Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
1	Mary Elizabeth	Sierra Club, Delta-Sierra Group	Letter Comment 8: The use of the existing representative groundwater level monitoring wells is inadequate to assess whether or not surface waters are depleted by groundwater extraction wells near surface waterways. [SEE MORE SPECIFICS IN COMMENT LETTER]	Interconnected Surface Water	See Master Response 2 - ISW.
2	Mary Elizabeth	Sierra Club, Delta-Sierra Group	Letter Comment 9: The significant reduction of GDEs as compared to the NCCAG database was related to co-occurrence of surface water sources including irrigation canals. The Delta-Sierra Group objected in February 2019 to the disqualification of local ecosystems as GDEs if sources other than groundwater are available. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	See Master Response 1 - GDEs.
3	Greg Kamman	California Sportfishing Protection Alliance	Section 2.2.6 of the GSP (page 2-97 to 2-99) also introduces Figure 2-65 (attached as Exhibit A), which shows gaining streams in blue where groundwater discharges to rivers, losing streams in red where streams lose water to the groundwater system, and mixed streams (gaining or losing less than 75 percent of the time) in orange. This analysis was based on modeling results from the historical calibration of the East San Joaquin Water Resources Model (ESJWRM) for approximately 900 stream nodes in the Eastern San Joaquin Subbasin. The historical model calibration period covers the water years 1996-2015. Based on the Cumulative Departure from Mean Precipitation curve presented in Figure 2-71 (pg. 2-109 of GSP), the years 1996-2015 reflect a dry period, as there is a net decrease in approximately 17-inches of precipitation (i.e., change from +7 [1996] to -10 inches [2015] in the cumulative departure curve). **This section of the GSP only presents a description of historical (and dry) interconnected surface water conditions. Section 354.16 of the California Code of Regulations (Regulations) stipulates that each Plan shall provide a description of current and historical groundwater conditions in the basin. The GSP fails to describe the current conditions of the interconnected surface water system in the basin.**	Interconnected Surface Water	See Master Response 2 - ISW.
4	Greg Kamman	California Sportfishing Protection Alliance	Section 2.2.6 of the GSP (Interconnected Surface Water Systems; page 2-97 to 2-99) also presents Figure 2-66 (attached as Exhibit B), which is entitled, Interconnected and Disconnected Streams. The GSP states that Stream connectivity was analyzed by comparing monthly groundwater elevations from the historical calibration of the ESJWRM to streambed elevations along the streams represented in the ESJWRM. Exhibit B shows the locations where streams are interconnected at least 75 percent of the time (shown in blue) or disconnected (shown in green). Section 351 of the Regulations defines "interconnected surface water" as 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. The GSP (pg. 2-97) states that interconnected surface waters may be either gaining or losing, wherein the surface water feature itself is either gaining water from the aquifer system or losing water to the aquifer system. Exhibit C (attached) is taken from DWR's water budget BMP guidance document and illustrates the relationship between surface water and groundwater for gaining, losing and disconnected streams. Per this diagram, for a stream to be gaining, it must be hydraulically connected to the aquifer. In many instances, a losing stream may also be in hydraulic connection to the aquifer. Losing streams may become disconnected seasonally or during drought periods in response to a falling water table. **There are inconsistencies between the results presented in Exhibits A and B where areas delineated as gaining streams are also identified as being disconnected.** A good example of this is the upstream portion of the Stanislaus River located in the southeast corner of the basin. These inconsistencies should be corrected or explained. **In addition, the stream connectivity presented in Exhibit B is for historic conditions – the current conditions should also be presented per Regulations.**	Interconnected Surface Water	See Master Response 2 - ISW.
5	Greg Kamman	California Sportfishing Protection Alliance	The GSP Regulations define "groundwater dependent ecosystem" (GDE) as ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface. Section 354.16 of the Regulations stipulate that Plans identify (current and historic) GDEs within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information. As stated on page 2-100, the GSP identifies GDEs within the Subbasin based on determining the areas where vegetation is dependent on groundwater. The GSP presents a methodology where the Natural Communities Commonly Associated with Groundwater (NCCAG) database, developed by DWR, CDFW and The Nature Conservancy (TNC), is used to identify vegetation communities and wetlands that are dependent on groundwater. Figure 2-67 of the GSP (attached as Exhibit D) presents the NCCAG within the basin. The GSP then describes a methodology by which NCCAG's with alternate water supplies are excluded from consideration as GDEs based on the following criteria: a. Depth to groundwater greater than 30 feet; b. areas within 150 feet of managed wetlands that receive supplemental water; c. areas within 50 feet of irrigated agriculture; d. areas within 150 feet of perennial surface water bodies, and e. areas removed based on stakeholder comment. The resulting areas identified as GDEs within the basin based on these criteria are shown in Figure 2-69 of the GSP (attached as Exhibit E). There are two major problems with the GSP's method for delineation of GDEs. **First, the GSP method only considers the presence of vegetation communities and wetlands in the determination. GSP Regulations stipulate that "species" dependent on groundwater should also be considered. Thus, the analysis should also take into consideration the presence of fish and wildlife species that rely on riparian wetlands and/or flow in rivers influenced by gaining reaches. The Nature Conservancy refers to these species as Environmental Surface Water Beneficial Users and has prepared a list of freshwater species located within each groundwater basin in California.** These lists are posted at their website specifically for GSAs and others to better evaluate the impacts of groundwater management on environmental beneficial users of surface water in GSPs. This best available science should be integrated into the determination of GDEs. The second problem I see in the GSP methodology is the **failure to acknowledge that GDEs may depend on shallow groundwater regardless of the presence of alternative water sources. For example, wetlands within or adjacent to irrigated agriculture may not rely on that irrigation for survival; if they did, we would expect to find wetlands growing in all irrigated lands. In addition, the presence and sustainability of perennial surface water in Central Valley Rivers is controlled by many factors (e.g., groundwater inflow, reservoir operations, irrigation drainage, etc.). Modeling results**	GDEs	See Master Response 1 - GDEs.
6	John Fio	EKI on behalf of Cosumnes Subbasin GSA Working Group	"Depletion of Interconnected Surface Water" states that depletions are considered an Undesirable Result (UR) if the depletions significantly and unreasonably reduce surface water flow or levels and adversely impact beneficial uses of the surface water within the ESJ Subbasin. However, the contribution of these reductions to the cumulative depletion in downstream flows and potential impacts to Cosumnes Subbasin recharge should also be considered, given the important nature of this boundary condition.	Interconnected Surface Water	See Master Response 2 - ISW.

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7	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	The MT for well 04N07E20H003 was confirmed at -81.7 feet MSL by the GSP methodology, but the MT (-31.2 feet MSL) for well 04N05E24J003 was found to be lower by 1.4 feet or -29.8 feet MSL. Appendix 3-A shows a 25-foot buffer compared to the 23.6-foot buffer derived from the difference between the highest and lowest values. The MOs were confirmed for the two wells (Table 3-2). Use of these management criteria will further reduce groundwater levels and storage along the northern boundary of the subbasin and cause groundwater from the Cosumnes Subbasin to flow into the ESJ Subbasin due to this generous management criteria. Recent groundwater levels (Mar/Apr-19) are 13 and 17 feet above their respective MOs and 58 and 41 feet above their respective MTs (Wells 04N07E20H003 and 04N05E24J003). Use of this criteria will allow the further lowering of groundwater levels and the reduction in storage, which will cause additional groundwater flow from the Cosumnes Subbasin, especially during a long-term period of drought. Note that the method for establishing the MT buffer is somewhat different for each well, which adds a bias to values. For well 04N07E20H003, the buffer was based on the difference between the highest groundwater level (WL), which occurred during Mar-84 (during an above normal [AN] WY, following the wettest WY on record and a wetter AN WY), and the lowest WL during Oct-16. For well 04N05E24J004, the highest and lowest WLs occurred during Mar-97 and Oct-15, respectively. The historical water budget period was established for 1996 to 2015, so the highest and lowest WLs should be restricted to that period (See attached Figures 1 & 2). In addition, Appendix 3-B provides hydrographs with MT and MO lines for a date range beginning in 1990. This uniform criteria should be applied to all representative WL monitoring wells.	Groundwater Levels	1) This response assumes the commenter to have confirmed the minimum threshold and measurable objective for well 04N07E20H003. For well 04N05E24J003, the commenter notes the measurable objective is confirmed correct, but the minimum threshold is not. It is assumed the commenter is referring to well 04N05E24J004 because well 04N05E24J003 is not used. The discrepancy noted in the comment is in the source of data from which the calculations are made. Local San Joaquin County well data was used to calculate the buffer and a minimum threshold of -31.2 ft MSL for 04N05E24J004. The measurable objective of -6.2 ft MSL was calculated from CASGEM data for well 04N05E24J004. Where available, CASGEM data was consistently used to calculate measurable objectives and local agency data was consistently used to determine the historical range buffer, as the local datasets typically had a longer monitoring record. 2) The GWA supports using the minimum thresholds, measurable objectives, and interim milestones for the chronic lowering of groundwater levels sustainability indicator as written. The current approach was developed recognizing that the aquifer is heterogeneous, and the criteria as written accounts for the varying responses to hydrology that occur in different locations across the Subbasin. The intent of adding a buffer of 100 percent of the historical range to the historical drought low is to reflect this varying hydrology, as areas far from surface water will respond/fluctuate differently than areas close to surface water. It is recognized that the monitoring wells have different periods of record. The methodology uses available data from 1990 to 2019 to set these criteria. 3) In evaluating flow gradient changes between subbasins, the GWA's focus is on long-term change in groundwater elevation, rather than temporary fluctuation in periods of drought. The GWA will continue to coordinate with neighboring subbasins as they develop their plans and establish sustainable management criteria, such that no subbasin is preventing another from achieving sustainability. Because neighboring subbasins are largely on the 2022 timeline for GSP development, it is too speculative at this time to determine how interbasin flows will be affected.
