Notice and Agenda of a Meeting of the Yucaipa Sustainable Groundwater Management Agency

Board Meeting

Wednesday, December 8, 2021 at 10:30 a.m.
(909) 797-2489 | www.yucaipasgma.org

Conducted at the City of Yucaipa | (909) 797-2489
34272 Yucaipa Boulevard, Yucaipa, California 92399

This meeting will also be available by calling (888) 788-0099
using Meeting ID 895-6292-0203#

View the meeting online at https://sbvmwd.zoom.us/j/89562920203

I. Call to Order

II. Roll Call

III. Public Comments At this time, members of the public may address the representatives of the Yucaipa Groundwater Sustainability Agency on matters within its jurisdiction.

IV. Correspondence

A. None

V. Review and Approval of Minutes

A. Workshop meeting minutes from October 27, 2021 [Page 2 of 57]

VI. Discussion Items

A. Review and Consider Comments Received on Draft Groundwater Sustainability Plan

- City of Yucaipa [Page 8 of 57]
- South Mesa Water Company [Page 12 of 57]
- Nature Conservancy [Page 24 of 57]

B. Consider Letter of Support from the Yucaipa-SGMA on Yucaipa Valley Water District [Page 57 of 57]

C. Status Update on the Yucaipa Basin USGS Model and Report

D. Status on the Ground Water Sustainability Plan Adoption Schedule

VII. Topics for Future Meetings

VIII. Comments by Board of Directors

IX. Announcements - Future Meetings

A. Board Meeting - Wednesday, January 26, 2022 at 10:30 am

X. Adjournment

MINUTES OF THE YUCAIPA SUSTAINABLE GROUNDWATER MANAGEMENT AGENCY

Board Meeting – October 27, 2021 - 10:30 a.m.

I. Call to Order - Chairman Mark Iverson called the meeting to order at 10:30 a.m.

II. Roll Call - The following representatives, as assigned by each Party, attended the meeting:

Purveyors	Present	Primary Representative	Present	Alternative Representative
South Mesa Water Company	✓	David Armstrong	✓	George Jorritsma
South Mountain Water Company	✓	George Hanson		Rolland Moore
Western Heights Water Company	✓	Mark Iverson	✓	Tim Green
Yucaipa Valley Water District	✓	Joseph Zoba		Jennifer Ares
Municipals				
City of Redlands	✓	Cecilia Griego		Kevin Watson
City of Yucaipa		Ray Casey	✓	Fermin Preciado
Regionals				
San Bernardino Valley MWD	✓	Bob Tincher	✓	Matt Howard
San Gorgonio Pass Water Agency	✓	Lance Eckhart		Thomas Todd
Stakeholders				
County of Riverside		Steve Horn		Jeff Johnson
County of San Bernardino		Bob Page		
City of Calimesa		Bonnie Johnson		

A quorum of the Board of Directors was present to start the meeting.

In addition to the Board of Directors identified above, the following members of the public were registered as attending the meeting:

- Madeline Blua, Yucaipa Valley Water District
- Sam Fuller, Consultant
- Logan Largent, Ortega Strategies Group
- Brittany Lim, South Mesa Water Company
- Joyce McIntire, Yucaipa Valley Water District
- Matt Palavido, Dudek
- Brooke Shorey, Western Heights Water Company
- Debbie Shortlidge, City of Yucaipa
- Steve Stuart, Dudek
- Colleen Wallace, City of Banning

III. Public Comments

None

IV. Correspondence

None

V. Review and Approval of Minutes

A. Workshop meeting minutes from August 11, 2021

Mark Iverson moved to approve the board meeting minutes.

David Armstrong seconded the motion.

South Mesa Water Company	Yes
South Mountain Water Company	Yes
Western Heights Water Company	Yes
Yucaipa Valley Water District	Yes
City of Redlands	Yes
City of Yucaipa	Yes
San Bernardino Valley MWD	Yes
San Gorgonio Pass Water Agency	Yes

B. Workshop meeting minutes from August 25, 2021

Lance Eckhart moved to approve the board meeting minutes.

David Armstrong seconded the motion.

South Mesa Water Company	Yes
South Mountain Water Company	Yes
Western Heights Water Company	Yes
Yucaipa Valley Water District	Yes
City of Redlands	Yes
City of Yucaipa	Yes
San Bernardino Valley MWD	Yes
San Gorgonio Pass Water Agency	Yes

C. Workshop meeting minutes from September 22, 2021

Lance Eckhart moved to approve the board meeting minutes.

David Armstrong seconded the motion.

South Mesa Water Company	Yes
South Mountain Water Company	Yes
Western Heights Water Company	Yes
Yucaipa Valley Water District	Yes
City of Redlands	Yes
City of Yucaipa	Yes
San Bernardino Valley MWD	Yes

San Gorgonio Pass Water Agency Yes

VI. Discussion Items

A. Status Update on the Activities Related to the Preparation of the Groundwater Sustainability Plan

Steve Stuart provided an administrative overview of the Groundwater Sustainability Plan which involved: (1) the preparation of a draft resolution for adoption by the GSA members; (2) the public release of the GSP scheduled for November 1, 2021; and (3) preparation of the public engagement meeting on November 16, 2021.

1. Status Update on the Administrative Draft of the Groundwater Sustainability Plan

Steve Stuart discussed the comments received by the GSA members and pointed the group to the Dudek SharePoint website for additional information. The final version of the GSP will include an executive summary, list of preparers, list of acknowledgements, and table of abbreviations/acronyms.

The following issues were discussed by the Yucaipa Sustainable Groundwater Management Agency members:

#1 Should the Yucaipa Sustainable Groundwater Management Agency be referred to as "Yucaipa GSA" in the MOA, "Yucaipa SGMA" in the Bylaws, or "Yucaipa Basin GSA" in the DWR SGMA Portal?

Following a discussion by the board members, Mark Iverson moved to refer to the organization as "Yucaipa GSA" in the GSP and legal documents, but retain the name of "Yucaipa SGMA" for meeting notices and website access by the public. The motion was seconded by Lance Eckhart and was approved unanimously.

#2 When do we implement the Sustainable Yield Pumping Allocations/Pumping Credits management action?

- **At the adoption of the GSP**
- **Pumping tracked from October 1, 2021 to September 30, 2022**
- **Initial pumping credits assessed at the end of the 2022 water year**

Following a discussion by the board members, Joseph Zoba moved to assess the initial pumping credits at the end of the 2022 water year, so pumping that occurred in October 2021 and afterwards will be accounted for when assessing pumping credits at the end of the

2021-2022 water year. The motion was seconded by Tim Green and was approved unanimously.

#3 There is a historical record of artificial spreading at the Wilson Creek and Oak Glen Creek Basins by Yucaipa Valley Water District. When should the past recharge of supplemental water in the Yucaipa Basin be recorded?

Following a discussion by the board members, Joseph Zoba moved to record all of the supplemental water added to the Yucaipa Basin by Yucaipa Valley Water District when spreading operations commenced in 2009. The motion was seconded by Tim Green and was approved by all board members except for South Mesa Water Company who abstained.

#4 What are the opportunities to support the water resources in the Calimesa Management Area?

- **There are no existing spreading basins**
- **Other sources of supplemental water can be used to offset pumping exceedances**
- **Reduction of pumping**

Following a discussion by the board members, there was recognition of the issues in the Calimesa Management Area and a general concurrence that all of the options above are sufficient to support the water resource conditions in the Calimesa Management Area. There will likely be further efforts to construct recharge facilities in this Management Area to provide additional opportunities for the region.

#5 There is an ongoing issue regarding the jurisdictional boundary between South Mesa Water Company and Yucaipa Valley Water District.

There was a consensus between Yucaipa Valley Water District and South Mesa Water Company to provide a footnote about this issue to allow the GSP to proceed without delay.

#6 USGS Model Update

Steve Stuart reported that he expects the USGS to publish their reports by the end of 2021.

#7 Potential Effects of the South Mesa Barrier on Recharge at Potential Basins in the Calimesa Management Area

Steve Stuart discussed water levels and simulated water recharge tracer diagrams at possible locations near the Equestrian Park and County Line Road locations within the Calimesa Management Area

2. Discussion Regarding the Draft Resolution to Adopt the Groundwater Sustainability Plan

Steve Stuart will be providing each agency with a draft resolution that will need to be adopted to be included in the final version of the Groundwater Sustainability Plan.

3. Discussion Regarding the Release Date of the Public Draft of the Groundwater Sustainability Plan

Matt Howard discussed the release of the public draft of the Groundwater Sustainability Plan.

B. Discussion Regarding the Format for the Second Community Engagement Meeting

Matt Howard discussed the public engagement meeting scheduled for November 16, 2021 at 6:00 pm.

C. Consider Proposal from Dudek to Prepare 2022 Annual Report for the Yucaipa Subbasin

Steve Stuart discussed the preparation of the 2022 Annual Report for the Yucaipa Subbasin based on the proposal by Dudek on October 7, 2021.

Following a discussion by the board members, Mark Iverson moved to accept and approve the proposal previously submitted by Dudek to the Yucaipa Sustainable Groundwater Management Agency. Lance Eckhart seconded the motion.

South Mesa Water Company	Yes
South Mountain Water Company	Yes
Western Heights Water Company	Yes
Yucaipa Valley Water District	Yes
City of Redlands	Abstain
City of Yucaipa	Yes
San Bernardino Valley MWD	Yes
San Gorgonio Pass Water Agency	Yes

D. Status Update on the Yucaipa-SGMA Data Management System

Matt Palavido provided an update on the Data Management System (DMS). There was a brief discussion about coordinating the field forms used by each water purveyor to improve the overall efficiency of the DMS.

VII. Topics for Future Meetings - Suggested meeting dates are provided below and will be adjusted based on the progress of each topic.

None

VIII. Comments by the Board of Directors

None

IX. Announcements

A public engagement and workshop meeting will be held on November 16, 2021 at 6:00 pm.

The next scheduled meeting of the Yucaipa Sustainable Groundwater Management Agency will be a board meeting on Wednesday, December 8, 2021, at 10:30 am.

X. Adjournment - The meeting was adjourned at 11:40 am.

Management actions were defined to achieve sustainable management of the groundwater resources in the Plan Area should groundwater elevations decline below measurable objectives. These actions will be implemented when groundwater levels decline to the drought buffers established for the North Bench, Calimesa and Western Heights management areas. The drought buffers provide operational flexibility for the Yucaipa GSA to implement these management actions and/or other programs to prevent undesirable results.

