

EKI TECHNICAL PRESENTATION #35

COSUMNES SUBBASIN GSP DEVELOPMENT

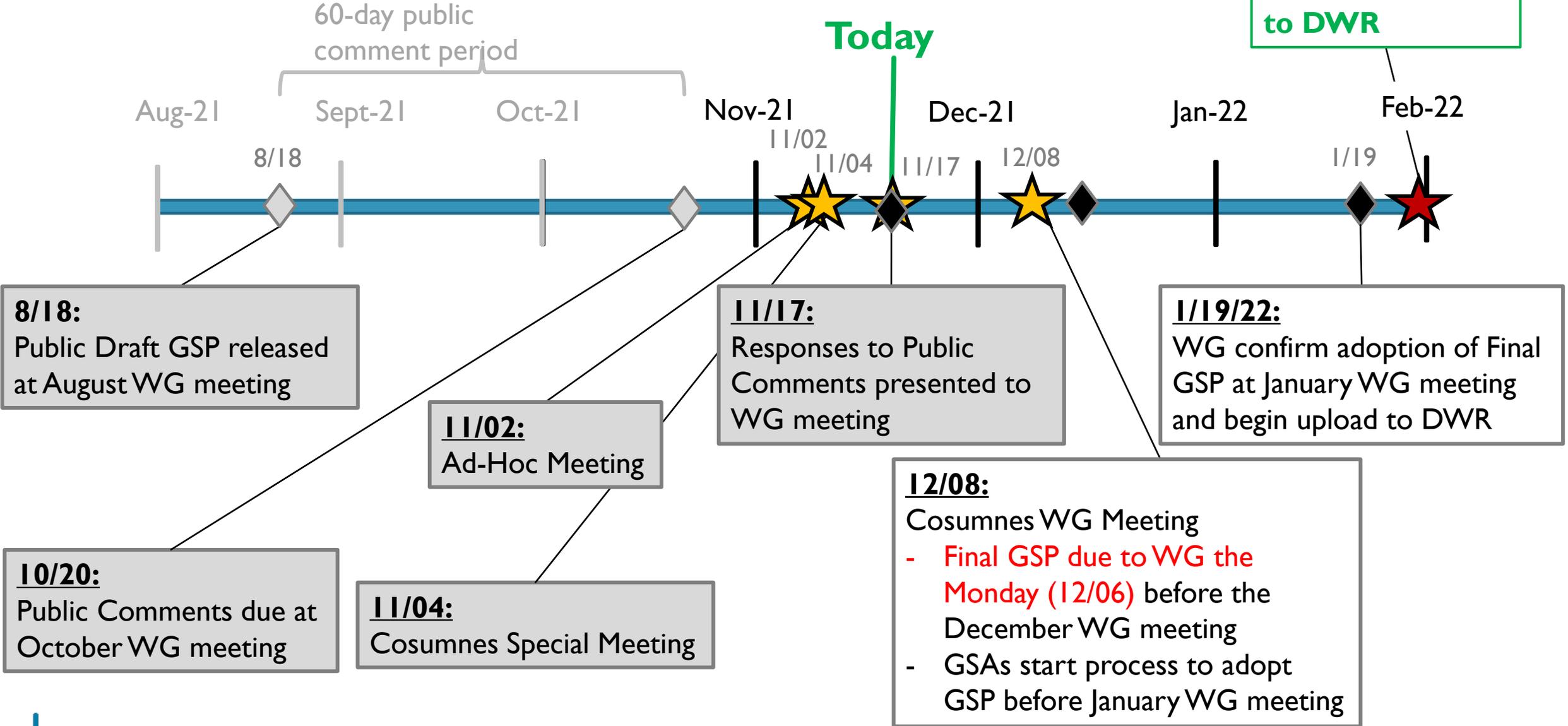
17 NOVEMBER 2021

COSUMNES SUBBASIN WORKING GROUP MEETING

GSP PREPARATION AND SUBMISSION

- GSP Update 3-month look ahead.
- Modifications to GSP Chapter 18.
- Modifications to GSP Chapter 19.
- Comments and Responses
 - 13 changes to GSP in addition to those discussed on 11/4.
 - Other issues identified as a result of GSA review?