8	Barbara Barrigan-Parrilla	Restore the Delta	When compared with the groundwater elevation maps that show the cones of depression (Figures 2-37 and 2-38), it is evident that the cones of depression are located directly beneath the Calaveras River and Mormon Slough, which are losing streams—their flows are now disconnected from the groundwater system, as shown in Figure 2-66 (p. 2-99). There also appears to be a portion of a cone of depression beneath Dry Creek near to the Mokelumne River as well, though this is not labeled with the same color as the cone of depression in the Eastern San Joaquin basin. This means that there is great potential for saltwater intrusion, which the draft GSP gently acknowledges. Net subsurface flow is from the west to the east. But the draft GSP is silent about the ecological consequences of having losing streams spanning the groundwater basin. [SEE MORE SPECIFICS IN COMMENT LETTER]	Interconnected Surface Water	Comment noted. As stated in the Draft GSP, seawater intrusion is not present in the Subbasin and is not anticipated to occur; however, minimum thresholds and measurable objectives have been established to be protective in the event that sea level rise ever does occur. The ecological consequences of losing streams is the Subbasin requires further study. Groundwater provides benefits to gaining streams through additional baseflow and through influences on water chemistry and temperature.
9	Barbara Barrigan-Parrilla	Restore the Delta	For the lowering of groundwater elevation and reduction in groundwater storage indicators, the definitions in the Draft GSP are too vague about which beneficial uses have to be affected by the undesirable result. There needs to be more clear specification of undesirable results in relation to specific beneficial uses. If the GWA means “all beneficial uses” for these indicators, then state “all beneficial uses.” As worded, these indicators give the GWA license to pick favored beneficial uses over others.	Groundwater Levels	1) Language was added to Section 3.2.1.1.1 (Chronic Lowering of Groundwater Levels, Description of Undesirable Results) referencing GSP Section 1.3.1 (Beneficial Uses and Users in the Subbasin). A bullet was added to identify impacts to environmental uses and users, including interconnected surface waters and GDEs, as a potential undesirable result identified by stakeholders during GSP development. Additionally, language was added to Section 3.2.1.1.4 (Chronic Lowering of Groundwater Levels, Potential Effects of Undesirable Results) to identify potential effects of undesirable results related to GDEs as a data gap. Text was added to refence the new shallow monitoring program in Section 4.7 (Plan to Fill Data Gaps) as a plan to obtain additional information. 2) Language was added to Section 3.2.2.1.1 (Reduction in Groundwater Storage, Description of Undesirable Results) referencing GSP Section 1.3.1 (Beneficial Uses and Users in the Subbasin).
10	Jane Wagner-Tyack	Communication Consultant	In the last sentence, "have not been able to be tied"--SOMEONE's analysis has not tied elevated concentrations of other constituents to groundwater management activities. I think the water quality argument will be vulnerable here, and it would be best to mention from the beginning whatever data or prior analysis you have to support this assertion.	Groundwater Quality	Language was added to ES-5: Existing Groundwater Conditions stating: "The GSP proposed ongoing monitoring of salinity, arsenic, nitrate, and a number of other common water quality constituents to fill data gaps and identify potential trends of concern."
11	Jane Wagner-Tyack	Communication Consultant	"may have to abandon a large number of wells as sources of potable water due to contamination,..."--What kind of contamination? This is relevant to the Water Quality Sustainability Indicator.	Groundwater Quality	Language was added to indicate that this is a result of localized contamination.
12	Jane Wagner-Tyack	Communication Consultant	This entire section appears to contradict the claim in 2.2.4.4 that point source contamination has not been found to be related to groundwater management activities in the Subbasin. Broadly, for ALL similar statements (for example at 2.2.4.2 and 2.2.4.3), there needs to be a clear explanation of what "related to groundwater management activities" actually means.	Groundwater Quality	See Master Response 3 - WQ.

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13	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The draft GSP has set water quality standards for salinity intrusion that appear inconsistent with meeting environmental and agricultural beneficial uses, and protecting crops from yield losses associated with cumulative impacts of salinity. The GSP sets the isocontour line for reporting at 500 mg/L, ostensibly "same as Secondary Maximum Contaminant Level (SMCL) for chloride." (P. 12 July 10, 2019 GWA Board Meeting.) The Chloride SMCL set by the USEPA is 250 mg/L: https://www.epa.gov/dwregdev/drinking-water-regulations-and-contaminants https://www.epa.gov/sites/production/files/2018-03/documents/dwtable2018.pdf	Seawater Intrusion	The seawater intrusion chloride isocontour is intended to monitor for a seawater intrusion front. Harm related to agricultural crops, as well as drinking water supplies is address through the Degraded Water Quality Sustainability Indicator.
14	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The SMCL for Total Dissolved Solids (TDS) set by the USEPA is 500 mg/L: https://www.epa.gov/sites/production/files/2019-03/documents/cfr-2011-title40-vol23-part143.pdf However, the GSP set the measurable objective at 600 mg/L for TDS and the minimum threshold for TDS at 1,000 mg/L., double the SMCL. This measurable objective is above the SMCL, and the maximum threshold is not protective of drinking water supplies and agricultural uses. By the time water quality has reached the measurable objective it is unlikely to be used for potable water, and places agriculture at risk from yield losses.	Groundwater Quality	The GWA considers minimum thresholds and measurable objectives for groundwater quality to be protective of drinking water supplies and agricultural uses, as secondary maximum contaminant levels (SMCL) are established for aesthetic reasons such as taste, odor, and color and are not based on public health concerns. The three levels of SMCLs for TDS are: Recommended (500 mg/L), Upper (1,000 mg/L), and Short Term (1,500 mg/L). Language was added in Section 3.2.3.2 (Degraded Water Quality Minimum Thresholds) to include information on salinity tolerances of Subbasin crops.
15	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The subbasin's GSP defined minimum threshold for chloride has been set at 2,000 mg/L, well above the limits for harm for many agricultural crops. http://lawr.ucdavis.edu/cooperative-extension/irrigation/drought-tips/water-quality-guidelines-trees-and-vines https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/pnw597.pdf	Seawater Intrusion	The seawater intrusion chloride isocontour is intended to monitor for a seawater intrusion front. Harm related to agricultural crops, as well as drinking water supplies is address through the Degraded Water Quality Sustainability Indicator.
16	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The minimum threshold is set at 1,000 mg/L for TDS, also at or above the level of impact to agricultural most agricultural crops. https://www.usbr.gov/lc/phoenix/programs/cass/pdf/Phase1/ATechapdxTDS.pdf	Groundwater Quality	The minimum thresholds are intended to define levels that are significant and unreasonable and are not the desired state of the subbasin. The GWA considers minimum thresholds and measurable objectives for groundwater quality to be protective of agricultural uses. Language was added in Section 3.2.3.2 (Degraded Water Quality Minimum Thresholds) to include information on salinity tolerances of Subbasin crops.
17	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The monitoring triggers in the draft GSP for chloride and TDS are too high to avoid undesirable effects, and do consider leaching fractions or soil salinity accumulation rates in its assumptions that further chronic reductions in crop productivity and other negative impacts would be avoided. The analysis in the draft GSP does not appear to follow a best available science (BAS) approach. For instance, the draft GSP fails to disclose that the levels of TDS identified as acceptable are associated with levels found to have a 50% yield loss of crops.	Groundwater Quality	The minimum thresholds are intended to define levels that are significant and unreasonable, and are not the desired state of the subbasin. The GWA considers minimum thresholds and measurable objectives for groundwater quality to be protective of agricultural uses. Language was added in Section 3.2.3.2 (Degraded Water Quality Minimum Thresholds) to include information on salinity tolerances of Subbasin crops.
18	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The trigger at 400% SMCL would clearly cause negative impacts to domestic well users drinking water quality. The threshold for chloride is impermissibly high and would cause degradation of existing water quality, and potentially institutionalize unsustainable and undesirable water quality.	Seawater Intrusion	The seawater intrusion chloride isocontour is intended to monitor for a seawater intrusion front. Harm related to agricultural crops, as well as drinking water supplies is address through the Degraded Water Quality Sustainability Indicator.