INSERT 1

No projects were identified in this GSP to help achieve groundwater sustainability in the Plan Area. Yucaipa GSA member agencies have constructed stormwater capture basins to enhance recharge to the Subbasin. The Wilson Creek and Oak Glen Creek spreading basins are designed to capture stormwater and are used to artificially recharge the Subbasin using surplus SWP water delivered by the SWP East Branch Extension. Other existing and planned stormwater capture basins will provide additional opportunities to capture and recharge stormwater flows thereby reducing the reliance on imported water to meet the basin measurable objectives.

ES-5 Plan Implementation

Upon adoption of this GSP by the Yucaipa GSA, the primary activities associated with implementing the GSP include administrative duties by the member agencies of the Yucaipa GSA, the management of data collection, data validation, and analysis to evaluate conditions in the Subbasin, the preparation and submittal of annual reports and periodic evaluations, with associated data, to DWR, and an assessment of conditions in the Subbasin and determination if management actions need to be implemented. During the initial 5-year period after the GSP is adopted, the Yucaipa GSA will evaluate options to address data gaps, and conduct feasibility studies to evaluate the effectiveness of potential spreading basins and other programs that would maintain or achieve sustainability in the Subbasin.

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Some of the member agencies of the Yucaipa GSA have constructed storm water capture basins to enhance recharge to the Subbasin. The Wilson Creek and Oak Glen Creek basins are designed to capture storm water, but are primarily used to artificially recharge the Subbasin using surplus SWP water delivered by the SWP East Branch Extension. These basins are included in the YIHM to simulate their contributions to recharge to the Subbasin. The Wilson Creek and Oak Glen Creek basins have contributed an average 1,900 AFY and 170 AFY, respectively, since 2011. The other existing storm water capture basins are estimated to capture approximately 1,800 AFY. These projects provide additional benefits including improving water quality in surface waters by reducing stormwater runoff volumes and providing wildlife habitat.

The Yucaipa GSA identified proposed projects that have been designed, permitted, and are undergoing development or will in the near future. These include the Wilson Creek III Basins, the Pendleton Avenue Low Water Crossing, and the Upper Wildwood Creek Basin. The projects funded by the City of Yucaipa (with major funding also provided by SBVMWD for the Wilson III Basins) are designed to capture storm water flows and enhance recharge to the Subbasin. The estimated average annual recharge contribution is approximately 1,500 AF. These basins will be located in the North Bench management area. These planned basins were not included in the future water budget analyses for the North Bench management area using the YIHM, because the North Bench management area is not projected to experience undesirable results over the 50-year planning and implementation horizon. However, these planned projects will provide additional opportunities to capture and recharge stormwater flows, thereby reducing the reliance on imported water to meet the basin measurable objectives.

described in the November 2012 IRWM Proposition 84 and 1E Program Guidelines by the California Department of Water Resources. The 2015 IRWM Plan documents the IRWM Region's current IRWM program and processes that have been implemented since 2005 when the IRWM Region was created.

A Regional Water Management Group, also known as the Basin Technical Advisory Committee, was formed to implement and update the IRWM. The Basin Technical Advisory Committee consists of water agencies and other stakeholders. The Basin Technical Advisory Committee prepares an annual water management plan, which tracks certain metrics from the IRWM such as groundwater level data, groundwater storage levels, and liquefaction potential. It also provides recommended thresholds for groundwater recharge to help prevent liquefaction and migration of groundwater contamination plumes.

1.5.3 Operational Flexibility Limitations

Operational flexibility is a key consideration in integrated water resource management because it helps water purveyors adapt to known legal, operational, and environmental constraints, and plan for an uncertain future, especially as it relates to drought resiliency and the effects of climate change. Operational flexibility can be measured over a given time horizon and/or geographic scale (e.g., water district service area) as the difference between available water supply and service area demand. Operational flexibility is maximized when a water purveyor has a large variety of sources in a water supply portfolio, when it has local control over such sources, and when such sources are connected to each other (i.e., conjunctively managed). On a general statewide scale, water purveyors are increasingly looking to minimize reliance on imported water supplies by promoting stormwater recharge, maximizing wastewater recycling, and sustainably developing local sources of water.

For the Yucaipa Subbasin, water purveyors collectively draw from a combination of sources—including local surface water, groundwater, imports from the SWP, and recycled water—which differ in terms of the volume available, area served, timing of peak availability, reliability and cost. Climate and regulatory constraints (e.g., water quality standards, water rights, and minimum environmental flows) have historically had a greater impact on the availability of surface water supplies.

Groundwater sources were historically limited only by the capacity of production wells accessing the aquifer. However, declining water level trends prior to 2007 indicated an unsustainable withdrawal of groundwater from the Yucaipa Subbasin. The importation of supplemental SWP water into the subbasin led to a decrease in groundwater extractions to approximately the estimated safe yields of the minor subbasins. Consequently, the declining trends in groundwater levels ceased and water levels either stabilized or recovered to levels approaching the historical high groundwater levels observed in the Spring of 1988. With the passage of SGMA and the sustainable management criteria established in this GSP (Chapter 3), once adopted, groundwater extraction will be regulated by minimum thresholds established for each applicable sustainability indicator and an estimated sustainable yield.

The GSP complements and enhances existing projects and programs currently in place to maximize beneficial use of water resources and increase operational flexibility within the Yucaipa Subbasin. Existing water monitoring and management activities are summarized in Tables 1-3 and 1-5. To that end, individual Yucaipa GSA member agencies have implemented various policies and goals, such as enhancing recycled water use, implementing programs to conserve water usage, evaluating programs that would increase stormwater capture and artificial recharge, and policies requiring future developments to build and connect to existing water services, including recycled water, and sanitary sewer. Examples of projects that have increased operational flexibility within the Yucaipa Subbasin include YVWD's expansion and treatment upgrades at the WRWRF to increase recycled water output to serve back to its customers, and the near-future implementation of the Salinity and Groundwater Enhancement project designed to produce exceptionally pure recycled water for groundwater recharge.

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Other projects include the Wilson Creek and Oak Glen Creek basins which were designed to capture storm water, but are primarily used to artificially recharge the Subbasin using surplus SWP water delivered by the SWP East Branch Extension. These basins are included in the YIHM to simulate their contributions to recharge to the Subbasin. The Wilson Creek and Oak Glen Creek basins have contributed an average 1,900 AFY and 170 AFY, respectively, since 2011. The other existing storm water capture basins are estimated to capture approximately 1,800 AFY. These projects provide additional benefits including improving water quality in surface waters by reducing stormwater runoff volumes and providing wildlife habitat.

South Mesa Water Company

Telephone (909)795-2401 · Fax (909)795-5299
391 West Avenue L · P.O. Box 458
Calimesa, California 92320-0458

November 30, 2021

VIA Email

Matt Howard
matth@sbvmwd.com
San Bernardino Valley Municipal Water District
380 E Vanderbilt Way
San Bernardino, CA 92408

Steve Stuart
sstuart@dudek.com
Dudek
605 3rd Street
Encinitas, California 92024
Steve Stuart

Re: Yucaipa GSA Revised GSP Administrative Draft and Dudek Responses
South Mesa Water Company Further Comments

Dear Mr. Howard and Mr. Stuart:

On behalf of South Mesa Water Company ("South Mesa"), we again express appreciation to Dudek and San Bernardino Valley Municipal Water District ("SBVMWD") staff for your hard work in preparing the Groundwater Sustainability Plan ("GSP") for the Yucaipa Groundwater Sustainability Agency ("Yucaipa GSA"). As you may recall, on October 12, 2021, South Mesa submitted detailed comments on the GSP Administrative Draft that was made available on September 22, 2021.

Following that date, Dudek released for Yucaipa GSA members' review: (1) a matrix summarizing Dudek's responses to comments on the GSP Administrative Draft; and (2) a revised, redline showing changes that were made to the GSP Administrative Draft based upon the comments received. We thank you for addressing many of South Mesa's comments both in the matrix and through revisions to the GSP text.

The purpose of this letter is provide comments on the revised GSP Administrative Draft and to follow up on prior South Mesa comments for which we request further

responses and clarifications. We have focused our comments on important substantive issues (rather than grammatical aspects) that need to be addressed prior to adoption of the GSP in January.

New South Mesa Comment Regarding Transferability of Pumping Credits

In Section 4.2.2., entitled, "Management Action #2 – Sustainable Yield Pumping Allocations and Groundwater Replenishment," Dudek has made a revision to the draft GSP text at the request of SBVMWD that is of significant concern to South Mesa. The revision adds a sentence expressly stating that "Pumping credits cannot be transferred or sold to another entity within a given management area or with the Subbasin."

That sentence should be deleted. The transferability of pumping credits is a significant policy matter that has not yet been specifically addressed by the Yucaipa GSA. In fact, the ability to transfer pumping credits within a management area or within the Subbasin could potentially provide an important management tool for the Subbasin and should be explored and discussed. Until that policy issue is addressed and decided, the GSP should not include language limiting or prohibiting transferability.

We request that the subject of transferability be placed on the agenda for preliminary discussion at the next Yucaipa GSA meeting, and that placeholder language be included in the GSP stating that "The Yucaipa GSA will continue to discuss transferability of pumping credits."

Follow Up on Prior South Mesa Comments on GSP Administrative Draft

Below are follow-up requests regarding South Mesa's prior (October 12, 2021) comments on the GSP Administrative Draft. For your convenience, we have replicated the relevant segments of Dudek's responses to comments matrix. Following the replications, we state our follow-up comment(s) for Dudek's further review and responses.

1.3.1. Description of Plan Area

1.3.1	13	Reference should be made to the study/report that identifies the "hydrogeological subbasins"	South Mesa	10/12/2021	Geoscience provided GIS files of the subarea boundaries to YVWD in June 2018. Will provide document references when available.

- Does Dudek have access to those GIS files, and if not, why not?
- Has Dudek requested Geoscience to identify the document references?

- When will the document references be available?

1.5.1.3. Annual Calculations of Change in Groundwater Storage in the Yucaipa Subbasin

1.5.1.3		Please provide a brief explanatory statement why 1993 was the "base year" for the SBVMWD storage monitoring program."	South Mesa	10/12/2021	Edit was made and tracked in the Admin draft.

- We appreciate the clarification made in the text, and have a few follow-up questions. This section currently reads, in relevant part: "In 2014, SBVMWD integrated the Subbasin into its existing program that calculates an annual change in groundwater storage for the San Bernardino Basin Area (SBBA) (SBVMWD, 2018). DWR first calculated the annual change in storage in the SBBA from 1934 to 1960. SBVMWD continued the work initiated by DWR and calculated the annual change in groundwater storage from 1961 to present. SBVMWD calculates a cumulative change in storage by quantifying the volume of water lost or gained compared to a base year. The base year for the Yucaipa Subbasin is 1993, which SBVMWD noted was "equivalent" to the base year of 1934 established by DWR (SBVMWD, 2018)."
- Please explain the meaning of "equivalent" as referenced in the text. We suggest revising the text to include that explanation, to avoid confusion from using "equivalent" in quotation marks.
- Please provide further clarification and confirmation that 1993 is an appropriate base year for measuring changes in groundwater storage under SGMA.

