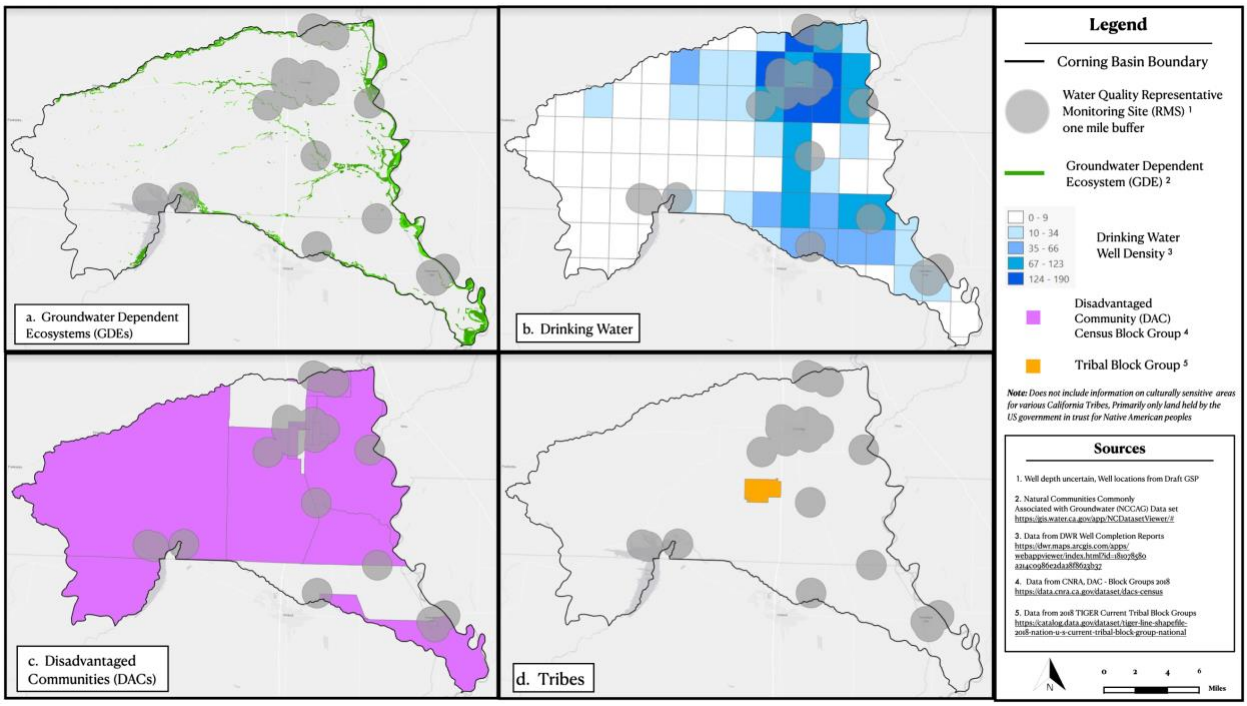


Figure 2. Groundwater quality representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
PACIFIC REGIONAL OFFICE
2800 Cottage Way, Room W-2820
Sacramento, CA 95825

IN REPLY REFER TO: Water Resources

Corning Subbasin GSP
c/o: Nichole Bethurem
9380 San Benito Ave.
Gerber, CA 96035

Dear Ms. Bethurem:

We appreciate the opportunity to comment on the DRAFT Corning Subbasin Groundwater Sustainability Plan. We are submitting comments on behalf of the Paskenta Band of Nomlaki Indians of California, regarding the Tribe's interest in federally reserved water rights.

Indian federal reserved water rights are vested property rights for which the United States has a trust responsibility to protect the tribal water resources and water rights. The United States holds legal title to such water in trust for the benefit of the tribal governments and individual Indians.

The establishment of Indian and other federal reservations, or the acquisition of lands for federal purposes (including lands held in trust for Indian tribes), also impliedly reserves unappropriated water necessary to accomplish the purposes of those lands. *E.g., Winters v. United States*, 207 U.S. 564 (1908). Federal reserved water rights (*Winters* rights) are based on and controlled by federal law and the documents establishing the reservation or acquiring federal lands. *E.g., Arizona v. California*, 373 U.S. 546, 597 (1963). The reservation of water vests when the land is reserved or acquired. *Id.* at 600. *Winters* rights encompassing water to accommodate both the present and future needs. *Id.*; *Winters*, 207 U.S. at 577. *Winters* rights are not subject to diminution based on nonuse, the needs of junior water users, or post-reservation development of state water law. *See, e.g.*, *Cappaert*, 426 U.S. at 138, 145; *Arizona*, 373 U.S. at 597–98. *Winters* rights apply to groundwater. *Agua Caliente Band of Cahuilla Indians v. Coachella Valley Water Dist.*, 849 F.3d 1262 (9th Cir. 2017), *cert. denied*, 138 S. Ct. 468 (2017).

We applaud the guidance that the California Department of Water Resources has established in their Best Management Practices (BMP) for Sustainable Management of Groundwater, Water Budget. We would like to emphasize the following guidance from the subject BMP:

> "To accurately identify and evaluate the various inflow and outflow components of the water budget, it is important to adequately characterize the interaction between surface water and groundwater systems through sufficient monitoring of groundwater levels and streamflow conditions. The *Monitoring Networks and Identification of Data Gaps* and *Monitoring Protocol, Standards, and Sites* BMPs have additional information regarding GSP monitoring requirements.
>
> Due to the complexities of characterizing stream depletion due to groundwater extraction, integrated groundwater-surface water models are often used to assist with water budget accounting and forecasting. In addition, where *interconnected surface water* systems exist,

the quantification and forecasting of streamflow depletion may be extremely difficult without the use of a numerical groundwater and surface water model. Additional information regarding consideration of models under the GSP Regulations is provided in the Modeling BMP and in Section 5 of this BMP."

We have the following comment pertaining to the following section:

Section 4 – Water Budget, Appendix 4A: Potential Model Uncertainties
The Groundwater Sustainability Plan (GSP) is utilizing existing groundwater modeling (C2VSimFG calibration and data development by DWR) that documents historical groundwater conditions across the Central Valley. The Corning Subbasin GSP lists Sustainability Management Criteria (SMC), Reductions in Storage, but, we were not able to locate the Corning subbasin volume of groundwater storage for the subbasin. It would be useful to list the hydrologic groundwater storage volumes in a table, so the stakeholders have an understanding of the subbasin groundwater storage supply (Section 354.28 of the GSP Regulations).

Thank you for the opportunity to comment on the Corning Subbasin Groundwater Sustainability Plan.

Should you have questions, please contact Douglas Garcia, Regional Water Rights Specialist, at (916) 978-6052 or Chuck Jachens, Regional Hydrologist, at (916) 978-6049.

Sincerely,

AMY DUTSCHKE

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Regional Director

Chairman, Paskenta Rancheria
Superintendent, CCA