19	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	Where chloride concentrations are described, there are a disproportionate amount of observations above 250 mg/L. in the Delta. If this threshold were approved it is possible that agricultural groundwater users would not be able to use this water for crops without reductions in productivity, and that continued irrigation with this water could reduce the ability to continue farming current crops. This standard is entirely inappropriate for drinking water quality.	Seawater Intrusion	The seawater intrusion chloride isocontour is intended to monitor for a seawater intrusion front. Harm related to agricultural crops, as well as drinking water supplies is address through the Degraded Water Quality Sustainability Indicator.
20	Martin Harris	Terra Land Group, LLC	Any water sustainability plan to be considered must take into consideration that many farmers are abandoning lower-priced crops like alfalfa and silage corn to seek higher-priced food crops that may be less tolerant to the salinity levels typical of recycled water (See Project 19/Manteca Recycled Water Project as described on pages 6-28 and 6-29 of the GSP) [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Quality	The GWA considers minimum thresholds and measurable objectives for groundwater quality to be protective of agricultural uses. During GSP development, GSAs provided anticipated future crop type information for assessment with a general consensus that uncertainty in market demands is too high to consider future crop types into land use estimates. Language was added in Section 3.2.3.2 (Degraded Water Quality Minimum Thresholds) to include information on salinity tolerances of Subbasin crops.
21	Jane Wagner-Tyack	Communication Consultant	The case for setting minimum thresholds only for salinity based on the fact that other constituents of concern are managed through existing management and regulatory programs is not persuasively supported in the GSP. [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Quality	See Master Response 3 -- Water Quality.
22	Kevin Thomas	CA Department of Fish and Wildlife	The Department believes the GSP does not adequately demonstrate consideration of environmental beneficial uses and users of groundwater in its sustainability management criteria nor does It adequately characterize or consider surface water-groundwater connectivity. Accordingly, the Department recommends that ESJGAaddress these deficiencies before submitting the GSP to the Department of Water Resources (DWR).	Interconnected Surface Water	The GSP as written includes the list of freshwater species provided by The Nature Conservancy as Appendix 1-F: Freshwater Species in the Eastern San Joaquin Subbasin as beneficial users of groundwater.

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23	Kevin Thomas	CA Department of Fish and Wildlife	The narrative describing the basin's interconnected surface water conditions lacks specifics and contains inconsistencies in mapped surface water-groundwater interconnectivity. a. Issue: i. The interconnected surface water conditions narrative lacks estimations of the quantity and timing of streamflow depletions as specified in 23 CCR § 354.16(f). ii. Figure 2-65 portrays modeled 'losing,' 'gaining,' and 'mixed' stream reaches, and Figure 2-66 portrays modeled 'interconnected and 'disconnected' streams. Figure 2-66 shows modeled stream reaches as 'disconnected,' whereas Figure 2-65 identifies those same reaches as switching between 'losing,' 'gaining,' and 'mixed.' Accompanying narrative suggests that streams are only mapped as 'interconnected' in Figure 2-66 when they are interconnected at least 75% of the time. This 75% threshold for displaying interconnected surface waters excludes reaches of stream that are intermittently connected to groundwater and that may depend on groundwater contributions to meet the needs of instream or riparian beneficial uses and users of interconnected surface waters. b. Recommendation: i. Identify the estimated quality and timing of streamflow depletions in the ESJ Subbasin. If this information is not available, identify an expeditious path to estimating these values. ii. Update Figure 2-66 to show all interconnected stream reaches, even if they are interconnected less than 25% of the time.	Interconnected Surface Water	See Master Response 2 - ISW.
24	Kevin Thomas	CA Department of Fish and Wildlife	GDE identification, required by 23 CCR § 354.16(g), is based on methods that risk exclusion of ecosystems that may depend on groundwater. a. Issue: Methods applied to the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset to eliminate potential GDEs are fallible. i. Depth to Groundwater: The removal of potential GDEs with a depth to groundwater greater than 30 feet during (an unspecified season) of 2015 relies on a single-point-in-tinfie baseline hydrology. Specifically, this 2015 baseline falls several years into a historic drought when groundwater levels throughout the San Joaquin Valley were trending dramatically lower than usual due to reduced surface water availability. Exclusion of potential GDEs based on a snapshot of groundwater elevations during a historic drought is invalid; because this approach does not consider representative climate conditions or account for GDEs that can survive a finite period of time without groundwater access (Naumburg 2005), but that rely on groundwater table recovery for long term survival. ii. Adjacent to Alternate Water Supplies: The GSP notes that "to be dependent on groundwater there must not be other available water supplies" (GSP pp 2-104). This statement disregard's a GDE's adaptability and opportunistic approach to accessing water in which vegetation may vary reliance on surface water and groundwater between seasons and water years.^ Therefore, the removal of potential GDEs that are within 50 feet of irrigated lands, 150 feet of managed wetlands, and 150feet of perennial surface water does not consider the potential for GDEs shifting reliance between surface and groundwater. Additionally, vegetation near interconnected perennial surface waters may depend on sustained groundwater elevations to stabilize the gradient or rate of loss of surface water; meaning ecosystems near interconnected surface waters likely depend on sustainable groundwater elevations and constitute GDEs. Therefore, it is possible that any of these potential GDEs proximate to 'altemate water supplies' rely on groundwater during specific seasons or water years. b. Recommendations: i. Depth to Groundwater: Develop a hydrologically robust baseline from which to remove 'areas with a depth to groundwater greater than 30 feet' that relies on multiple, climatically representative years of groundwater elevation and that accounts for the inter-seasonal and inter-annual variability of GDE water demand. ii. Adjacent to Alternate Water Supplies: Reevaluate potential GDEs previously removed due to proximity to irrigated lands, managed wetlands, and perennial surface waters. Err on the side of inclusivity until there is evidence that the overlying ecosystem has no significant dependence on groundwater across seasons and water year types. Ensure that riparian GDE beneficial users of groundwater and interconnected surface water are carefully considered in the analysis of undesirable results and minimum thresholds for depletions of interconnected surface waters.	GDEs	See Master Response 1 - GDEs.

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25	Kevin Thomas	CA Department of Fish and Wildlife	Groundwater Level and Interconnected Surface Water sustainable management criteria do not protect against undesirable results for fish and wildlife beneficial uses and users of groundwater and interconnected surface waters. a. Issues: i. Proxy Metric: Before addressing the individual sustainability criteria for both Groundwater Levels and Depletions of Interconnected Surface Water, the Department challenges the use of groundwater elevations as a proxy metric for Depletions of Interconnected Surface Water. The GSP does not provide evidence that a "significant correlation exists between groundwater elevations" and Depletions of Interconnected Surface Water [23 OCR §354.36(b)(1)]. Instead, the GSP backs into the proxy metric by associating the proposed Groundwater Level minimum thresholds with the absence of significant and unreasonable surface water depletions, claiming that historical depletions of interconnected surface water had no associated undesirable results (GSP pp 3-19). The GSP offers few details to substantiate this claim that historical surface water depletions did not lead to undesirable results, and the GSP does not specify the modeling exercise used to detennine the insignificance of historical surface water depletions. Provided the status of surface water allocations and aquatic ecosystems on rivers in the ESJ basin, the Department contests that any surface water depletions attributable to groundwater pumping are likely to be significant and unreasonable, particularly in the benchmark year of 2015 when groundwater pumping and surface water temperatures were critically high. Depleted flows in the lower San Joaquin River, many reaches of which are identified as interconnected in the GSP, contribute to increased in-river water temperatures. Groundwater extraction from interconnected aquifers contributes to depletion of instream flow(Barlow and Leake, 2012). Low flows and increased water temperatures in the lower San Joaquin River have been documented to negatively impact Chinook salmon {Oncorhynchustshawytscha) and steelhead {Oncorhynchus mykiss) (Hallock 1970,Marston 2012). Acknowledging that fish and wildlife beneficial uses and users of groundwater likely experienced undesirable results during historical pumping regimes, especially during critically dry years, the GSP cannot rely on groundwater elevation as a proxy metric for Depletions of Interconnected Surface Water. If a significant correlation is lacking between groundwater elevations and Depletions of Interconnected Surface Water, particularly at the representative monitoring well locations used to track groundwater elevations in the ESJ Subbasin, then groundwater elevations used as a proxy for surface water depletions may misinform groundwater management activities and poorly predict instream habitat conditions for fish and wildlife species. Accordingly, the application of Groundwater Level sustainable management criteria to Depletions of Interconnected Surface Water is inappropriate, as it is not grounded in a quantifiable and site-specific understanding of surface water-groundwater connectivity as required by 23 CCR § 354.28 (c)(6)(A). ii. Undesirable Results: Groundwater Level 'undesirable results' and 'effects of undesirable results' do not specify impacts to environmental beneficial users such as terrestrial GDEs (GSP pp 3-3, 3-4). Additionally, the method used to identify undesirable results for Groundwater Levels (i.e., minimum threshold exceedances in groundwater elevation) is applied to the identification of undesirable results for the Depletions of Interconnected Surface Water without a reasonable justification. The indicator of undesirable results for Groundwater Levels is the measure of 25% of monitoring wells falling