2.5.1.1. Triple Falls Creek Subarea

2.5.1.1	20	"The prior draft GSP Chapter 2 stated: 'Data obtained from YVWD indicated that production from the Triple Falls Creek subarea since the 2005 WY has averaged 190 AFY' - is this no longer accurate?"	South Mesa	10/7/2021	This sentence was deleted in the Admin Draft. YVWD did not operate their wells in this subarea after the 1994 WY.

- How, if at all, do the revised numbers stated in this section affect the GSP pumping allocations, replenishment fees, and credits that were presented at the August 2021, September 2021 and October 2021 Yucaipa GSA meetings?

2.5.1.2 Oak Glen Subarea

2.5.1.2	21	Comment on paragraph describing water produced by YVWD-25.	South Mesa	10/12/2021	This paragraph has been revised to read, "Water produced from well YVWD-25 is under the direct influence of surface water from nearby Oak Glen Creek. Water produced from YVWD-25 is treated at the OGSWFF located approximately 0.25 mile west of YVWD-25. Since the 2001 WY, YVWD-25 has delivered 192 AFY to 342 AFY of water to the OGSWFF."

- How, if at all, do the revised numbers stated in this section affect the GSP pumping allocations, replenishment fees, and credits for this Management Area that were presented at the August 2021, September 2021 and October 2021 Yucaipa GSA meetings?
- Does YVWD hold surface water diversion permits/licenses with respect to YVWD-25? The revised text removes references to diversion of surface water.

Multiple Sections – Regarding Revisions to Pumping Figures for Subareas

2.5.1.2	21	"What is the basis for the substantial revisions to the pumping figures?"	South Mesa	10/12/2021	The sentence describing pumping from the 1966 WY to 2014 WY has been revised (see response to comment 2.5.1.1.page 20). Please see the response to comment 2.8.2.3.3 regarding the changes to the groundwater production rates between the preliminary and admin drafts of the GSP.

2.5.1.5	23	"Please explain the basis for the change in the estimated pumping figures."	South Mesa	10/12/2021	Please see the response to comment 2.8.2.3.3 regarding the changes to the groundwater production rates between the preliminary and admin drafts of the GSP.

2.5.1.6	23	"Please explain the basis for the change in the estimated pumping figures."	South Mesa	10/12/2021	Please see the response to comment 2.8.2.3.3 regarding the changes to the groundwater production rates between the preliminary and admin drafts of the GSP.

2.5.1.7	24	"Please explain the basis for the change in the estimated pumping figures."	South Mesa	10/12/2021	Please see the response to comment 2.8.2.3.3 regarding the changes to the groundwater production rates between the preliminary and admin drafts of the GSP.

2.8.2.3.3	67	Please explain why the total subsurface recharge estimates in the earlier GSP Draft Chapter 2 (approx. 16,900 AFY) were revised substantially downward in the GSP Administrative Draft Chapter 2 (approx. 13,800 AFY)	South Mesa	10/12/2021	The total subsurface recharge estimates presented in the Preliminary Draft Chapter 2 reflected numerical model results from the September 2020 version of the Yucaipa Integrated Hydrologic Model (YIHM) developed by the USGS. The September 2020 version of the YIHM was updated and recalibrated based on input from Yucaipa SGMA staff and consultants and an internal review by the USGS. The updated model was provided to the Yucaipa SGMA in May 2021. The water budget values presented in the Administrative Draft Chapter 2 reflect simulation results from the May 2021 version of the YIHM. Updates to the May 2021 version of the YIHM include: (1) Corrections to an error in the PRMS component (watershed model) of the YIHM, (2) Revised characterization of the unsaturated zone, (3) Updated return flow estimates used in

					the numerical model, and (4) Revised hydraulic conductivity and aquifer storage property distributions. In addition to these revisions, the water budget results presented in the Administrative Draft Chapter 2 were developed using an updated methodology for extracting model outputs from the YIHM. Based on discussions with the USGS, the water budgets developed for the Administrative Draft Chapter 2 were generated by extracting daily volumetric flux output data, which provides higher-resolution estimates of the modeled water budgets compared to the methodology employed during development of the Preliminary Draft Chapter 2. The reduced subsurface recharge estimates presented in the Administrative Draft Chapter 2 reflect both revisions to the YIHM and updated methodologies for extracting model outputs and developing the water budgets.

For the above-listed sections, please address the following question:

- How, if at all, do the revised numbers stated in these sections affect the GSP pumping allocations, replenishment fees, and credits for Management Areas that were presented at the August 2021, September 2021 and October 2021 Yucaipa GSA meetings?

2.5.3. Groundwater Production Wells

2.5.3	27	"Please identify the Yucaipa Basin Subarea and Management Area to which YVWD-48 supplies water, the amount of that water and how it is reflected in the GSP Water Budget."	South Mesa	10/12/2021	The text was revised to indicate that YVWD-48 "supplies water to a portion of YVWD's service area within the Singleton, Calimesa and Live Oak subareas." The fraction of the volume of water from YVWD-48 that is served within the Subbasin has not been quantified. The YIHM simulates production from YVWD-48 and estimates return flows in the Subbasin based on water served in the Subbasin.

- South Mesa appreciates the initial response, but requests further clarification on this subsection regarding YVWD-48 that pumps groundwater from the Beaumont Basin for partial use within the Yucaipa Subbasin. The response indicates that the fraction of water from YVWD-48 that is served within the Subbasin has not been quantified but further states that the YIHM "simulates production from YVWD-48" and estimates return flows in the Subbasin "based on water served in the Subbasin." Will Dudek please provide further clarification regarding the assumptions (pumping, return flows, water served within the Subbasin, etc.) utilized for YVWD-48 and also for the analogous South Mesa-04 (which also produces groundwater from the Beaumont Basin, for use within the Yucaipa Subbasin).

2.8.1.1. Integrated Surface Water and Groundwater Numerical Model

2.8.1.1		"When will the USGS report documenting the YIHM development (to complete GSP Appendix 2-D) be released by USGS and available to review?"	South Mesa	10/12/2021	SBVMWD to provide response.

- Please provide an update as to when SBVMWD anticipates receiving the USGS YIHM modeling report.

2.8.2.2.3. Imported Groundwater

2.8.2.2.3	66	Comments on the groundwater pumped by South Mesa-04, YVWD-16, YVWD-48 and YVWD-61 and imported into the Subbasin.	South Mesa	10/12/2021	The text in this section refers to the YIHM and the data used to simulate pumping at South Mesa-04, YVWD-16, YVWD-48 and YVWD-61. The text has been edited to indicate the pumping rates simulated in the YIHM, and includes a reference to data obtained from South Mesa indicating that South Mesa-04 began operating in 1956. Table 2C-3 has been updated with the individual annual pumping rates at these four wells.

- A copy of Dudek's revised draft Table 2C-3 is included with this letter as **Attachment "A"**. The revised text, Table 2C-3 and Dudek response to South Mesa's October 12, 2021 comment, appear to be inconsistent with the data provided by SMWC regarding South Mesa-04. The revised text appears to indicate that Well 4 data is being applied only back to 1988 is due to YIHM model parameters only going back to 1988. Is that correct? If so, why does the YIHM include YVWD importing water beginning 1981 via YVWD-16?
- Table 2C-3 in Appendix 2C lists "0" AF imported by South Mesa-04 from 1987 and prior, and no reference is made prior to 1965. Please explain the those figures and date ranges, and how they are being applied.
- We invite Dudek to contact South Mesa to ensure that complete and accurate South Mesa-04 data is being utilized for the GSP.

4.2.2. Management Action #2 – Sustainable Yield Pumping Allocations and Groundwater Replenishment

4.2.2	15	Consider language that Pumping credits and recharge credits cannot be transferred or sold to another entity within a given management area or within the Yucaipa Subbasin	SBVMWD	10/7/2021	Added language to this effect in 4.2.2.

- Please see South Mesa's significant concerns with this revision, as stated at the beginning of this letter.

4.2.3. Management Action #3 – Surplus Supplemental Water Spreading

4.2.3	24	"The details of the management action and the applicable accounting methodology should be further described in this section, including examples."	South Mesa	10/12/2021	Surplus supplemental water, which is not associated with Management Action #2, and discharged to a spreading basin to facilitate the artificial recharge of the Subbasin will have a separate accounting by the Yucaipa-SGMA. The surplus supplemental water will be accessible to the water purveyor that purchased the water and percolated it at a spreading basin. This water will be available to help offset production exceedances above the sustainable yield pumping allocations instead of pumping credits earned via Management Action #2.

- Please provide a further detailed explanation regarding the accounting methodology for Surplus Supplemental Water. The response above indicates that Surplus Supplemental Water is not associated with Management Action #2, but indicates that that Surplus Supplemental water will nonetheless be available to offset production exceedances above sustainable yield pumping allocations (which allocations comprise an integral component of Management Action #2). We would appreciate added clarity regarding the interrelatedness and accounting methodology for Management Action #2 and Management Action #3.

We look forward to the December meeting and to working together toward adoption of a timely and effective GSP for the Yucaipa Subbasin.