GSP 2021- 3 MONTH LOOK AHEAD



RESPONSE TO PUBLIC COMMENTS (1 OF 13)

Hydrogeologic Conceptual Model

Comment #55: **The GSP fails to present evidence demonstrating that the groundwater levels or pumping within the Principal Aquifer are independent from groundwater stored in these perched areas.**

[California Department of Fish and Wildlife (CDFW)]

Response: Add clarifying text on using existing and planned multiple depth monitoring well sites to evaluate possible perched groundwater conditions as part of monitoring program.

Explanation: *The hydraulic interaction, if any, between perched groundwater and pumped depth intervals of the Principal Aquifer can be elucidated from water levels in variable depth monitoring wells. There is currently one multi-well cluster site in the Basin, and two more planned for construction (one of the two is planned specifically within a suspected area of perched groundwater). This data will be collected and evaluated accordingly as part of the monitoring program. Pumping tests can also provide insight into possible hydraulic connections between depth intervals. As described in the GSP, these tests could be conducted when opportunities arise like new well construction, PMA feasibility assessments, and so forth.*

Draft – For discussion purposes only

SGMA MONITORING NETWORK (8 OF 8)

Data Gap Filling Efforts – TSS wells

- GSAs are committed to continuing to improve monitoring network
- OHWD TSS well update
 - Drilling began July 15th and was completed on July 29th
 - Elevations surveyed on Aug. 19th
 - Monitoring station was completed on Aug. 27th

Note: Pictures and plots from Larry Walker Associates



Well	Completed Depth	Screened Interval
MWC-I Shallow	180	150-180
MWC-I Mid	260	220-260
MWC-I Deep	490	390-490

40 ft

130 ft



Water level trends are similar in Mid and Deep Wells



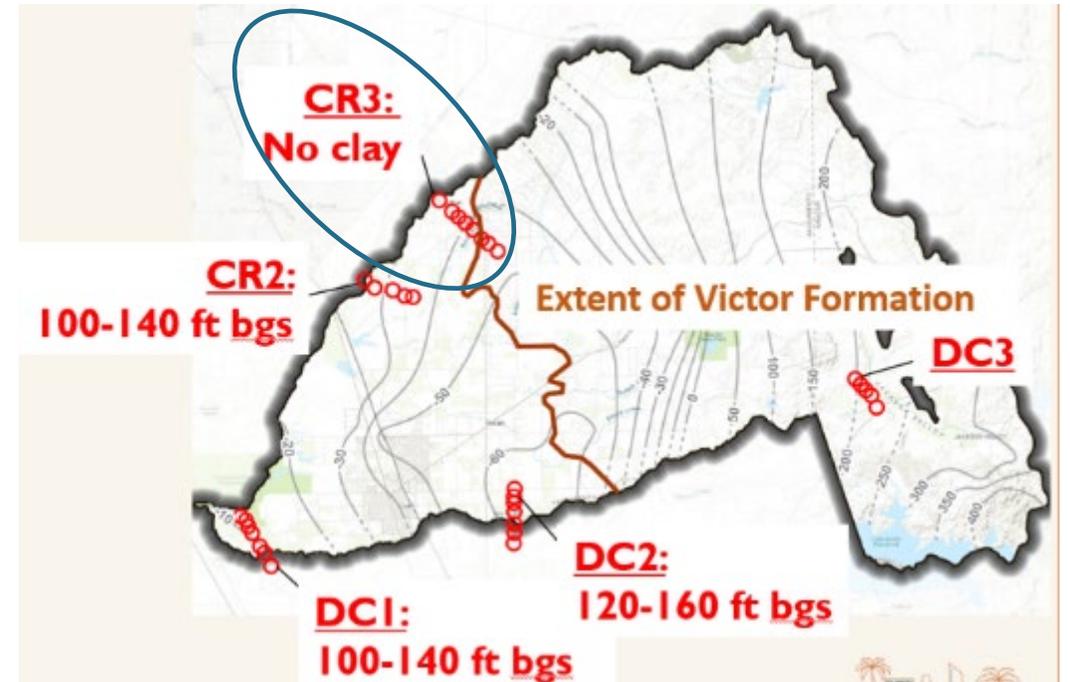
RESPONSE TO PUBLIC COMMENTS (2 OF 13)

Hydrogeologic Conceptual Model

Comment #114: **The extensive Clay Layer under the cone of depression was dispositively identified in Geoconsultants... This best available science documenting by far the largest and most important geological feature in the Cosumnes Basin, directly over the cone of depression.** (Jay Schneider)

Response: Include map showing ETS results and note in the GSP that the extent and hydrologic effects of the inferred clay bed is a data gap to consider in PMA design and implementation.