below their minimum thresholds for two consecutive (non-dry) years, yet the GSP does not prove a relationship between the Groundwater Level identification of undesirable results and the presence of undesirable results for Depletions of Interconnected Surface Water (see Comment #5.a.i). Effectively, the GSP does not connect identification of undesirable results for Depletions of Interconnected Surface Water to effects on interconnected surface water beneficial users per 23 CCR § 354.26 (b)(3). Finally, the GSPnotes that groundwater levels that fall below the minimum threshold during hydrologically dry or critically dry years are not considered to be an indicator of undesirable results (GSP pp 3-3). This means proposed Indicators of undesirable results for Groundwater Levels and Depletions of Interconnected Surface Water do not exist for dry water years. This absence of undesirable results indicators for certain water years means beneficial users of groundwater and interconnected surface water may experience significant and unreasonable effects throughout the duration of dry or critical water years before the undesirable results are 'identified' and managed. Accordingly, there is no groundwater management accountability during the most challenging of years for water resource managers and fish and wildlife beneficial users alike. iii. Minimum Thresholds and Measurable Objectives: Minimum thresholds and measurable objectives for Groundwater Levels, and by proxy, for Depletions of Interconnected Surface Water, are not protective of environmental beneficial uses and users of groundwater and interconnected surface water. Minimum thresholds allow for a decrease of groundwater elevation from 2015, or a comparable historic low, for all representative monitoring sites (3-7); and measurable objectives are set at historically low groundwater elevations (GSP 3-8). These sustainability criteria suggest that groundwater elevations at all representative wells in the ESJ Subbasin can continue to decrease for the next 20 years, dropping further from historically low groundwater elevations during drought years, without witnessing undesirable results. The ESJ Subbasin is characterized by DWR as 'Critically Overdrafted,' meaning "continuation of present water management practices [in the basin] would probably result in significant adverse overdraft-related environmental, social, or economic impacts" ("Critically"). However, according to the GSP, there are no areas within the basin that are considered to have 'significant and unreasonable existing issues' (GSP pp 3-4), therefore minimum thresholds allow for continued groundwater depletions. Conceptually, there is a disconnect between the ESJ's 'Critically Overdrafted' designation and the GSP's claim that the basin has not experienced undesirable results, nor will it if groundwater levels continue to decrease. More specifically, the Department believes historical declines in terrestrial and aquatic groundwater dependent ecosystem viability, exacerbated by recent drought years, are evidence of undesirable results and further groundwater decline will undoubtedly lead to significant and unreasonable effects on fish and wildlife beneficial uses and users of groundwater and interconnected surface waters under the proposed sustainable management criteria. For example, further streamflow depletion attributable to groundwater pumping that lowers groundwater levels to meet minimum thresholds or evenj measurable objective may further compromise in-stream temperature targets in the lower San Joaquin River, adversely impacting in-stream species (see Comment #5.a.i). Accordingly, the Department does not believe groundwater levels above the proposed minimum thresholds and below the proposed measurable objectives (in the margin of operational flexibility) will allow the basin to achieve sustainability, particularly with respect to avoiding undesirable results for fish and wildlife beneficial uses and users of groundwater and Interconnected surface water. b. Recommendation: i. Proxy Metrics: To justify use of groundwater elevations as a proxy metric for Depletions of Interconnected Surface Water, the GSP should either specify how groundwater elevations are significantly correlated to surface water depletions; or define an expeditious path to identifying the location, quantity, and timing of surface water depletions caused by groundwater use, per 23 CCR §354.28(c)(6)(A), to better inform sustainability criteria for Depletions of Interconnected Surface Water. ii. Undesirable Results: Specify Groundwater Level 'undesirable results' and 'effects of undesirable results' for environmental beneficial users of groundwater and interconnected surface water. Specify undesirable result indicators for Depletions of Interconnected Surface Water that are relevant to beneficial users of surface waters. Identify undesirable results indicators for dry and critically dry water years for all sustainability indicators. iii. Minimum Thresholds and Measurable Objectives: Reconsider minimum thresholds and measurable objectives, accounting for undesirable results for fish and wildlife beneficial uses and users of groundwater and interconnected surface water. Design sustainable management criteria that reflect a 'Critically Overdrafted' subbasin designation by seeking to improve current groundwater conditions rather than allowing for continued aquifer depletions over the next two decades. For example, historical groundwater pumping has likely contributed to stream disconnection illustrated in figure 2-66 (GSP 2-99); resulting in depleted stream flows and reduced baseflows in ESJ Subbasin tributaries, and exacert3ated high water temperatures in the lower San Joaquin River that negatively impact listed species such as the Chinook Salmon. Minimum thresholds and measurable objectives should reflect an effort to prevent further degradation to interconnected surface waters and to avoid undesirable results, rather than risk magnifying historical undesirable results through lowered groundwater elevations.	Interconnected Surface Water	See Master Response 2 - ISW.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
26	Kevin Thomas	CA Department of Fish and Wildlife	The GSP wrongly abdicates responsibility for specific constituents by implying there is no nexus between specific groundwater contaminants and groundwater pumping (GSP pp 3-11). a. Issue'. Tlie GSP identifies two primary water quality constituents of concern in the ESJ Subbasin: salinity and arsenic (GSP pp 2-76). The GSP only specifies sustainability management criteria for salinity. The GSP explains that other constituents, including arsenic, are managed through other regulatory programs, and suggests that because GSAs do not have land use authority, they lack an ability to manage for such constituents as arsenic (GSP pp 3-11). Science suggests that over-pumping of aquifers can cause clay layers to compress and release dissolved arsenic, resulting in an increase of arsenic in extracted water("Groundwater"). Thus, groundwater pumping actions can affect the presence, movement, and concentration of naturally occumng arsenic in groundwater, potentially increasing anthrophonic and ecosystem exposure to arsenic contamination. According to SGMA statue, GSAs have the authority to establish groundwater extraction allocations, among other relevant authorities [WC § 10726.4]. Because arsenic contamination can be impacted by groundwater pumping, and because GSAs have the authority to manage groundwater pumping, the ESJGA has a viable management lever over arsenic contamination in the ESJ Subbasin.b. Recommendation: Draft a plan to investigate the relationship between groundwater pumping and the presence, movement, and concentration of arsenic in the ESJ Subbasin and include the plan in the GSP submitted toDWR by January 2020. Develop sustainability criteria for arsenic accordingly and in partnership with existing regulatory programs by the first 5-year GSP update due in January 2025.	Groundwater Quality	See Master Response 3 -- Water Quality.
27		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Although the GSP identifies declining water quality trends for arsenic and nitrate in the basin, which meet the GSP's definition of undesirable results for water quality, no MOs or MTs are set for these constituents. The concentration of these constituents can be impacted by management actions. [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Quality	See Master Response 3 -- Water Quality.
28		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The GSP notes plans to coordinate and share data with other regulatory monitoring programs, but does not explain how this coordination will improve sustainability with respect to water quality within the basin. The GSP should identify a clear plan for addressing all groundwater constituents that are contributing to the undesirable results of degraded groundwater quality, including those for drinking water users. [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Quality	See Master Response 3 -- Water Quality.
29			The salinity and TDS limits are not likely to meet sustainability and could allow significant degradation of water quality if applied.	Groundwater Quality	The GWA considers minimum thresholds and measurable objectives for groundwater quality to be protective of agricultural uses. Language was added in Section 3.2.3.2 (Degraded Water Quality Minimum Thresholds) to include information on salinity tolerances of Subbasin crops.
30		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The Communications plan does not specify how the DACs identified in Figure 1-8 were specifically engaged. The failure to identify small community water systems calls into question how and whether adequate outreach to DACs was conducted. [SEE MORE SPECIFICS IN COMMENT LETTER]	Outreach	1) An appendix has been added to the GSP which documents the 432 community water systems that received hard copy outreach materials throughout the GSP development process. The appendix is referenced in Section 1.3.4.4 (Stakeholder Database); this section was also updated to list the dates that outreach materials were mailed to community water systems. An analysis was performed to map community water systems that are DAC or SDAC areas, and the results of this analysis are presented in the added appendix. 2) Section 1.3.1 (Beneficial Uses and Users int he Subbasin) was updated to include community water systems and reference the added appendix. Additionally, the bullet reference public water systems was changed to reference Figure 1-13 rather than Section 1.1.4.3. 3) Language was added to Section 1.3.4.4 (Stakeholder Database) indicating that many GSAs conducted local outreach within their jurisdiction, including direct mailings to parcels served as part of a small water system.
31		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The scientific rationale for removing areas with access to alternate water sources from the identified GDEs should be better explained. Specifically, the results of any supporting habitat assessments should be provided. If no habitat assessments were conducted or reviewed, this should be identified as a data gap. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	See Master Response 1 - GDEs.