Sincerely,

SOUTH MESA WATER COMPANY

Dave Armstrong, General Manager

ATTACHMENT A

Table 2C-3: Imported Groundwater to the Yucaipa Subbasin			
Water Year Ending	Imported Groundwater (AF)		
	South Mesa	YVWD	**Total**
1965	-	-	**-**
1966	-	0	**-**
1967	-	0	**-**
1968	-	0	**-**
1969	-	0	**-**
1970	-	0	**-**
1971	-	0	**-**
1972	-	0	**-**
1973	-	0	**-**
1974	-	0	**-**
1975	-	0	**-**
1976	-	0	**-**
1977	-	0	**-**
1978	-	0	**-**
1979	-	0	**-**
1980	-	0	**-**
1981	0	20	**20**
1982	0	104	**104**
1983	0	43	**43**
1984	0	18	**18**
1985	0	13	**13**
1986	0	6	**6**
1987	0	14	**14**
1988	263	19	**282**
1989	373	45	**418**
1990	469	41	**509**
1991	403	14	**417**
1992	353	2	**355**
1993	417	2	**419**
1994	488	14	**502**
1995	523	6	**529**
1996	582	7	**589**
1997	609	7	**615**
1998	504	3	**507**
1999	560	3	**563**
2000	577	25	**602**
2001	553	886	**1,439**
2002	537	1,518	**2,055**
2003	382	1,693	**2,075**
2004	474	1,657	**2,131**
2005	610	1,279	**1,890**
2006	643	1,709	**2,352**
2007	662	1,609	**2,271**
2008	509	777	**1,286**
2009	399	551	**951**
2010	422	665	**1,087**
2011	415	587	**1,002**
2012	441	694	**1,135**
2013	338	1,010	**1,349**
2014	417	1,198	**1,615**
Average	**380**	**331**	**858**

AF = acre-feet

December 3, 2021

Yucaipa Groundwater Sustainability Agency
% San Bernardino Valley Municipal Water District
San Bernardino, California, 92408

Submitted via email: yucaipasgma@gmail.com

Re: Public Comment Letter for Yucaipa Subbasin Draft GSP

Dear Mark Iverson,

On behalf of the above-listed organizations, we appreciate the opportunity to comment on the Draft Groundwater Sustainability Plan (GSP) for the Yucaipa 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 **does not have a plan** 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 Yucaipa 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 sites in relation to key beneficial users

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

Best Regards,

Ngodoo Atume
Water Policy Analyst
Clean Water Action/Clean Water Fund

J. Pablo Ortiz-Partida, Ph.D.
Western States Climate and Water Scientist
Union of Concerned Scientists

Samantha Arthur
Working Lands Program Director
Audubon California

Danielle V. Dolan
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Local Government Commission

E.J. Remson
Senior Project Director, California Water Program
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Melissa M. Rohde
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Attachment A

Specific Comments on the Yucaipa 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 and Drinking Water Users

The identification of Disadvantaged Communities (DACs) and drinking water users is **incomplete**. The GSP provides information on DACs, including identification by name and location on a map (Appendix 1-C, Figure 3). However, the GSP fails to clearly state the population of each DAC or provide the population of DACs dependent on groundwater as their source of drinking water in the subbasin.

The plan fails to provide a density map or depth of domestic wells (such as minimum well depth, average well depth, or depth range) within the subbasin. This information is necessary to understand the distribution of shallow and vulnerable drinking water wells within the subbasin.

These missing elements are required for the GSAs 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 the population of each identified DAC. 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).
- Include a domestic well density map and 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. The GSP describes the use of a

[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 model, the Yucaipa Integrated Hydrologic Model (YIHM), to analyze the interaction between groundwater and surface water within the subbasin. The model is briefly described in the Water Budget section of the GSP. The GSP provides a placeholder for the model documentation in Appendix 2-D, but this appendix was not provided as part of the draft GSP.

The GSP provides general statements regarding the connected nature of certain reaches in the Water Budget section of the GSP. The GSP states (p. 2-68): *"Groundwater in the Yucaipa Subbasin discharges to Oak Glen Creek, Wilson Creek, Yucaipa Creek, and San Timoteo Creek when underlying groundwater elevations are above the bottom elevation of each stream channel. Groundwater conditions that cause this are influenced by local pumping, climatic conditions, upstream stream leakage, and subsurface inflows from adjacent Subbasins, crystalline bedrock, and the San Timoteo Badlands."* However, the GSP does not provide a map of these reaches to illustrate the conclusions of the modeling analysis regarding which reaches are connected to groundwater.

RECOMMENDATIONS

- Provide a map showing all the stream reaches in the subbasin, with reaches clearly labeled as interconnected (gaining/losing) or disconnected. Consider any segments with data gaps as potential ISWs and clearly mark them as such on maps provided in the GSP.
- In the main text of the GSP, summarize the groundwater elevation data and stream flow data used in the modeling analysis. Discuss temporal (seasonal and interannual) variability of the data used to calibrate the model.
- To confirm and illustrate the results of the groundwater modeling, overlay the subbasin's stream reaches with depth-to-groundwater contour maps to illustrate groundwater depths and the groundwater gradient near the stream reaches. Show the location of groundwater wells used in the analysis.
- 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.

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.

- NC dataset polygons were incorrectly removed if Normalized Difference Vegetation Index (NDVI) and Normalized Difference Moisture Index (NDMI) data did not correlate with groundwater level trends. This is an incorrect method, since a lack of a relationship does not preclude that groundwater is providing some of the ecosystem's water needs. If the ecosystem is tapping into shallow groundwater then the ecosystem should be categorized as a GDE. If there are no data to characterize groundwater conditions in the

shallow principal aquifer, then the GDE should be retained as a potential GDE and data gaps reconciled in the Monitoring Network section of the GSP.

- NC dataset polygons were incorrectly removed in areas where previous site investigations indicated that the habitats were sustained by surface water. However, this removal criteria is flawed since GDEs can rely on multiple water sources – including surface water *and* groundwater – simultaneously and at different temporal/spatial scales. NC dataset polygons adjacent to surface water supplies can still potentially be reliant on shallow groundwater aquifers, and therefore should not be removed solely based on their proximity to these additional water sources.

The text discusses groundwater level trends in each of the GDE units over the period 2009 to 2019, referring to specific well names. The wells are not labeled on the GDE map (Figure 2-57), however. The GSP could be improved by labeling the GDE units and labeling each well location provided on this figure, and providing the hydrographs of groundwater levels that are discussed qualitatively in the text.

The GSP presents the subbasin's common phreatophytes in Table 2-9 and describes the habitat types when discussing each GDE unit. However, the GSP does not provide a description or inventory of the subbasin's fauna or discuss endangered, threatened, or special status species.

RECOMMENDATIONS

- Re-evaluate the NC dataset polygons that were incorrectly removed based on NDVI and NDMI trends or proximity to surface water. 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.
- Label the GDE units and label each well location provided on Figure 2-57. Provide the hydrographs of groundwater levels that are discussed qualitatively in the text.
- 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.
- 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.
- Provide a complete inventory, map, or description of fauna (e.g., birds, fish, amphibian) and flora (e.g., plants) species in the subbasin and note any threatened or endangered species (see Attachment C in this letter for a list of freshwater species located in the Yucaipa 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.[2,3] The integration of native vegetation into the water budget is **insufficient**. The water budget did not include the current, historical, and projected demands of native vegetation. The omission of explicit water demands for native vegetation 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. Managed wetlands are not mentioned in the GSP, so it is not known whether or not they are present in the subbasin.

RECOMMENDATIONS

- 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 native vegetation.
- State whether or not there are managed wetlands in the subbasin. If there are, ensure that their groundwater demands are included as separate line items in the historical, current, and projected water budgets.

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 Public Outreach and Engagement Plan (Appendix 1-C).[4]

The GSP documents targeted outreach to DACs, including specific representation of DACs on the Yucaipa GSA by both the City representatives and water suppliers of the DACs within the subbasin. However, we note the following deficiencies with the overall stakeholder engagement process:

- The GSP documents opportunities for public involvement and engagement in very general terms. These include meeting opportunities through the SGMA Board's quarterly meetings, Technical Advisory Group meetings during GSP development, SGMA Board appointed membership, and communication and engagement through the GSP webpage.
- The plan lacks specific details of outreach and engagement targeted to environmental stakeholders. In Section 1.8.6, the GSP documents environmental users as the subbasin's GDEs. We recommend that the GSA engage with environmental stakeholders

[2] "'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)]

[3] "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]

[4] "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)]

in the subbasin, which could include California Department of Fish and Wildlife or environmental non-profits.

- Section 1.7.1 of the GSP states that notification and communication will continue to take place during the implementation phase of the GSP. However, the GSP describes outreach during GSP implementation as limited to *"engagement with the public and beneficial users regarding the progress of monitoring and reporting updates on the GSP to DWR, establishment of fees, and the development and implementation of management strategies, including projects as needed."* The discussion of public notice and engagement does not include a detailed plan for continual opportunities for engagement through the implementation phase of the GSP that is specifically directed to DACs, domestic well owners, and environmental stakeholders within the subbasin.

RECOMMENDATIONS

- In the Public Outreach and Engagement Plan, describe active and targeted outreach to engage all 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.
- Engage with environmental stakeholders in the subbasin, which could include California Department of Fish and Wildlife or environmental non-profits.
- Provide documentation on how stakeholder input was incorporated into the GSP development process.
- Utilize DWR's tribal engagement guidance to comprehensively identify, involve, and address all tribes and tribal interests that may be present in the subbasin.[5]

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.[6,7,8]

[5] 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

[6] "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)]

[7] "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)]

[8] "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

To establish minimum thresholds for each of four management areas, the GSP identifies the historic low storage volume, assigns a drought buffer to further lower the storage volume, and then uses the YIHM to determine the corresponding groundwater elevations at representative monitoring points (RMPs). The GSP does not quantify the number of domestic wells that could go dry or otherwise consider or analyze the impact of minimum thresholds on domestic wells. The GSP does not sufficiently describe whether minimum thresholds will avoid significant and unreasonable loss of drinking water to domestic well users that are not protected by the minimum threshold. In addition, the GSP does not sufficiently describe or analyze direct or indirect impacts on DACs or drinking water users when defining undesirable results, nor does it describe how the groundwater levels minimum thresholds are consistent with the Human Right to Water policy.[9]

The GSP does not establish SMC for groundwater quality. The GSP states (p. 3-2): *"Degradation of groundwater quality does not apply to the Plan Area as agriculture use has declined markedly since the 1950s to approximately 7% of the total land use, and the concerted efforts by the Yucaipa GSA member agencies to convert from septic systems to sanitary sewer systems has decreased nitrate and salt contributions to the aquifer. Limited contamination at some active remediation sites and the cessation of operations at the former Yucaipa Landfill have limited contamination to shallow, perched groundwater that has not impacted water quality in the principal aquifer."* Section 2.7.4 (Groundwater Quality) discusses other COCs, both naturally occurring and those associated with industrial activities, that have exceeded regulatory standards. All COCs in the subbasin that may be impacted or exacerbated by groundwater use and/or management should have established SMC, in addition to coordinating with water quality regulatory programs.

RECOMMENDATIONS

Chronic Lowering of Groundwater Levels

- Describe direct and indirect impacts on drinking water users and DACs when describing undesirable results and defining minimum thresholds for chronic lowering of groundwater levels. Include information on the impacts during prolonged periods of below average water years.

- Consider and evaluate the impacts of selected minimum thresholds and measurable objectives on drinking water users and DACs within the subbasin. Further describe the impact of passing the minimum threshold for these users. For example, provide the number of domestic wells that would be fully or partially de-watered at the minimum threshold.