Explanation: *The GSP concluded that "The inferred clay bed is likely not continuous across the Basin (note the clay is absent in transect CR3), but where present can impede percolating recharge, support a relatively shallow water table, and result in greater drawdowns as a result of groundwater extractions."*



From: EKI Technical Presentation #27
April 21, 2021 Working Group Meeting

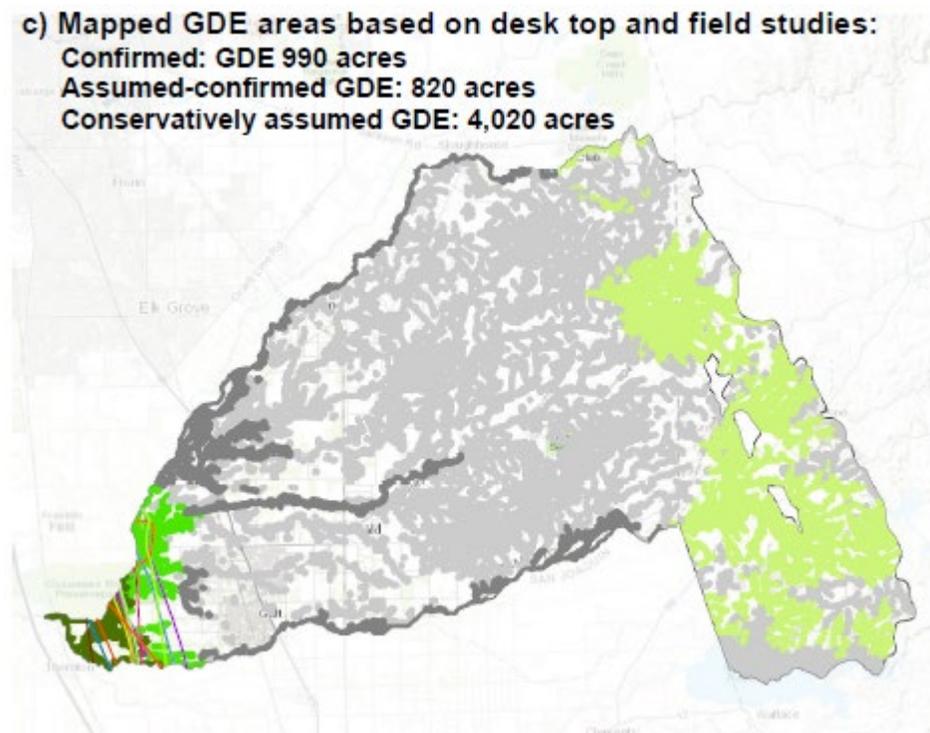
RESPONSE TO PUBLIC COMMENTS (3 OF 13)

Groundwater Dependent Ecosystems

Comment #21: The identification of Groundwater Dependent Ecosystems (GDEs) is insufficient...we found that mapped features in the NC[CAG] dataset were improperly disregarded...

Response: Incorporate language in the GSP that underscores that the GSAs recognize the importance of GDEs and their intention to maintain consideration of GDEs during GSP implementation.

Explanation: *TNC's "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act Guidance for Preparing Groundwater Sustainability Plans" guidelines suggest that natural communities are disconnected from the Principal Aquifer where depth to water is greater than 30 ft bgs. The GDE verification conservatively identified natural communities that overlay a water table within 50 ft bgs as assumed GDEs, and excluded communities located near surface water and where the water table is more than 50 ft bgs. The 80-foot rooting depth for GDEs (Valley Oak) is not justified given conditions encountered in the basin.*



RESPONSE TO PUBLIC COMMENTS (4 OF 13)

Sustainable Management Criteria

Comment #18: The identification of Disadvantaged Communities (DACs) and drinking water users is incomplete. However, the GSP fails to include the population dependent on groundwater as their source of drinking water in the subbasin. These missing elements are required for the GSA to fully understand the specific interests and water demands of these beneficial users, and to support the consideration of beneficial users in the development of sustainable management criteria and selection of projects and management actions. (Audubon California, Clean Water Action, Clean Water Fund, Local Government Commission, The Nature Conservancy, and Union of Concerned Scientists)

Response: Include figure of model results from the Projected Conditions Baseline (PCBL) scenario and the scenario that combines the PCBL, Central Tendency climate change, and PMAs.