32		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	In the case of managed wetlands, the water sources used by the managed wetlands, the type of managed wetlands, the relationship of the wetlands to groundwater, and the wetland manager should be specified. In addition, these managed wetlands should be identified in Section 1.3.1. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	Comment noted. The managed wetlands and surrounding areas are mapped in Figure 2-68. SGMA does note require identification of managed wetlands or further classification.
33		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The approach used to identify and exclude GDEs should be supported by actual hydrologic and habitat assessment data. If such data and assessments are not available, the need for supporting studies to validate the approach should be identified as a data gap. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	GDEs have been identified as data gap areas requiring further refinement. Section 4.7 (Data Gaps) has been updated to reflect this change and to identify plans to collection additional data in areas of shallow groundwater.
34		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	We recommend that depth to groundwater contour maps are used to verify whether a connection to groundwater exists for polygons in the NC Dataset, instead of relying on inferences based on the presence of surface water features in the Basin. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	Comment noted. This GSP uses a depth to groundwater contour map to evaluate whether a connection to groundwater exists with the Natural Communities Commonly Associated with Groundwater database (collectively developed by TNC, DWR, and CDFW).
35		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	It is highly advised that seasonal and interannual fluctuations in the groundwater regime are taken into consideration in the evaluation of root zones, particularly for oak trees. Utilizing groundwater data from one point in time or contoured with too few shallow monitoring wells can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	See Master Response 1 - GDEs.
36		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Please address how the need to link and correlate groundwater level declines to biological responses, and significant and adverse impacts to GDEs and ISWs will be addressed. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	The GSP considers environmental users of groundwater, including species and habitat reliant on instream flows, as well as wetlands and GDEs as beneficial uses and users. See Section 1.3.1 (Beneficial Uses and Users in the Basin). Beneficial uses and users are considered in identifying undesirable results for each of the sustainability indicators.
37		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Stakeholder input from DAC community members does not appear to have been considered in establishment of water quality URs, based on the information presented in the GSP. [SEE MORE SPECIFICS IN COMMENT LETTER]	Outreach	1) An appendix has been added to the GSP which documents the 432 community water systems that received hard copy outreach materials throughout the GSP development process. The appendix is referenced in Section 1.3.4.4 (Stakeholder Database); this section was also updated to list the dates that outreach materials were mailed to community water systems. An analysis was performed to map community water systems that are DAC or SDAC areas, and the results of this analysis are presented in the added appendix. 2) Section 1.3.1 (Beneficial Uses and Users int he Subbasin) was updated to include community water systems and reference the added appendix. Additionally, the bullet reference public water systems was changed to reference Figure 1-13 rather than Section 1.1.4.3. 3) Language was added to Section 1.3.4.4 (Stakeholder Database) indicating that many GSAs conducted local outreach within their jurisdiction, including direct mailings to parcels served as part of a small water system.
38		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The analysis for potential depletion of ISWs in Section 3.2.6 should include all beneficial users of surface water that could be affected by groundwater withdrawals, including environmental beneficial users along creeks, even if the creeks are interconnected less than 75% of the time. [SEE MORE SPECIFICS IN COMMENT LETTER]	Interconnected Surface Water	Comment noted. The GWA supports the definition of undesirable results provided in the Draft GSP, which identifies GDEs and freshwater fish and wildlife species as beneficial users. The GWA will continue to collect data to better inform connectivity conditions in the Subbasin.
39		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The definition of undesirable results for ISWs is overly narrow and recognizes only a limited subset of the environmental beneficial users of ISWs. A more complete definition would be that undesirable results would occur if groundwater extraction resulted in a depletion of surface water that caused significant impacts to aquatic species or wildlife, or degradation of wetlands, riparian habitats and GDEs. Please expand the definition of undesirable results to include all of the environmental beneficial uses and users of ISWs, and expand the analysis in Section 3.2.6, as appropriate. [SEE MORE SPECIFICS IN COMMENT LETTER]	Interconnected Surface Water	Comment noted. The GWA supports the definition of undesirable results provided in the Draft GSP, which identifies GDEs and freshwater fish and wildlife species as beneficial users. The GWA will continue to collect data to better inform connectivity conditions in the Subbasin.
40		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The GSP does not appear to include any plans to address impacts to domestic well users if domestic wells do go dry in the future. Based on the water level MTs, at least 10% of domestic wells would be expected to be dewatered if MT levels are reached. While the identified projects are intended to keep water levels above the MTs, no program is provided as a contingency in case 1) groundwater conditions decline before the projects are fully implemented, or 2) implementation of such projects does not have the desired effects. A plan to mitigate impacts to DAC drinking water users could include a program to replace wells, connect well users to a public water system, establishment of a tanked water program, etc. The GSP should also identify a mechanism to fund such a program. [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Levels	The GWA supports using the minimum thresholds, measurable objectives, and interim milestones for the chronic lowering of groundwater levels sustainability indicator as written. SGMA does not require zero impact, and the GWA has determined that it is not considered "significant and unreasonable" for wells belonging to the shallowest 10 percent of domestic wells to be dewatered, as the wells that are likely to be dewatered are those that are 50 years or older, have reached the end of their usable life, and would need to be replaced anyway. Data collected on Stanislaus County rural domestic wells that were dewatered in years 2014-2016, showed that the average depth of wells reported as dewatered was 91 ft bgs, and that 60 percent were shallower than 100 ft bgs. Additionally, the average well age for wells reported as dewatered was 55 years, and 52 percent were older than 50 years old. There are various well impact mitigation programs in place, therefore there were no changes were made to the Draft GSP.

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41		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The draft GSP sets the minimum thresholds (MTs) for groundwater levels at representative monitoring well sites as the shallower of either: (1) the shallower of 1992 or 2015-2016 historical groundwater levels with a buffer of 100 percent of historical range applied, or (2) the 10th percentile of total depth of domestic wells within a 3-mile radius of a representative monitoring well site1. This approach to setting water level MTs and the selected representative monitoring network leaves key beneficial users in the subbasin, specifically domestic well users and in particular members of disadvantaged communities (DACs), potentially vulnerable to impacts. [SEE MORE SPECIFICS IN COMMENT LETTER, APPENDIX B: FOCUSED TECHNICAL REVIEW]	Groundwater Levels	The GWA supports using the minimum thresholds, measurable objectives, and interim milestones for the chronic lowering of groundwater levels sustainability indicator as written. SGMA does not require zero impact, and the GWA has determined that it is not considered "significant and unreasonable" for wells belonging to the shallowest 10 percent of domestic wells to be dewatered, as the wells that are likely to be dewatered are those that are 50 years or older, have reached the end of their usable life, and would need to be replaced anyway. Data collected on Stanislaus County rural domestic wells that were dewatered in years 2014-2016, showed that the average depth of wells reported as dewatered was 91 ft bgs, and that 60 percent were shallower than 100 ft bgs. Additionally, the average well age for wells reported as dewatered was 55 years, and 52 percent were older than 50 years old. There are various well impact mitigation programs in place, therefore there were no changes were made to the Draft GSP.
42		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The draft GSP includes limited analysis of water quality constituents and defines undesirable results (URs) for water quality relative to "impacts to the long-term viability of domestic, agricultural, municipal, environmental, or other beneficial uses over the planning and implementation horizon of this GSP" (Section 3.2.1.1). For the reasons identified below, the water quality monitoring network and analysis presented in the draft GSP does not clearly illustrate how the sustainable management criteria will be sufficient to ensure that the stated water quality UR of impacting the long-term viability of the groundwater resource, particularly for domestic water users including DACs, will be avoided. [SEE MORE SPECIFICS IN COMMENT LETTER, APPENDIX B: FOCUSED TECHNICAL REVIEW]	Groundwater Quality	See Master Response 3 -- Water Quality.