Degraded Water Quality

- Establish water quality SMC. Set minimum thresholds and measurable objectives for all water quality constituents within the subbasin that can be impacted and/or exacerbated as a result of groundwater use or groundwater management.

- Describe direct and indirect impacts on drinking water users and DACs when defining undesirable results for degraded water quality.[10] For specific guidance on how to

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

[10] "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)]

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 and DACs.

Groundwater Dependent Ecosystems and Interconnected Surface Waters

We commend the GSA for evaluating potential cause and effect relationships between groundwater and remote sensing (NDVI, NDMI) data when establishing sustainable management criteria for the ISW sustainability indicator. However, sustainable management criteria for chronic lowering of groundwater levels provided in the GSP do not consider potential impacts to environmental beneficial users. This is problematic because without identifying potential impacts on GDEs, minimum thresholds may compromise, or even destroy, these environmental beneficial users. Since GDEs are present in the subbasin, they must be considered when developing all relevant SMC.

For depletion of interconnected surface waters, the GSP establishes the undesirable result but does not determine minimum thresholds. The undesirable result is established as follows (p. 3-6): *"A significant and unreasonable loss of GDE habitat may occur if there is a long-term decline in groundwater levels below 30 feet bgs."* The GSP continues (p. 3-6): *"Because the potential GDEs are not located near existing or currently planned groundwater extraction wells, it is not anticipated that they will be impacted by future extractions within the Plan Area. However, in the event that future groundwater production is planned within a mile of a potential GDE, additional investigations should be performed to identify whether the potential GDE relies on groundwater, and whether the planned production may negatively impact the potential GDE. If the potential GDE is found to rely on groundwater and planned production may impact groundwater levels in the vicinity of the potential GDE, sustainability criteria related to the depletion of interconnected surface water may be established to protect against the significant and unreasonable loss of GDE habitat."* Because ISWs have been identified in the subbasin, the GSA needs to define what significant and unreasonable effects are for ISWs, and the GSA should not wait for future well development to establish SMC. Also, please note that significant and unreasonable losses of GDE habitat can occur when groundwater levels decline within 30 feet bgs, as observed in Fillmore and Piru groundwater basins[12].

While the GSP identifies terrestrial GDEs, it does not identify or mention surface water beneficial users in the subbasin. In establishing SMC for depletion of interconnected surface water, the GSP should evaluate how the proposed minimum thresholds and measurable objectives avoid significant and unreasonable effects on surface water beneficial users in the subbasin (see Attachment C for a list of environmental users in the subbasin), such as increased mortality and inability to perform key life processes (e.g., reproduction, migration).

[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] Kibler CL, Schmidt EC, Roberts DA, Stella JC, Kui L, Lambert AM, Singer MB. A brown wave of riparian woodland mortality following groundwater declines during the 2012-2019 California drought. Environmental Research Letters 16(8): 084030. https://doi.org/10.1088/1748-9326/ac1377

RECOMMENDATIONS

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

- Evaluate impacts on GDEs when establishing SMC for chronic lowering of groundwater levels. When defining undesirable results, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to 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 is the crucial first step before the minimum thresholds can be determined.[14]

- Establish SMC for depletion of interconnected surface water. When defining undesirable results, 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.[8,16]

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 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.[17] 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

[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)]

on groundwater during times of drought.[18] 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.

The integration of climate change into the projected water budget is **insufficient**. The GSP does incorporate 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 would benefit from clearly and transparently incorporating 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 and their consideration is not required by DWR (only suggested), their consequences could be significant and their inclusion can help identify important vulnerabilities in the subbasin's approach to groundwater management.

The GSP integrates climate change into key inputs (e.g., changes in precipitation and evapotranspiration) of the projected water budget. However, the GSP does not adjust imported surface water supplies based on future climate change scenarios. Additionally, the sustainable yield is not calculated based on the projected water budget with climate change incorporated. If the water budgets are incomplete, including the omission of extreme climate scenarios, projected climate change effects on imported water inputs, and climate change projections in the sustainable yield calculations, 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, and domestic well owners.

RECOMMENDATIONS

- Integrate climate change, including extreme climate scenarios, into all elements of the projected water budget to form the basis for development of sustainable management criteria and projects and management actions.
- Integrate climate change into imported water inputs for the projected water budget.
- Calculate sustainable yield based on the projected water budget with climate change incorporated.
- 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 domestic wells, GDEs, and ISWs in the subbasin. These beneficial users may remain unprotected by the GSP without adequate

[18] 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

monitoring and identification of data gaps in the shallow aquifer. The Plan therefore fails to meet SGMA's requirements for the monitoring network.[19]

Figure 3-5 (Representative Monitoring Points) shows insufficient representation of GDEs and drinking water users for groundwater elevation monitoring and water quality monitoring. Refer to Attachment E for maps of these monitoring sites in relation to key beneficial users of groundwater.

The GSP provides discussion of data gaps for GDEs throughout the Sustainable Management Section of the GSP. For example, the GSP states (p. 3-26): *"If future extractions planned in this region are expected to exceed historical extractions in the region, additional field work may be required to characterize the impact that proposed pumping rates will have on the potential GDE in the Singleton subarea. This would include installing one or more shallow groundwater observation wells screened from the historical high groundwater level to approximately 35 feet bgs. Groundwater elevation data collected from the shallow groundwater observation well(s) will be analyzed to evaluate whether the local habitat is sustained by shallow groundwater (<30 feet bgs), and will be used to evaluate seasonal fluctuations and potential influences by nearby pumping in the principal aquifer."* The GSP does not provide specific plans, such as locations or a timeline, to fill the data gaps for GDEs. Because GDEs have been identified in the subbasin, these data gaps should be addressed now instead of waiting for groundwater extraction to increase in the future.

RECOMMENDATIONS

- Provide maps that overlay current and proposed monitoring well locations with the locations of DACs, domestic wells, and GDEs to clearly identify monitored areas.
- Increase the number of RMPs in the shallow aquifer across the subbasin as needed to map ISWs and adequately monitor all groundwater condition indicators across the subbasin and at appropriate depths for *all* beneficial users. Prioritize proximity to DACs, domestic wells, GDEs, and ISWs when identifying new RMPs.
- Ensure groundwater elevation and water quality RMPs are monitoring groundwater conditions spatially and at the correct depth for *all* beneficial users - especially DACs, domestic wells, and GDEs.
- Further describe biological monitoring that can be used to assess the potential for significant and unreasonable impacts to GDEs or ISWs due to groundwater conditions in the subbasin.

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, and drinking water users. Therefore, potential project and management

[19] "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)]

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.

The GSP fails to describe the explicit benefits or impacts to beneficial users, such as GDEs and DACs, from Management Action No. 3, Surplus Supplemental Water Spreading. We also note that the plan does not include a domestic well mitigation program to avoid significant and unreasonable loss of drinking water. We strongly recommend inclusion of a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation.

RECOMMENDATIONS

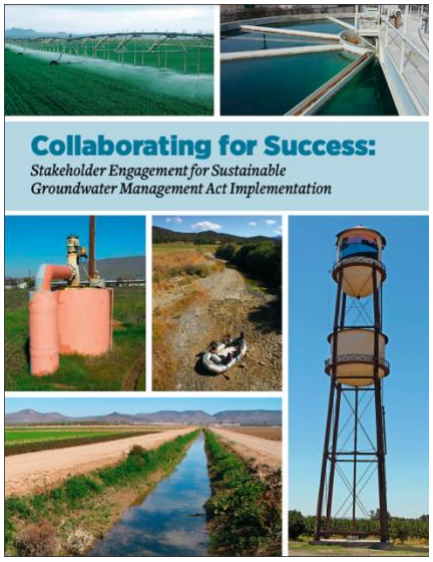
- For DACs and domestic well owners, include a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to Attachment B for specific recommendations on how to implement a drinking water well mitigation program.
- For DACs 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.
- 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."[20]
- Develop management actions that incorporate climate and water delivery uncertainties to address future water demand and prevent future undesirable results.

[20] 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

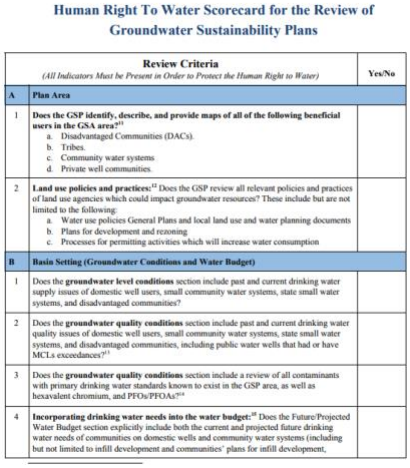
Stakeholder Engagement and Outreach



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

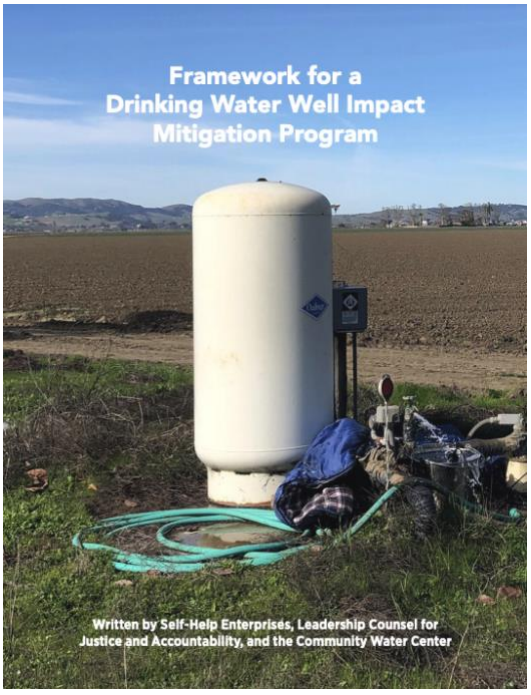


Human Right To Water Scorecard for the Review of Groundwater Sustainability Plans

	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,	

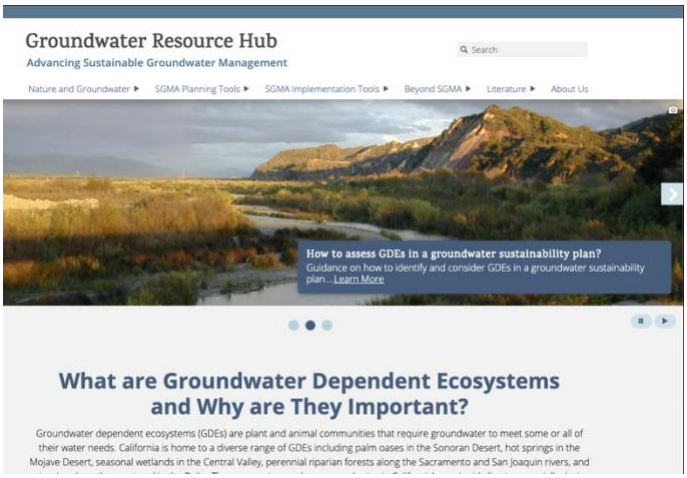
The Human Right to Water Scorecard was developed by Community Water Center, Leadership Counsel for Justice and Accountability and Self Help Enterprises to aid Groundwater Sustainability Agencies (GSAs) in prioritizing drinking water needs in SGMA. The scorecard identifies elements that must exist in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