Explanation: *Except for in the City of Lone, groundwater is the sole source of drinking water within the Basin, and all other populations (including DAC populations) are dependent on groundwater as their source of drinking water. If all RMW's reached their MTs, only one PLSS section within the mapped DAC population area could include one or more fully dewatered wells. Almost 60% of that same area is within the boundaries of the City of Galt, and therefore receives treated groundwater through Galt's municipal supply distribution system. Groundwater model results for that area indicate that future water levels are not projected to reach the MT at the RMWs, and routine monitoring will confirm whether water levels in the Basin are maintained to avoid Undesirable Results.*

RESPONSE TO PUBLIC COMMENTS (5 OF 13)

Water Budget & Projects and Management Actions

Comment #53: It is unclear how the climate change scenarios may impact the realized groundwater benefits of the implemented PMAs, but assuming that the groundwater storage benefits are similar to the 9,000 AFY modeled with the projected baseline conditions, additional PMAs may be necessary to meet subbasin sustainability objectives under an uncertain climate future. (CDFW)

Response: Include model results from scenario that combines PCBL, Central Tendency climate change, and PMAs in Table WB-10.

Explanation: *The model was utilized to simulate the PCBL with PMAs scenario with the Central Tendency climate change scenario and results indicated the average annual storage change decreased from a net gain of 7,100 AFY (without climate change) to a smaller gain of 500 AFY (with climate change). The GSP regulations do not specifically require an assessment of PMAs under climate change, but rather how they will trigger implementation of PMAs should climatic conditions materialize that require an adaptive response by the GSAs. Should climate result in overdraft conditions even with the implementation of planned PMAs, the GSP describes additional PMAs that could be implemented.*

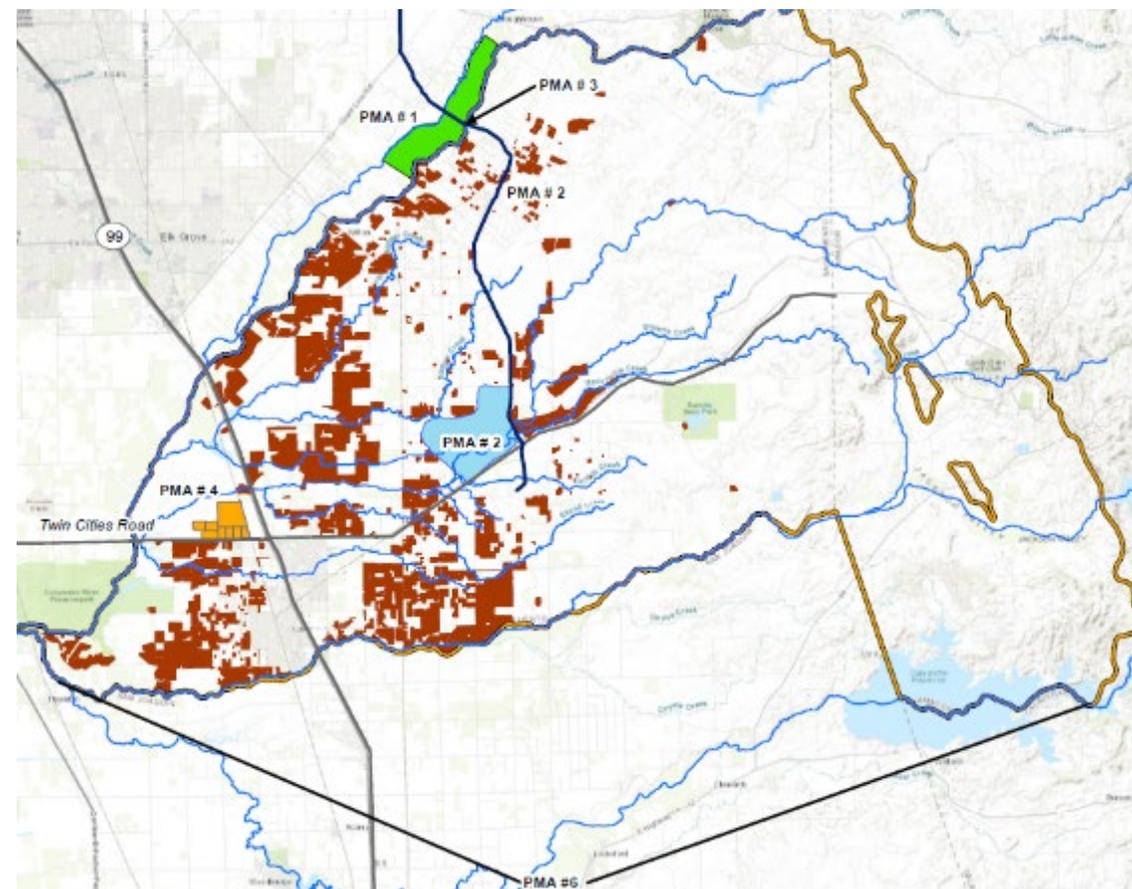
RESPONSE TO PUBLIC COMMENTS (6 OF 13)

