

GRANT AGREEMENT BETWEEN THE STATE OF CALIFORNIA (DEPARTMENT OF WATER RESOURCES) AND COUNTY OF SACRAMENTO

The SWAG is described below under Planning Activities.

Category (b): Planning Activities

Conduct preliminary efforts related to Basin-wide planning for SGMA implementation and GSP development. Subtasks to accomplish this work may include, but are not limited to: (1) GSA coordination; (2) Working Group and Technical Advisory Committee (TAC) formation and coordination; (3) Development of Framework Agreement; (4) Preliminary Basin Setting Field Studies (including a Geoelectrical Soundings Study and Historical Flows Study of the Cosumnes River); (5) Modeling Efforts planning; (6) Website development; (7) Initial Working Group and TAC monthly meetings (i.e., up to the starting date of the GSP Development Project); and (8) Hiring of technical consultant for initial SGMA planning efforts. **Develop a Surface Water Advisory Stakeholder Group that will work jointly with the Working Group, technical consultant(s), Sacramento Water Forum, and the Consensus Building Institute and provide recommendations to refine relevant GSP sections.**

GDEs described under GSP Development:

6. Groundwater Dependent Ecosystems (GDE)

Develop a GDE desktop verification with aerial imagery and field mapping. Utilize the GDE Pulse tool to characterize seasonal and interannual groundwater conditions supplemented by well water levels in the DMS, where available. Process and analyze the results. Prepare a technical memorandum of the findings to include and an appendix to the GSP and refine relevant GSP sections, as needed.

GRANT APPLICATION

From Project Objective and Needs:

Field-Verification of Groundwater Dependent Ecosystems. As can be seen in Figure 4, significant potential GDEs have been mapped throughout the Basin. However, as shown in Figure 5, the water table in the Principal Aquifer is more than 30 feet below ground surface (ft bgs) throughout most of the Basin, resulting in uncertainty regarding the actual nature and extent of GDEs. *(Based on The Nature Conservancy's (TNC) "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act Guidance for Preparing Groundwater Sustainability Plans," establishing a connection between potential GDEs and groundwater can be based on depth to groundwater, whereby potential GDEs are considered disconnected from the Principal Aquifer if depth to groundwater exceeds 30 feet below ground surface [ft bgs]).* Work is needed to improve the mapping and characterization of GDEs and other surface-water dependent species with emphasis on water table conditions and instream flow requirements, as applicable. Additionally, SGMA-compliant monitoring wells are needed to track water table responses to recharge and extractions.

Stakeholder Input on Cosumnes River Concerns. The Cosumnes River is the last major undammed river in California and historically supported fall runs of Chinook salmon and a

diversity of GDEs. The GSAs are aware that multiple stakeholder interests must be considered when making planning and management decisions (e.g., development of SMCs and P/MAs). The formation and facilitation of a Surface Water Advisory Stakeholder Group (SWAG) will support cooperative planning and management of the Basin's important natural resources. The SWAG will include Working Group representatives, federal, state, local, and tribal stakeholder representatives, the Sacramento Central Groundwater Authority (SCGA) and possibly other representatives from GSAs located in the adjacent SA and ESJ Subbasins.

From Component Descriptions

Groundwater Dependent Ecosystem Verification

Round 2 funding provided initial identification and preliminary screening of GDEs based on depth to groundwater in nearby wells. Potential GDEs identified in the Natural Communities Commonly Associated with Groundwater (NCCAG) shapefiles produced by TNC and DWR cover a substantial portion of the Basin (over 13 square miles as shown in Figure 4). However, as identified in the Data Gaps Memo, very few shallow wells with current depth to water measurements are available to verify interconnected surface water-groundwater elevation data and a local habitat's reliance on groundwater. Moreover, interpolation of the available groundwater elevation data (Figure 5) indicate that the water table is greater than 30 ft bgs in the vicinity of most of the NCCAG identified potential GDEs (*TNC, 2018, Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act Guidance for Preparing Groundwater Sustainability Plans, dated January 2018.*

https://groundwaterresourcehub.org/public/uploads/pdfs/GWR_Hub_GDE_Guidance_Doc_2-1-18.pdf), which is below the threshold for obligate riparian tree species. These data indicate groundwater may only provide limited support to these ecological communities.