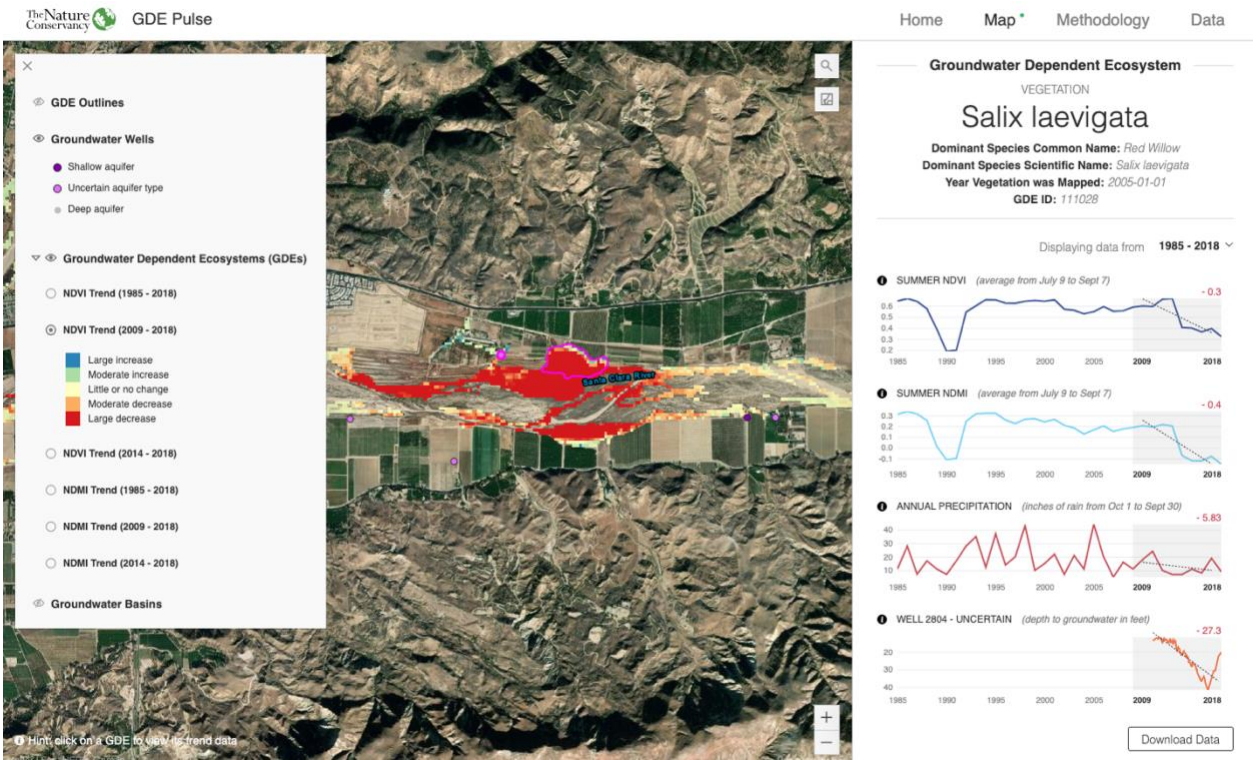
How the database was compiled

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.

---

[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.

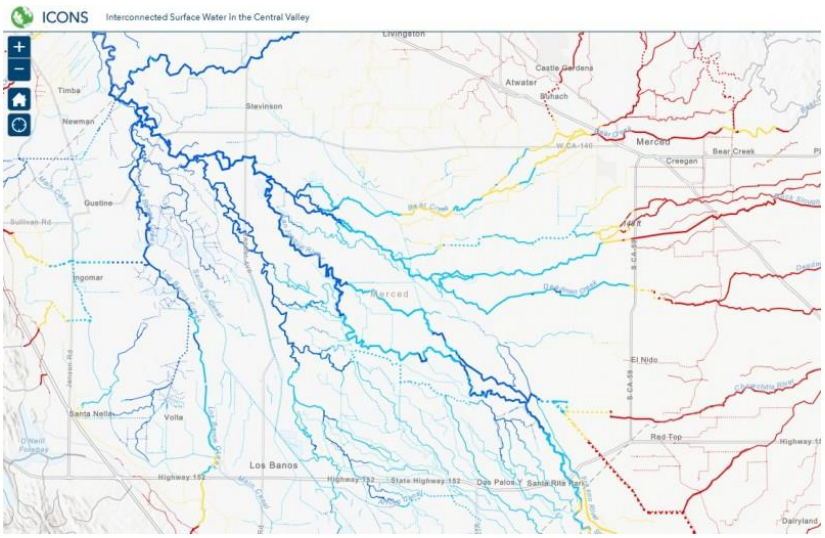
Normalized Difference Moisture Index (NDMI) is a satellite-derived index that represents water content in vegetation. NDMI is derived from the Near-Infrared (NIR) and Short-Wave Infrared (SWIR) channels. Vegetation with adequate access to water tends to have higher NDMI, while vegetation that is water 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 Yucaipa Basin

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 Yucaipa Basin. 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				
Actitis macularius	Spotted Sandpiper			
Agelaius tricolor	Tricolored Blackbird	Bird of Conservation Concern	Special Concern	BSSC - First priority
Aix sponsa	Wood Duck			
Anas acuta	Northern Pintail			
Anas americana	American Wigeon			
Anas clypeata	Northern Shoveler			
Anas crecca	Green-winged Teal			
Anas platyrhynchos	Mallard			
Anas strepera	Gadwall			
Ardea alba	Great Egret			
Ardea herodias	Great Blue Heron			
Aythya affinis	Lesser Scaup			
Aythya americana	Redhead		Special Concern	BSSC - Third priority
Aythya collaris	Ring-necked Duck			
Aythya marila	Greater Scaup			
Bucephala albeola	Bufflehead			
Bucephala clangula	Common Goldeneye			
Butorides virescens	Green Heron			
Calidris minutilla	Least Sandpiper			

[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

Chroicocephalus philadelphia	Bonaparte's Gull			
Cistothorus palustris palustris	Marsh Wren			
Egretta thula	Snowy Egret			
Empidonax traillii	Willow Flycatcher	Bird of Conservation Concern	Endangered	
Empidonax traillii extimus	Southwestern Willow Flycatcher	Endangered	Endangered	
Fulica americana	American Coot			
Haliaeetus leucocephalus	Bald Eagle	Bird of Conservation Concern	Endangered	
Icteria virens	Yellow-breasted Chat		Special Concern	BSSC - Third priority
Lophodytes cucullatus	Hooded Merganser			
Megaceryle alcyon	Belted Kingfisher			
Mergus merganser	Common Merganser			
Nycticorax nycticorax	Black-crowned Night-Heron			
Oxyura jamaicensis	Ruddy Duck			
Pelecanus erythrorhynchos	American White Pelican		Special Concern	BSSC - First priority
Phalacrocorax auritus	Double-crested Cormorant			
Piranga rubra	Summer Tanager		Special Concern	BSSC - First priority
Podilymbus podiceps	Pied-billed Grebe			
Porzana carolina	Sora			
Setophaga petechia	Yellow Warbler			BSSC - Second priority
Setophaga petechia brewsteri	A Yellow Warbler	Bird of Conservation Concern	Special Concern	
Tachycineta bicolor	Tree Swallow			
Tringa melanoleuca	Greater Yellowlegs			
Vireo bellii	Bell's Vireo			
Vireo bellii pusillus	Least Bell's Vireo	Endangered	Endangered	
CRUSTACEANS				
Hyalella spp.	Hyalella spp.			
HERPS				
Actinemys marmorata marmorata	Western Pond Turtle		Special Concern	ARSSC
Anaxyrus boreas boreas	Boreal Toad			
Anaxyrus californicus	Arroyo Toad	Endangered	Special Concern	ARSSC
Pseudacris cadaverina	California Treefrog			ARSSC

Rana draytonii	California Red-legged Frog	Threatened	Special Concern	ARSSC
Rana muscosa	Southern Mountain Yellow-legged Frog	Endangered	Candidate Endangered	ARSSC
Spea hammondii	Western Spadefoot	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Thamnophis hammondii hammondii	Two-striped Gartersnake		Special Concern	ARSSC
Thamnophis sirtalis sirtalis	Common Gartersnake			
INSECTS & OTHER INVERTS				
Apedilum spp.	Apedilum spp.			
Argia spp.	Argia spp.			
Baetidae fam.	Baetidae fam.			
Baetis adonis	A Mayfly			
Baetis spp.	Baetis spp.			
Baetis tricaudatus	A Mayfly			
Belostomatidae fam.	Belostomatidae fam.			
Chironomidae fam.	Chironomidae fam.			
Chironomus spp.	Chironomus spp.			
Cricotopus spp.	Cricotopus spp.			
Cricotopus trifascia				Not on any status lists
Cryptochironomus spp.	Cryptochironomus spp.			
Ephydridae fam.	Ephydridae fam.			
Eukiefferiella spp.	Eukiefferiella spp.			
Fallceon quilleri	A Mayfly			
Hydropsyche spp.	Hydropsyche spp.			
Hydropsychidae fam.	Hydropsychidae fam.			
Hydroptila spp.	Hydroptila spp.			
Hydroptilidae fam.	Hydroptilidae fam.			
Laccobius spp.	Laccobius spp.			
Laccophilus spp.	Laccophilus spp.			
Limnophyes spp.	Limnophyes spp.			
Micropsectra spp.	Micropsectra spp.			
Narpus spp.	Narpus spp.			
Parametriocnemus spp.	Parametriocnemus spp.			
Paraphaenocladius spp.	Paraphaenocladius spp.			
Pentaneura spp.	Pentaneura spp.			
Polypedilum spp.	Polypedilum spp.			
Pseudosmittia spp.	Pseudosmittia spp.			
Psychodidae fam.	Psychodidae fam.			
Rheotanytarsus spp.	Rheotanytarsus spp.			