Projects and Management Actions

Comment #11: **Planned projects for recharge in our basin.**
(Teresa Flewellyn)

Response: Add to Section 18.2.4 “Other PMAs” local stormwater capture projects potentially using retention basins, swales, or dry wells.

Explanation: *As described in Section 18 “Projects and Management Actions,” the currently planned recharge projects located in the Basin include PMA#2 SAFCA Flood-MAR and PMA #4 City of Galt Recycled Water Project. The Cosumnes River Flow Augmentation Project (PMA #3) occurs on the Basin boundary. Additional projects may be identified and developed as part of adaptive management of the Basin and are described in Section 18.2.4 “Other PMAs”. For example, local stormwater capture projects potentially using retention basins, swales, or dry wells.*



RESPONSE TO PUBLIC COMMENTS (7 OF 13)

Recently Received PMA Forms

- ACGMA – Amador County Surface Water Recharge Project
 - Water supply augmentation project utilizing available surface water from Amador County through existing conveyance systems for recharge.
- GID- Arcohe Public Facility Well
 - Construct a new well for Arcohe School and develop groundwater recharge program for the students.
- GID- Herald-Galt Recharge Projects
 - Various recharge projects (excavate and deepen catch ponds, dry wells, seepage pits, and/ or other water subbing practices) throughout the Basin to capture excess winter storm water for recharge.
 - Joint effort with City of Galt to manage flood ponds receiving flow from Deadman Gulch.
- CID- Clay Recharge Projects
 - Various projects to enhance recharge in the Basin such as enhancement to catch ponds, dry wells, and seepage pits.
 - Use of excess winter flood water from Folsom South Canal to Laguna Creek for recharge.

RESPONSE TO PUBLIC COMMENTS (8 OF 13)

Projects and Management Actions

Comment #29: 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 to key beneficial users of groundwater such as GDEs, aquatic habitats, surface water users, DACs, and drinking water users... Recharge ponds, reservoirs, and facilities for managed aquifer recharge can be designed as multiple-benefit projects... (Audubon California, Clean Water Action, Clean Water Fund, Local Government Commission, The Nature Conservancy, and Union of Concerned Scientists)

Response: Add language recommending multi benefit projects including Flood Plain projects to Section 18.2.4 “Other PMAs.”

Explanation: *The Sustainability Goal described in Section 2 identifies the beneficial users and uses of groundwater, and the PMAs were selected to achieve the sustainability goal and avoid Undesirable Results. The quantitative criteria for determining Undesirable Results are the exceedance of MTs established for the Basin, which considered the beneficial uses and users. The definition of Unreasonable Results is conservatively defined as conditions when the depth to water exceeds the MT in a fraction of all the RMWs (25%). For example, potential domestic well impacts were conservatively evaluated by considering the unlikely situation where water levels in all RMWs across the Basin are lowered to the MT.*

RESPONSE TO PUBLIC COMMENTS (9 OF 13)

Projects and Management Actions

Comment #35: Please discuss contingency options and timeframes for demand reduction measures if the Voluntary Land Fallowing program does not result in the anticipated groundwater savings. Please discuss any existing public or water purveyor groundwater conservation programs in the Cosumnes and Greater Sacramento regions, and the benefits, if any, of adding them to the GSPPD's Project/Management Action set... If there are any promising groundwater conservation... discuss those possibilities and their potential for being helpful in the Cosumnes region. (ECOS)

Response: Add specifics about PMA plan implementation, Section 19, including plans to explore conservation more thoroughly.