43		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Based on our assessment of the water levels, a significant proportion of domestic wells have the potential to be partially or fully dewatered if water levels reach the proposed MT levels. However, the draft GSP does not include or describe any plans to develop a well impact mitigation program. Such a program could include a combination of replacing impacted wells with new, deeper wells and/or connecting domestic users to a public water system. A plan to establish an emergency tanked water program, as was done in some areas of California during the last drought, may be an appropriate short-term solution, but would not be a good long-term solution for community members. Key considerations for establishing such a program should include: • A strong preference for connecting current domestic well users to a public water system, whenever possible. Public water systems have an obligation to test water quality for water served, and although the public water systems in this area typically have limited resources, they do have a greater ability to install treatment systems to address water quality impacts, recoup funds for litigated contamination such as 1,2,3-TCP, and apply for and receive grant funding for beneficial projects. Because of this, public water systems, including small community water systems, provide a more reliable drinking water source than privately-owned domestic wells. • A secure and reliable funding source and mechanism for implementation of such a mitigation program needs to be identified. While grant or emergency funding could potentially be available for such a program when needed, the availability of these funds is not certain. A more secure funding mechanism could be the establishment of a reserve fund that is paid into on an annual basis and accrues funds that would then available as water levels drop in the future. • The implementation of a mitigation program should be triggered before wells begin to become unusable, so that funding will be available, and the necessary planning and contracting will be completed such that the necessary construction will be implemented without unnecessarily leaving community members without access to drinking water. Thus, the program should be designed to be proactive, rather than reactive. • A well mitigation program should not be established only in case of emergency. Droughts are said to be becoming more and more frequent and severe, and as such should be included as part of the long-term sustainability planning for the subbasin.	Groundwater Levels	The GWA supports using the minimum thresholds, measurable objectives, and interim milestones for the chronic lowering of groundwater levels sustainability indicator as written. SGMA does not require zero impact, and the GWA has determined that it is not considered "significant and unreasonable" for wells belonging to the shallowest 10 percent of domestic wells to be dewatered, as the wells that are likely to be dewatered are those that are 50 years or older, have reached the end of their usable life, and would need to be replaced anyway. Data collected on Stanislaus County rural domestic wells that were dewatered in years 2014-2016, showed that the average depth of wells reported as dewatered was 91 ft bgs, and that 60 percent were shallower than 100 ft bgs. Additionally, the average well age for wells reported as dewatered was 55 years, and 52 percent were older than 50 years old. There are various well impact mitigation programs in place, therefore there were no changes were made to the Draft GSP.
44	Sandi Matsumoto	The Nature Conservancy	The Nature Conservancy has thoroughly reviewed the Eastern San Joaquin Subbasin Draft GSP. We appreciate the work that has gone into the preparation of this plan. However, we consider it to be inadequate under SGMA because the basis for removing the majority of the potential GDEs identified in the NC Dataset from further consideration and management as GDEs is not scientifically supported, and could lead to significant and unreasonable impacts. Based on the available data, the removed polygons should be retained and managed as potential GDEs in the plan. If further analysis were to provide substantial evidence that groundwater level declines would not result in an adverse impact to the species in these ecosystems, then consideration could be given to removing them at that time; however, no such evidence has been presented in the draft GSP.	GDEs	See Master Response 1 - GDEs.
45	Sandi Matsumoto	The Nature Conservancy	Considering Nature under SGMA: A Checklist "Environmental User Checklist" [SEE MORE SPECIFICS IN ATTACHMENT A IN COMMENT LETTER]	GDEs	The methodology presented in the Environmental User Checklist goes above and beyond the requirements of SGMA and can be evaluated in future iterations of the GSP as determined by the GWA. The GWA considers the methodology used in the GSP to be appropriate at this time given the existing data gap limitations, and can be refined further in future GSP updates.
46	Sandi Matsumoto	The Nature Conservancy	Critical habitat is known to exist for protected aquatic species, such as California Tiger Salamander, Steelhead, Delta Smelt, Giant Gartersnake and California Red-Legged Frog in and around the Subbasin (https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77). There are likely ongoing monitoring programs associated with critical habitat areas and the protected lands. **Please include a description of these habitat areas, and associated programs and requirements pertinent to ISWs, GDEs and wetlands. Identify areas where critical habitat exists and overlaps with ISWs and GDEs.**	GDEs	The comment request goes above and beyond the requirements of SGMA and can be evaluated in future iterations of the GSP as determined by the GWA.
47	Sandi Matsumoto	The Nature Conservancy	This section should include a discussion of General Plan goals and policies related to the protection and management of GDEs and aquatic resources that could be affected by groundwater withdrawals, rather than being limited to goals and policies directly related to groundwater resources alone. Section 1.3.1 correctly identifies environmental uses of groundwater as including "…species and habitat reliant on instream flows, as well as wetlands and GDEs," and yet Section 1.2.3 and Appendix 1-E do not identify any General Plan policies related to these resources. Section 1.2.3 should identify if there are any Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) within the Subbasin and if they are associated with critical, GDE and/or ISW habitats. Appendix 1-E should identify General Plan policies related to wetlands, riparian habitat, streams, aquatic habitat, and related threatened and endangered species. Section 1.2.3.2 should include a discussion of the relationship of GSP implementation to General Plan goals and policies related to GDEs and aquatic habitat; and also address how GSP implementation will coordinate with the goals of any HCPs or NCCPs.	GDEs	The GSP includes General Plan goals and policies the GWA has determined to be relevant to the GSP. This plan identifies GDEs as a beneficial use and there will be additional coordination and refinement of GDE data gap areas as the plan is refined.
48	Sandi Matsumoto	The Nature Conservancy	This section should discuss (or reference the sections discussing) the following: o Specific ISWs, including the extent of both gaining and losing reaches. o In-stream flow requirements in each of the interconnected rivers/streams including the amount, time of year when the flow minimum is specified, the duration, the freshwater fish species for which it applies, associated permits that set forth the requirements, and the regulating agency setting forth the compliance requirements. o Areas of critical habitat that exist within rivers and streams.	Interconnected Surface Water	See Master Response 2 - ISW.
49	Sandi Matsumoto	The Nature Conservancy	This section focuses on groundwater flow direction and defers further discussion of groundwater conditions to Section 2.2, which does not provide information on historical groundwater-surface water interaction. **This section should include a discussion of historic groundwater-surface water interaction.**	Interconnected Surface Water	See Master Response 2 - ISW
50	Sandi Matsumoto	The Nature Conservancy	o The determination as to whether or not a stream reach is interconnected or disconnected was made based on whether modeling conducted for the GSP indicated that it is interconnected more than 25 percent of the time. Even if the stream is only connected 25% of the time, it is still connected, and that short period of connectivity may be during critical times for select species or provide a cooling or biogeochemical effect during a critical period. **Please describe the technical basis for selecting a 25 percent interconnection threshold, and how it will adequately protect the environmental beneficial uses of surface water in potentially interconnected surface waters from significant and unreasonable impacts related to groundwater extraction.** o Shallow groundwater monitoring data near surface waters and NCCAGs are identified as a data gap in Section 2.1.10, and the use of the Eastern San Joaquin Water Resources Model (ESJWRM) to determine the percentage of time that stream reaches are groundwater connected entails inherent uncertainty. The potential presence of shallow or perched aquifers near the rivers is not assessed or discussed in the GSP. Groundwater modeling conducted by the United States Geological Survey (USGS), DWR and others (e.g., JJ&A, 2018) has considered some river reaches shown as disconnected in Figure 2-66 (pp. 2-99) to be groundwater-connected. No data or discussion is presented regarding the potential groundwater connection of other streams associated with significant wetland and riparian resources, including Pixley Slough, Mormon Slough, Littlejohns Creek, Bear Creek, Potter Creek, Duck Creek and Lone Tree Creek. As such, there is considerable uncertainty regarding the designation of interconnected and disconnected surface water resources in Figure 2-66. The uncertainty regarding the groundwater interconnection of streams in the Subbasin should be identified as a data gap.	Interconnected Surface Water	See Master Response 2 - ISW.

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51	Sandi Matsumoto	The Nature Conservancy	The GSP relies on the NCCAG database developed by TNC for the DWR to identify potential GDEs, and then provides a framework for removing most of these areas from further consideration. It appears that the preliminary desktop analysis documented in the draft GSP resulted an excessive elimination of the NC dataset polygons mapped in the Eastern San Joaquin Subbasin. In particular, the methods used to confirm whether or not polygons in the NC Dataset are connected to groundwater in the Eastern San Joaquin Subbasin are highly flawed. We have the following comments on the proposed approach: The GSP takes the approach of removing NCCAGs with "access to alternate water supplies" from consideration as GDEs, and states that in order to be considered GDEs, "there must not be alternate water supplies". Alternate water supplies are assumed to include potential sources of surface water including managed wetlands, irrigated agricultural fields, perennial surface water sources, and other unspecified sources determined by stakeholders on a case-specific basis. This approach is inappropriate and deficient for several important reasons: •There is no hydrologic analysis or empirical data provided as a basis for the proposed buffer zones. The hydrologic connectivity between a GDE and a nearby alternative water source is highly dependent on local conditions and can vary seasonally and by year type. In the case of managed wetlands, no consideration is given to the nature of the wetland and surrounding area, the source and frequency of inundation, the soil types, and other features that would be needed to understand the hydrologic connectivity between the wetland and the surrounding area, or even whether the wetland itself it groundwater dependent for a portion of the year. Similarly, no information is given to the topography and hydrology surrounding irrigated agricultural fields, the soil types involved, irrigation practices, whether irrigation is likely to be curtailed during dry years or during certain crop rotations, and other relevant factors. The hydrologic connectivity of perennial surface water sources cannot be assessed without specific knowledge of the water source, topography and soil conditions. In summary, the adequacy of generic buffer zones to assure GDE access to surface water is unsubstantiated. •No information is provided regarding the species residing in the GDEs, their sensitivity to groundwater level declines, or the extent of their reliance on groundwater vs. the proposed "alternate water supplies." •There is no evidence of consultation with the regulatory agencies responsible for the protection and management of these resources in the establishment of the proposed framework. It does not appear that any habitat assessments have been conducted. •Ecosystems often rely both on groundwater and surface water to meet their water needs (see Best Management Practice #3 in Attachment C of this letter). The availability of "alternate water supplies" to provide some portion of a GDE's water demand does not mean all of its water needs can be met through alternate supplies (i.e., without reliance on groundwater). •Groundwater pumping depletes ISWs under both gaining or losing conditions, and GDEs may rely on the interactions of surface water to [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	See Master Response 1 - GDEs.