Simuliidae fam.	Simuliidae fam.			
Simulium spp.	Simulium spp.			
Sperchon spp.	Sperchon spp.			
Tanytarsus spp.	Tanytarsus spp.			
Tipulidae fam.	Tipulidae fam.			
Zaitzevia spp.	Zaitzevia spp.			
MOLLUSKS				
Physa spp.	Physa spp.			
Pyrgulopsis californiensis	Laguna Mountain Springsnail			V
PLANTS				
Alnus rhombifolia	White Alder			
Arundo donax	NA			
Eleocharis coloradoensis				Not on any status lists
Juncus dubius	Mariposa Rush			
Juncus rugulosus	Wrinkled Rush			
Juncus xiphioides	Iris-leaf Rush			
Myriophyllum aquaticum	NA			
Myriophyllum sibiricum	Common Water-milfoil			
Persicaria lapathifolia				Not on any status lists
Phacelia distans	NA			
Rumex violascens	Violet Dock			

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.

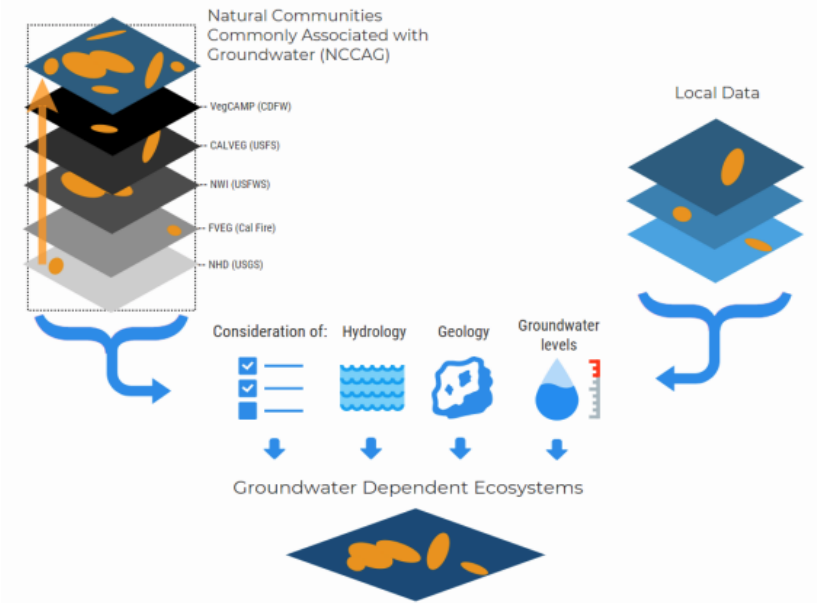


Figure 1. Considerations for GDE identification.
Source: DWR[2]

[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

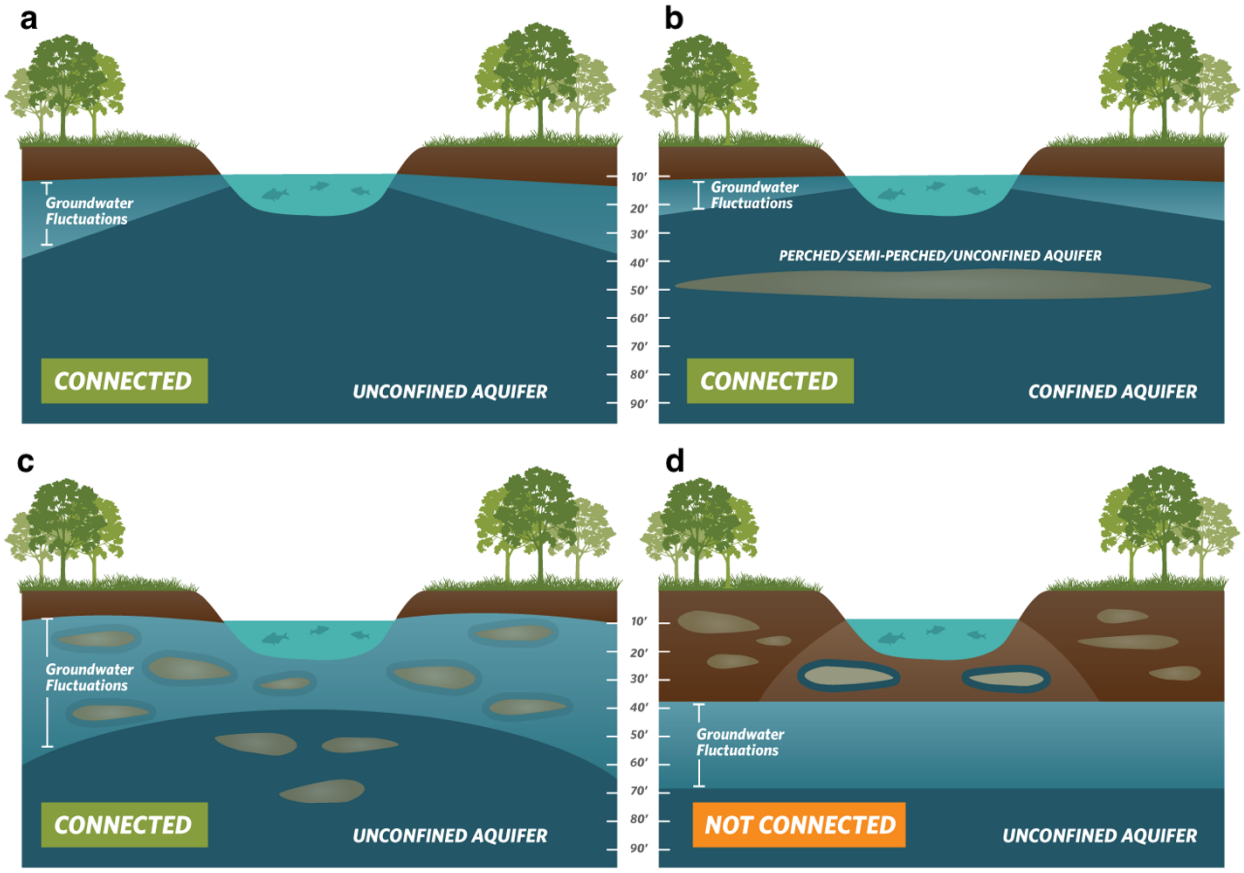


Figure 2. Confirming whether an ecosystem is connected to groundwater. Top: (a) Under the ecosystem is an unconfined aquifer with depth-to-groundwater fluctuating seasonally and interannually within 30 feet from land surface. **(b)** Depth-to-groundwater in the shallow aquifer is connected to overlying 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).

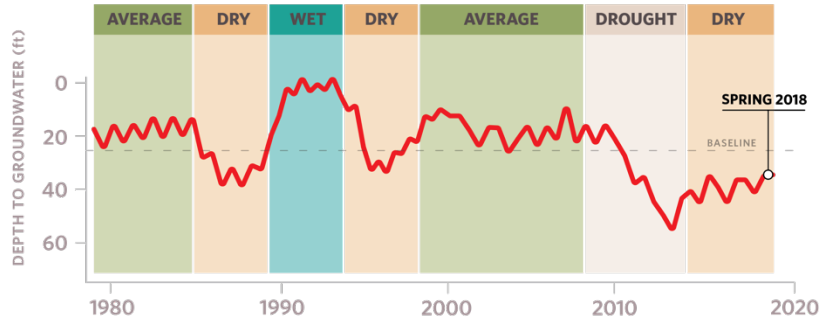


Figure 3. Example seasonality and interannual variability in depth-to-groundwater over time. Selecting one point in time, such as Spring 2018, to characterize groundwater conditions in GDEs fails to capture what groundwater conditions are necessary to maintain the ecosystem status into the future so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

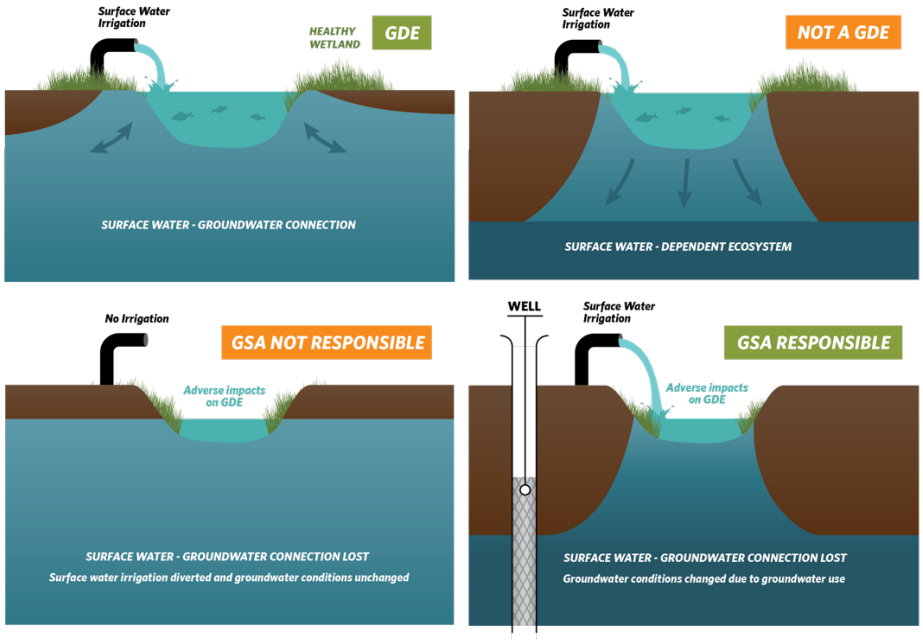


Figure 4. Ecosystems often depend on multiple sources of water. Top: (Left) Surface water and groundwater are interconnected, meaning that the GDE is supported by both groundwater and surface water. **(Right)** Ecosystems that are only reliant on non-groundwater sources are not groundwater-dependent. **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.