Explanation: *If there is a lack of interest or impediments to implementation, other PMAs will be implemented. Approximately \$300,000 has been earmarked in the budget, beginning in 2022, to investigate a variety of additional PMAs, including conservation practices.*

RESPONSE TO PUBLIC COMMENTS (10 OF 13)

Projects and Management Actions

Comment #62: **The biggest concern is the sale of water to pay for the program and/or ground water recharge projects.** (Tish Espinosa)

Response: Add text that clarifies the physical constraints on the sale of water provided by the GSP and the leave behind and banking policy developed as part of PMA #5.

Explanation: *To protect the Basin from depleting groundwater, a leave-behind policy will be put in place. Moreover, the volume of groundwater available for extraction and sale is physically constrained by the MTs for groundwater levels, thereby protecting wells in the Basin from experiencing significant drawdown (unreasonable results). A fully developed policy will be developed after the GSP is submitted in January 2022. The Working Group anticipates it will take 3-4 years to establish the process/policy that would support sale of water beginning in 2027.*

RESPONSE TO PUBLIC COMMENTS (11 OF 13)

Projects and Management Actions

Comment #74: A large part of the Cosumnes Subbasin consists of land already in crop, only currently irrigated pasture/hay growing lands could potentially be included in Fallowing. We have seen a big increase in the development of former irrigated pasture/hay growing land into Nut and Grape crops. The infrastructure and financial cost of developing these crops would not allow a landowner to abandon those improved plots of land in favor of voluntary Fallowing. (Teresa Flewellyn)

Response: Include additional information on the total acreage of candidate lands for fallowing.

Explanation: The Voluntary Land Fallowing project (PMA #5) reduces groundwater extractions and consumptive use by agriculture. The Fallowing action decreases groundwater use by removing a small fraction of the approximately 11,000 acres of pasture, alfalfa, and corn irrigated solely with groundwater based on DWR's most current (2015) land use information. In Phase 1 (2024-2027), approximately between 750 and 1,000 acres of active farmland are assumed to be voluntarily fallowed (7-9% of all candidate areas), and as many as 2,000 acres (about 20% of all candidate areas) are assumed fallowed during Phase 2 (2028-2042)..

RESPONSE TO PUBLIC COMMENTS (12 OF 13)

Projects and Management Actions

Comment #138: There is an abundance of agricultural areas where smaller recharge projects can be developed. These agricultural entities are along creeks and tributary drainages where beneficial projects can be implemented that will be of great value to ALL stakeholders in the basin. Every project in our basin helps no matter the size, but yet there are none identified to benefit the users of the groundwater. [sic]. (Villa Craig; Deanna Delu; Kevin Delu; Dennis R. Johnson; Teresa Flewellyn; Gary McEnemey; William McEnemey; Nelson Haires; James Hendricks; Jason Mahon; Betty & Jack Nunes; Brady R. Otto; Tish Espinosa)

Response: Update Table PI-1.

Explanation: *Smaller distributed projects will be identified and considered in Years 2 and 3 of GSP implementation, and funding has been set aside to look at conservation and other projects.*

RESPONSE TO PUBLIC COMMENTS (13 OF 13)

Implementation

Comment #39: We support the concept of a Shallow/Vulnerable Well protection Program and Well Permit Coordination actions. We suggest that the GSPPD's initial focus include voluntary, private well owner data gathering and coordination. We recommend that the GSPPD include enough information about the effort to support any subsequent funding opportunities from outside sources. The tie between shallow wells and conjunctive use/recharge should also be assessed as part of program development and implementation. (ECOS)

Response: Note plans for outreach efforts to well owners to identify changes in groundwater conditions.

Explanation: *The formation of a Citizens' Advisory Committee to guide GSP implementation is anticipated and will be a forum for the GSAs to engage directly with constituents to develop processes to gather more data from vulnerable wells. Anyone that is interested in providing data relevant to groundwater conditions can contact the Cosumnes Subbasin Watershed Coordinator, Stephen Julian as Stephen@WackmanConsulting.com.*

THE END