52	Sandi Matsumoto	The Nature Conservancy	This section only describes undesirable results relating to human beneficial uses of groundwater and neglects environmental beneficial uses that could be adversely affected by chronic groundwater level decline. On page 3-5 in Section 3.2.1.2, impacts to GDEs are correctly identified as an undesirable result potentially associated with chronic groundwater level decline. Please add "potential adverse impacts to GDEs" to the list of potential undesirable results presented in Section 3.2.1.1.1.	GDEs	Language was added to Section 3.2.1.1.1 to include "Adverse impacts to environmental uses and users, including interconnected surface waters and groundwater-dependent ecosystems (GDEs)".
53	Sandi Matsumoto	The Nature Conservancy	This section states that undesirable results related to surface water depletion were defined and evaluated only for major streams and rivers including the Calaveras River, Dry Creek, Mokelumne River, San Joaquin River, and Stanislaus River. The section goes on to state that many of the smaller creeks and streams are solely used for the conveyance of irrigation water and these systems have not been considered in the analysis of depletions. Contrary to these statements, surface water resources in these creeks support significant recognized aquatic habitat, wetlands and riparian zones that represent potential environmental beneficial uses and users of groundwater. A number of these streams are associated with designated protected lands. The analysis for potential depletion of ISWs in Section 3.2.6 should include all beneficial users of surface water that could be affected by groundwater withdrawals, including environmental beneficial users along creeks, even if the creeks are interconnected less than 75% of the time.	Interconnected Surface Water	1) The GWA recognizes that interconnected surface water is a data gap area and supports the use of groundwater levels as a proxy as the best information currently available. The GWA has identified a need for future study and refinement will continue coordination efforts to better inform conditions. 2) Language has been added to Section 4.7 (Data Gaps) identifying interconnected surface water as a data gap area for future study and refinement. It also has been updated to clarify and better articulate the GWA's focus on installing additional monitoring wells near streams, which can be evaluated for use as representative monitoring wells in the future.
54	Sandi Matsumoto	The Nature Conservancy	The section states that "undesirable results would occur if groundwater extractions depleted interconnected streams and there was not sufficient surface water to supply … fish and wildlife demands." This definition of undesirable results is overly narrow and recognizes only a limited subset of the environmental beneficial users of ISWs. A more complete definition would be that undesirable results would occur if groundwater extraction resulted in a depletion of surface water that caused significant impacts to aquatic species or wildlife, or degradation of GDEs. Please expand the definition of undesirable results to include all of the environmental beneficial uses and users of ISWs, and expand the analysis in Section 3.2.6, as appropriate.	Interconnected Surface Water	Comment noted, the GWA supports the definition of undesirable results provided in the Draft GSP, which identifies GDEs and freshwater fish and wildlife species as beneficial users. The GWA will continue to collect data to better inform connectivity conditions in the Subbasin.
55	Sandi Matsumoto	The Nature Conservancy	The potential effects of undesirable results on environmental beneficial users are not described. Please expand the section to describe the potential effects of undesirable results on all beneficial uses and users of ISWs, including environmental uses and users. The GDE Pulse web application developed by The Nature Conservancy provides easy access to 35 years of satellite data to view trends of vegetation metrics, groundwater depth (where available), and precipitation data. This satellite imagery can be used to observe trends for NC dataset polygons within the Subbasin. Over the past 10 years (2009-2018), some NC dataset vegetation polygons have experienced adverse impacts to vegetation growth and moisture in the western portion of the Subbasin. An example screen shot from the GDE Pulse tool is presented below. Please review these spatial patterns and, where possible, correlate them with water level trends. Any indications of adverse trends and any data gaps should be identified. [SEE MORE SPECIFICS IN COMMENT LETTER]	GDEs	1) Language was added to Section 3.2.6.1.1 to reference Section 1.3.1 (Beneficial Uses and Users in the Basin). 2) Language was added to Section 4.7 (Data Gaps) to indicate that the GWA would evaluate using the GDE Pulse Tool and other tools to monitor GDEs.
56	Sandi Matsumoto	The Nature Conservancy	The GSP proposes to use the Minimum Thresholds and Measurable Objectives associated with Chronic Decline in Groundwater Levels as a proxy for management of depletion of ISWs, and concludes that these criteria will be protective of the depletion of ISWs and prevent significant and unreasonable impacts to beneficial surface water uses and users. This conclusion is not adequately supported by data and/or consultation with the agencies that are responsible for the regulation of GDE habitats. We have the following comments: oThe section states that current or historical issues associated with depletion of ISWs were not indicated to be significant and unreasonable based on discussions at GWA Board, Advisory Committee, and Workgroup meetings and through input from GSA staff, and that it was therefore assumed that historical conditions are protective of beneficial uses. It does not appear that any consultation occurred with the Federal, State and local agencies responsible for management and regulation of environmental beneficial uses of ISWs, or with the private parties, agencies and NGOs involved in managing the protected lands listed in our response to Section 1.3.1. In addition, no reference is made to the review of supporting documents for General Plan Conservation or Land Use Elements, or to the review of environmental management studies and documents such as Biological Assessments, Biological Opinions, HCPs or other studies regarding the current and historical conditions of the beneficial uses being evaluated. Please provide a more thorough explanation of the basis for the assumption that current and historical groundwater level conditions are protective of beneficial uses related to ISWs. Data gaps should be acknowledged. oThe GDE Pulse web application developed by The Nature Conservancy provides easy access to 35 years of satellite data to view trends of vegetation metrics, groundwater depth (where available), and precipitation data. This satellite imagery can be used to observe trends for NC dataset polygons within the Subbasin. Over the past 10 years (2009-2018), some NC dataset vegetation polygons have experienced adverse impacts to vegetation growth and moisture in the western portion of the Subbasin. Please review these spatial patterns and, where possible, correlate them with water level trends. Any indications of adverse trends and any data gaps should be identified. oThe section discusses future use scenarios, associated groundwater level declines and ISW depletions on a broad level. The potential effects of these declines on environmental beneficial uses, including GDEs, are not discussed. In addition to discussion of potential adverse effects at a general level, a conclusion that significant adverse impacts are unlikely generally requires more site- and resource-specific analysis. Please include a discussion of the potential for adverse effects of surface water depletions on environmental resources, as well as a reasoned analysis of the likelihood of their occurrence under future scenarios. The lack of site-specific data to draw conclusions about specific environmental beneficial users should be recognized as a data gap. oPlease expand the analysis of potential undesirable results to include all environmental beneficial uses and users, including those associated with more local streams and creeks. oThe statement that an additional depletion of the surface water due to groundwater pumping of 50,000 acre-feet per year is not significant and	Interconnected Surface Water	See Master Response 2 - ISW.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
57	Sandi Matsumoto	The Nature Conservancy	The GSP proposes to use groundwater level monitoring for chronic groundwater level decline as a surrogate for monitoring the depletion of ISWs. We have the following comments. oThe areas identified as potential GDEs in the GSP are located near the western boundary of the Subbasin. Only one of the representative monitoring wells appears to be located near those areas (Figure 4-1 on p. 4-5). Very few of the remaining monitoring wells are located near potential ISWs and GDEs. Specific monitoring should be described to further evaluate, monitor, manage and protect areas with ISWs and GDEs. oPer the GSP Regulations (23 CCR §354.34 (a) and (b)), monitoring must address trends in groundwater and related surface conditions (emphasis added). Groundwater level monitoring alone may be insufficient to establish a linkage between groundwater extraction and potentially resulting impacts to environmental resources associated with GDEs and ISWs. The cause-effect relationship between groundwater levels and the biological responses that could result in significant and unreasonable impacts to ISWs and GDEs depends on a number of complicated factors, and this relationship is not characterized or discussed. As such, it is not possible to determine whether the proposed monitoring, minimum thresholds and measurable objectives are sufficiently protective to ensure significant and unreasonable impacts to GDEs and ISWs will be prevented. The GDE Pulse interactive mapping application provides an example of a linkage between groundwater level data and GDE health that could be used to incorporate remote sensing into an efficient and incisive monitoring program. Please provide an explanation how groundwater levels will specifically be used to assess adverse impacts to GDEs and ISWs, and identify any data gaps and how they will be addressed.	Interconnected Surface Water	See Master Response 2 - ISW.
58	Sandi Matsumoto	The Nature Conservancy	IDENTIFYING GDEs UNDER SGMA Best Practices for using the NC Dataset [SEE MORE SPECIFICS IN ATTACHMENT C IN COMMENT LETTER]	GDEs	Comment noted, this is not a requirement of SGMA and can be evaluated in future iterations of the GSP as determined by the GWA. Language was added to Section 4.7 (Data Gaps) to indicate that the GWA would evaluate using the GDE Pulse Tool and other tools to monitor GDEs.