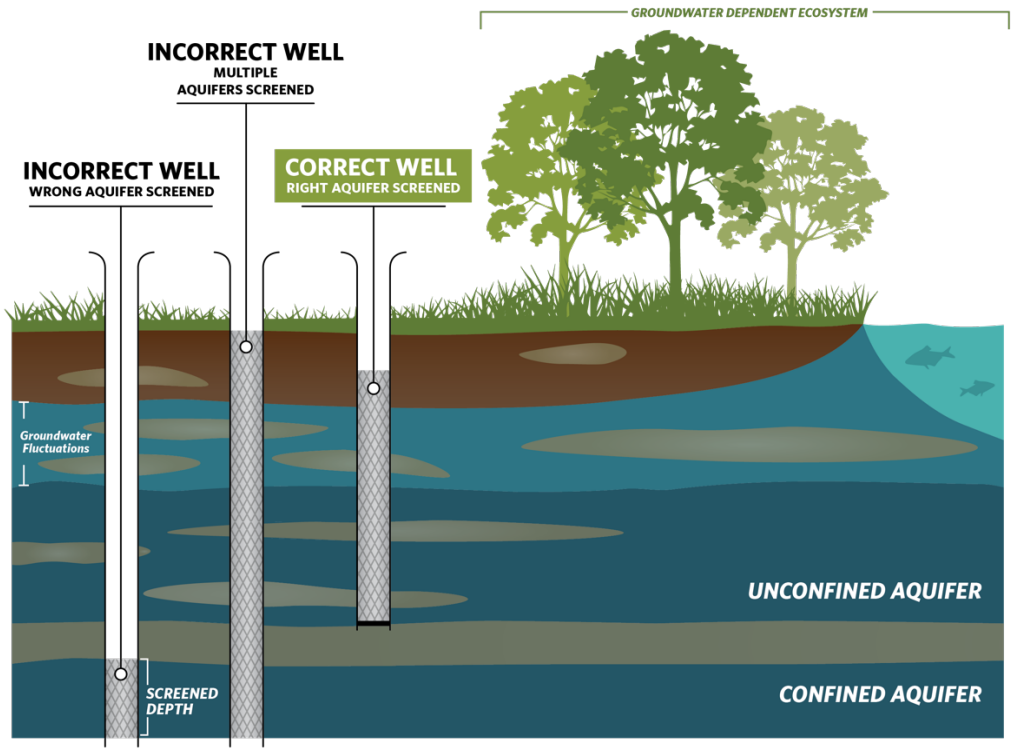


Figure 5. Selecting representative wells to characterize groundwater conditions near GDEs.

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.

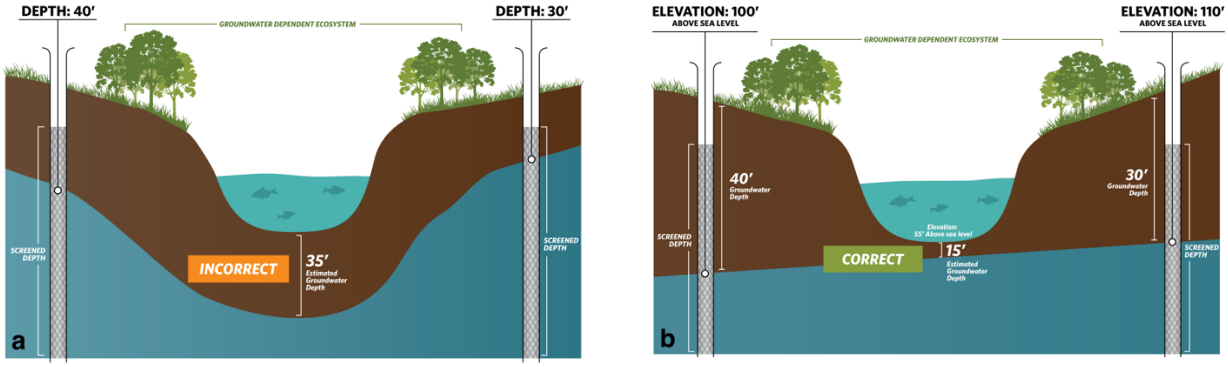


Figure 6. Contouring depth-to-groundwater around surface water features and GDEs. (a) Groundwater level interpolation using depth-to-groundwater data from monitoring wells. **(b)** Groundwater level interpolation using groundwater elevation data from monitoring wells and DEM data.

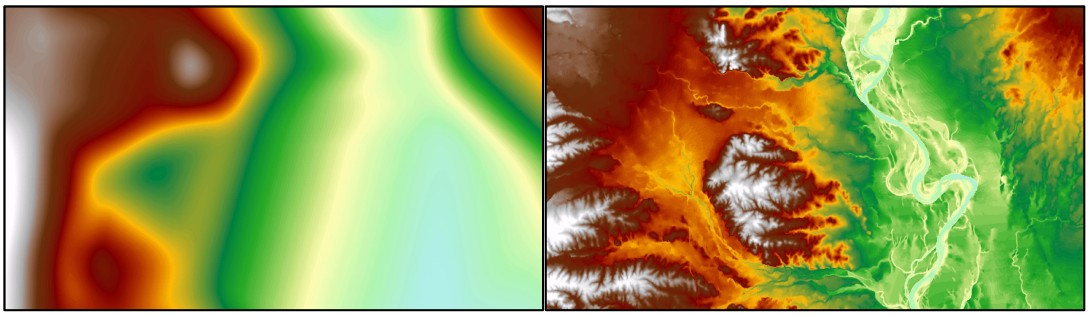


Figure 7. Depth-to-groundwater contours in Northern California. (Left) Contours were interpolated using depth-to-groundwater measurements determined at each well. **(Right)** Contours were determined by interpolating groundwater elevation measurements at each well and superimposing ground surface elevation 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

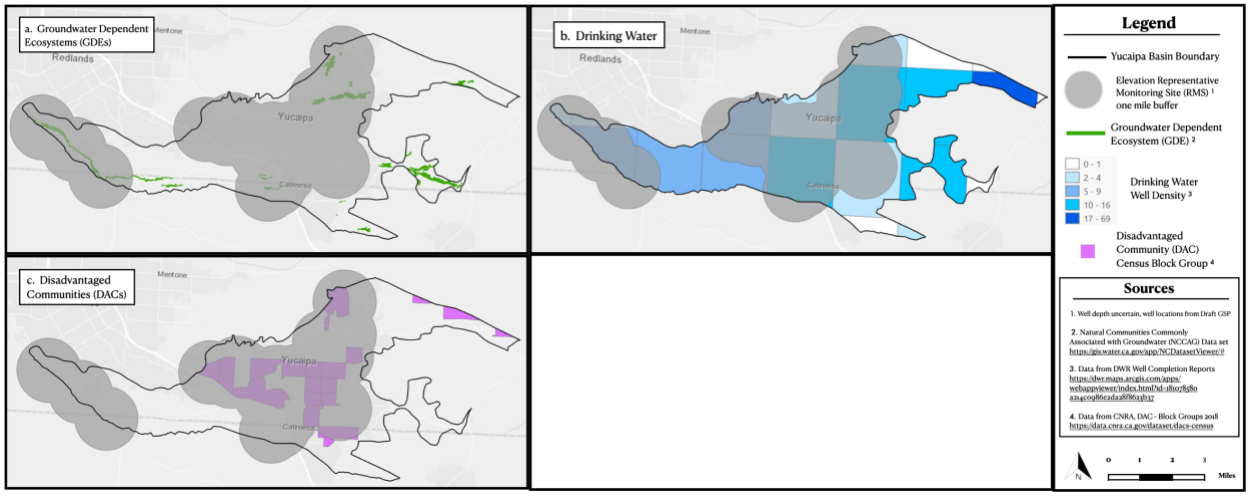


Figure 1. Groundwater elevation representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

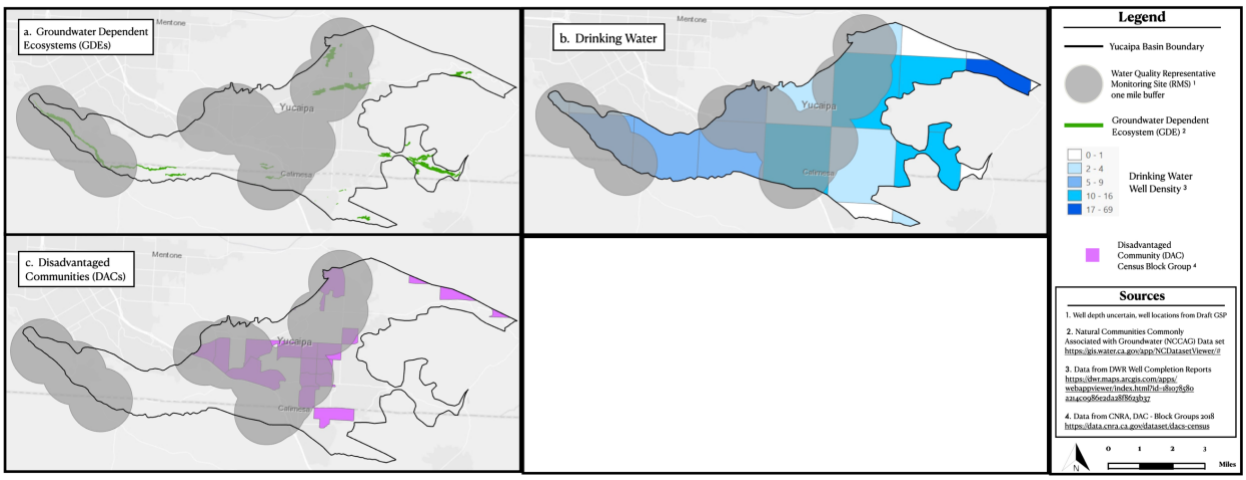


Figure 2. Groundwater quality representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

December 2021

California Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

Re: Urban and Multibenefit Drought Relief Grant Program

The Yucaipa Groundwater Sustainability Agency (Yucaipa GSA) strongly supports Yucaipa Valley Water District's (District) submittal of four project applications to the California Department of Water Resources' 2021 Urban and Multibenefit Drought Relief Grant Program.

The projects include the North Bench Recycled Water Facilities, Reconstruction of Well No. 25 / 5th Street Recycled Water Fill Station, Construction of the R-12.5 Recycled Water Reservoirs, and Salinity Concentrate Reduction and Minimization (SCRAM) Project. These projects enhance the District's recycled and potable water systems which improves the availability of water for the region while reducing dependance on groundwater extractions and imported water supplies.

The Yucaipa GSA is in a high priority basin therefore enhancing the recycled and potable water systems benefits the GSA and its member agencies by offering operational flexibility during drought. Having this flexibility will help water purveyors adapt to supply constraints especially as it relates to drought resiliency and the effects of climate change. For example the North Bench Recycled Water Facilities will provide recycled water to existing homes and agricultural uses. The Reconstruction of Well No. 25 / 5th Street Recycled Water Fill Station will both improve the quality of water being served to the community and allow community members to access recycled water free of charge. The construction of the R-12.5 Recycled Water Reservoirs will advance the reliability of recycled water and meet future recycled water demands. The SCRAM Project will increase the efficiency of the drinking water treatment plant and as a result increase potable supply.

The Yucaipa GSA supports the District's four projects in order to achieve the shared goal of sustainable management of the Yucaipa Subbasin. Thank you for considering the District's applications.

Sincerely,

Mark Iverson
Yucaipa GSA Chair