The TNC's Guidebook, released in July 2019, outlines detailed processes by which GDEs should be investigated further and confirmed and/or eliminated from the NCCAG dataset⁸. Due to the large areal extent of NCCAG GDEs and the 2022 GSP submittal date, there is insufficient time and funding to install shallow groundwater wells in areas of interest and collect enough data to fully evaluate seasonal and annual climate fluctuations (TNC Best Practice #2). In June 2019, TNC released a new webtool "GDE Pulse"⁹ which provides remote sensing images paired with publicly available groundwater level and precipitation trend data to aid in examining temporal trends between NCCAG polygon areas, climate, and groundwater levels. Nonetheless, this tool is limited by the paucity of data in the vicinity of the identified NCCAG GDEs within the Basin.

The objective of this task therefore is to refine the potential NCCAG GDE maps by conducting additional aerial imagery, groundwater and vegetation data analyses and by enlisting qualified biologists to conduct a field vegetation survey. To optimize the field verification effort, the NCCAG-defined GDE areas will be classified into low, moderate and high probability GDEs and prioritizing the low to moderate probability areas for field validation. The GDE Pulse tool will also be used to further identify temporal trends for the field-verified GDEs. The results of this task will improve the HCM, provide mapped areas of ecological interest and beneficial users of groundwater, inform locations for future groundwater monitoring needs, and increase the reliability of the data and information used to develop the SMCs. The Sacramento County Groundwater Authority GSA representing the adjacent SA Basin has shared their approach to

evaluate GDEs with the Working Group to foster collaboration and data sharing between the two basins, particularly along the Cosumnes River floodplain. This collaboration is facilitated by the fact three Working Group member GSAs manage land areas located in both basins and on either side of the Cosumnes River.

If additional funding from Round 3 is not awarded, the GSP will include all NCCAG areas that were not preliminary eliminated from the dataset as potential GDEs, without verification of groundwater dependence, and identify this as a significant data gap that will need to be addressed as part of GSP implementation.

Surface Water Advisory Group

A facilitated Surface Water Advisory Group (SWAG) will be created from Basin stakeholders to focus on surface water, groundwater, and GDE management in the Basin. Effective groundwater management is one of several means to support fish and ecosystems and improve surface water flows; however, data are limited. The Data Gaps Memo revealed that few shallow wells with current measurements are available to characterize water table conditions and verify interconnectivity, or lack thereof, between Cosumnes River, Dry Creek, and groundwater. Evaluations based on available data show that depth to water across much of the Basin is greater than 30 ft bgs and below most of the NCCAG identified potential GDEs. These findings were not foreseen by the Working Group when developing the current GSP scope and budget, and the tasks described above can fill significant gaps in the understanding of Basin hydrogeologic conditions. Moreover, there is significant public interest in the Cosumnes River for fish restoration, and the river represents an important component of the Basin water budget and has supported a diversity of ecosystems. It therefore gathers interest from a wide variety of federal, state and local stakeholders, and it is critical to communicate the state-of-the-science to these and other agricultural, urban, environmental, and tribal interests when selecting SMCs and P/MAs.

The SWAG will meet up to four times to share technical data and forge agreements on the resulting SMCs and P/MAs that will be included in the 2022 GSP as the initial effort to manage surface water, groundwater, and GDEs. Organizations such as TNC, Environmental Defense Fund, and the Cosumnes Coalition, along with Working Group representatives and SA Subbasin GSA representatives, will be invited to participate in the SWAG, as well as representatives of local, state and federal resource agencies and tribal representatives. The SWASG will review available data regarding groundwater and surface water conditions, explore whether the Basin currently has undesirable results linked to interconnected surface water, and develop recommendations on SMCs and P/MAs.

The creation and facilitation of a SWASG is not part of the current GSP scope of work and was not included in the Round 2 workplan or funding. If Round 3 funding is not awarded, existing stakeholder coordination efforts within the Basin will continue and the GSP will be submitted as planned without the benefit of proactive and detailed input from a SWAG.

From Project Benefits:

The Groundwater Dependent Ecosystem (GDE) Verification will field-verify GDEs and community trends to support GSP development. The task will employ qualified biologists to field-verify the GDEs map and temporal trends represented in the GDE Pulse tool utilizing aerial imagery and field surveys. The data will improve the Basin HCM, provide mapped areas of ecological interest and beneficial users of groundwater, inform locations for groundwater monitoring needs, and increase the reliability of the data and information used to develop the Sustainable Management Criteria (SMCs) and Projects and Management Actions (P/MAs).

The formation and facilitation of a Surface Water Advisory Group (SWAG) will evaluate available data, explore potential relationships between undesirable results and groundwater-surface water interactions, collectively consider how to resolve undesirable results, and develop reliable and robust recommendations on SMCs and P/MAs. The support from this group can facilitate cooperative management and planning activities that influence important natural surface water resources and will be inclusive of representatives from GSAs in adjacent basins plus federal, state, local and tribal stakeholders.

Scope of Work and Deliverables:

Surface Water Advisory Group

Significant public interest exists in fish restoration efforts on the Cosumnes River, and surface water features represent Basin boundaries (Cosumnes River and Dry Creek) and are important components of the Basin hydrology and its water budget. These features can support a diversity of ecosystems and gather interest from a wide variety of federal, state and local stakeholders as well as GSAs from the Cosumnes, South American (SA), and Eastern San Joaquin (ESJ) Subbasins. The technical tasks described below in Category (c) fill significant gaps in understanding of Basin hydrogeologic conditions and the relationships between recharge, extractions, pumping, water table conditions, and surface water flows. It is therefore critical to communicate the state-of-the-science for the Basin and ensure representation of agricultural, urban, environmental, and tribal interests during the data evaluation and selection of Sustainable Management Criteria (SMCs) and Projects & Management Actions (P/MAs). The formation and facilitation of a Surface Water Stakeholder Advisory Group (SWASG) will include the Cosumnes River stakeholders and support cooperative planning and management of the Basin and its important natural resources. The SWASG will review available data, explore relationships between potential undesirable results and groundwater-surface water interactions, collectively consider how to resolve undesirable results, and develop reliable and robust recommendations on SMCs and P/MAs. Moreover, the broad stakeholder base can facilitate data sharing and improve representation of inter-basin and intra-basin interests in the beneficial use of groundwater and surface water.

Under this task the following can be completed through a joint effort of the Working Group, the Technical Consultant, the Sacramento Water Forum, and the Consensus Building Institute (CBI):

- Formation of the Surface Water Advisory Group.
- Coordination amongst group members.
- Development of technical presentations to present the state-of-science for the Basin.

- Facilitation of up to four SWASG meetings during the period March 2020 through June 2021 for developing recommendations to submit to the Working Group.
- Provide recommended refinements to relevant GSP sections (e.g., Basin Setting, SMCs, P/MAs).

Task 3. GDEs Verification

Potential GDEs identified in the Natural Communities Commonly Associated with Groundwater (NCCAG) shapefiles produced by The Nature Conservancy (TNC) and DWR cover a substantial portion of the Basin (see Figure 4). However, as identified in the Data Gaps Memo¹⁰, very few shallow wells with current depth to water measurements are available to verify interconnected surface water-groundwater elevation data and habitat reliance on groundwater. Moreover, interpolation of the available groundwater elevations (Figure 5) indicate that the water table is greater than 30 feet below ground surface (ft bgs) near most of the NCCAG identified potential GDEs, which is below the threshold for obligate riparian tree species. These data indicate groundwater may only provide limited support to these ecological communities.

A qualified biologist will conduct a field vegetation survey. To optimize the field verification effort, the NCCAG defined GDE areas will be classified into low, moderate and high probability GDEs and prioritizing the low to moderate probability areas for field validation. The GDE Pulse tool will also be used to further identify temporal trends for the field-verified GDEs. The results of this task will improve the HCM, provide mapped areas of ecological interest and beneficial users of groundwater, inform locations for future groundwater monitoring needs, and increase the reliability of the data and information used to develop the SMCs. The Sacramento County Groundwater Authority GSA representing the adjacent SA Basin has shared their approach to evaluate GDEs with the Working Group to foster collaboration and data sharing between the two basins, particularly along the Cosumnes River floodplain. This collaboration is facilitated by the fact three Working Group member GSAs manage land areas located in both basins and on either side of the Cosumnes River.

Under this task the following will be completed by a qualified biologist and/or ecologist and the Technical Consultant, under the direction of the Working Group:

- GDE desktop verification with aerial imagery and field mapping.
- Utilize the GDE Pulse tool to characterize seasonal and interannual groundwater conditions supplemented by wellwater levels in the DMS, where available.
- Process and analyze results.
- Prepare draft technical memorandum (TM) which includes the findings from the GDE verification which will be included as an Appendix to the GSP.
- Refine relevant GSP sections. (e.g., Basin Setting, SMCs, P/MAs).