59	Sandi Matsumoto	The Nature Conservancy	GDE Pulse A new, free online tool that allows Groundwater Sustainability Agencies to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data. [SEE SPECIFICS IN ATTACHMENT D IN COMMENT LETTER]	GDEs	Language was added to Section 4.7 (Data Gaps) to indicate that the GWA would evaluate using the GDE Pulse Tool and other tools to monitor GDEs.
60	Jane Wagner-Tyack	Communication Consultant	Nitrates: 2.2.4.2 says, "Increased nitrate concentrations have not been found to be related to groundwater management activities in the Subbasin." This statement does not define "groundwater management activities" and does not identify those responsible for the finding of no relationship. Meanwhile, other evidence appears to contradict the assertions. Prior to the assertion above, in the same paragraph, is the statement that "recent nitrate measurements above the MCL correspond to the overall historical trends and highlight areas with elevated Nitrate concentrations in more recent years." What is the evidence that these elevated concentrations are unrelated to groundwater management? The superficial treatment of dairies in the GSP is notable given the fact that milk was San Joaquin County's second top commodity in 2017. This is relevant to the discussion of nitrates as well as point source contamination (see below). Dairies are confined animal feeding operations (CAFOs), and CAFOs are linked to nitrates in water. Was any effort made to track nitrate relative to dairy operations? [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Quality	See Master Response 3 -- Water Quality.
61	Jane Wagner-Tyack	Communication Consultant	Arsenic: 2.2.4.3 says, "Increased arsenic concentrations have not been found to be related to groundwater management activities in the Subbasin." Again, the statement does not define "groundwater management activities" and does not identify those responsible for the finding of no relationship. Meanwhile, 4.3 says "Arsenic will be monitored for information purposes and to track trends in arsenic concentrations. The Groundwater Sustainability Plan (GSP) does not include sustainability goals, measurable objectives, or minimum thresholds for arsenic." Why does the GWA plan to monitor arsenic if it is unrelated to groundwater management? Is it likely that goals, objectives, and minimum thresholds will be set later on the basis of monitoring? The rationale for not setting minimum thresholds for arsenic, nitrogen, and sulfate (at 3.2.3.1.1 Description of Undesirable Results) is that "these constituents are managed through existing management and regulatory programs within the Subbasin." For example, the GSP mentions monitoring through the Central Valley Regional Water Quality Control Board Waste Discharge Requirement (WDR) Dairy program. The GWA will rely on "coordination with existing agencies" to ensure that regulations are being met. "Additionally, SGMA does not give GSAs land use authority, so a nexus must be present between groundwater conditions and groundwater pumping activities." We need to explain what "nexus" refers to in this context. Also, how will the GSA coordinate with existing agencies? [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Quality	See Master Response 3 -- Water Quality.
62	Jane Wagner-Tyack	Communication Consultant	Point Sources: As with nitrate and arsenic, the GSP provides no convincing support for the statement at 2.2.4.4 that "Point source contamination has not been found to be related to groundwater management activities in the Subbasin." In fact, there is considerable evidence to the contrary. Section 1.2.2.2.4, Division of Drinking Water, says, "DDW data was used in the development of this GSP to identify point-source contamination areas." However, the use of that data appears to have been restricted in the GSP, which notes (2.2.4.4) that "point sources include leaking underground storage tanks, landfills, historical dry cleaners, and others" (emphasis added). CAFOs are point sources under NPDES regulations. Figure 2-62 accompanying the point source discussion shows only Active Investigation and Remediation Sites, not all point-source contamination areas, and the discussion focuses on fuel sites. The claim that "Point source contamination has not been found to be related to groundwater management activities in the Subbasin" is clearly contradicted by 2.2.4.4.1, which discusses plumes that have been publicized. (It would be better not to introduce this section with the word "publicized," which suggests that the plumes are included in the GSP primarily because people already know about them.)	Groundwater Quality	Language was added to Section 2.2.4.4 (Point Sources) stating that new projects undertaken by GSAs as part of GSP implementation will evaluate contaminant plume movement in a CEQA document, and management through existing regulatory agencies was highlighted. The sentence: "Point source contamination has not been found to be related to groundwater management activities in the Subbasin" was deleted. The description of plumes as "publicized" was retained, as this language was developed in coordination with City of Lodi representatives to best reflect water quality conditions in the GSA.
63	Laura Folglia, Katrina Arredondo, Olin Applegate	Larry Walker Associates	Letter Comment 2: A water budget should also be developed to address reasonably foreseeable drought conditions.	Water Budget	All of the model scenarios include a broad range of different hydrologic years, discussed in 2.3.2 (Identification of Hydrologic Periods). Several major drought events were included as part of the 50-year hydrologic period from water year 1969 through 2018 and in the historical simulation period from water year 1996 through 2015. Tables 2-16 and 2-17 summarize some of the water budget components (including precipitation) by San Joaquin River Index water year type for the historical and projected conditions model simulations.
64	Laura Folglia, Katrina Arredondo, Olin Applegate	Larry Walker Associates	Letter Comment 3: However, due to the fact that this analysis only includes two wells near the cone of depression, the investigation should be expanded to focus on additional wells located within the sphere of influence of the problem area. [SEE MORE SPECIFICS IN COMMENT LETTER]	Basin Setting	The two wells near the cone of depression are from Figure 2-34, which shows hydrographs from select representative wells distributed across the Subbasin. These wells are just a small subset of those used to create Figures 3-37 and 3-38, which show the groundwater elevations in First Quarter 2017 and Fourth Quarter 2017, respectively. These maps were created using groundwater elevations from all available wells with data for those time periods.
65	Laura Folglia, Katrina Arredondo, Olin Applegate	Larry Walker Associates	Letter Comment 4: This is also true for the Vertical Gradient analysis provided in draft GSP Section 3.4.1.2.1, which lacks any wells located in the southern portion of the Subbasin (GSP Figure 3-39). [SEE MORE SPECIFICS IN COMMENT LETTER]	Basin Setting	Figure 2-39 shows the current multiple completion wells in the Subbasin. The vertical gradient analysis lacks wells in the southern portion of the Subbasin because there weren't nested wells in that area with sufficient historical data. If a need for more nested and/or clustered monitoring wells is recognized, the monitoring network will be reevaluated as updates to the GSP occur.
66	Laura Folglia, Katrina Arredondo, Olin Applegate	Larry Walker Associates	Letter Comment 8: The ESJ Draft GSP should acknowledge the reality of climate change scenarios prescribed by DWR, and highlight the fact that the estimated groundwater pumping offsets and/or recharge of 78,000 AF/year is a conservative estimate that may in reality be closer to 101,000 AF/year (calculated by increasing the change in groundwater storage from 34,000 AF/year (projected conditions for 50-year period) to 57,000 AF/year (climate change scenario).	Climate Change	Consistent with regulations, the 2070 climate change sensitivity analysis on the projected conditions scenario was used to better understand trends and inform planning. Due to the uncertainty around climate projections in the 2070 timeframe, the GWA Board determined the projected conditions scenario was most appropriate for analyzing sustainable yield in the GSP implementation time period beginning in 2040. Therefore, climate change was not included in the sustainable yield analysis or the estimated amount of direct or in lieu recharge and/or reduction in pumping needed for the Subbasin to reach sustainability. Climate change will continue to be evaluated with every update to the GSP and estimates of projects and management actions will continue to evolve with refinements to the model. Comment noted for follow up in next round of model refinements and updates to analyses.
67	Mary Elizabeth	Sierra Club, Delta-Sierra Group	Letter Comment 6: A generalized map was provided of potential recharge areas as shown below, but a map identifying existing recharge areas that substantially contribute to the replenishment of the groundwater basin was not found in the draft GSP... SGMA requires that a map identifying existing and potential recharge, and specifically identifying the existing recharge areas that substantially contribute to the replenishment of the groundwater basin. [SEE MORE SPECIFICS IN COMMENT LETTER]	Basin Setting	A map of existing groundwater recharge areas is presented in Figure 2-13 and a map of potential groundwater recharge areas is presented in Figure 2-14. Added to text to Section 2.1.4.5.1 (Description of Recharge Areas) clarifying that higher percolation indicates more recharge and referencing the existing conjunctive use programs (including direct recharge) described in Section 1.2.2.9: "The higher percolation areas are those that substantially contribute to the replenishment and recharge of the Subbasin. Section 1.2.2.9 includes text and a figure (Figure 1-16) of existing conjunctive use programs, including current direct recharge occurring in the Subbasin."
68	Mary Elizabeth	Sierra Club, Delta-Sierra Group	Letter Comment 12: Staff involved with the California Statewide Groundwater Elevation Monitoring (CASGEM) well monitoring suggested that conditions could exist that more frequent monitoring may be necessary to capture valid seasonal fluctuations. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	The GWA Board determined semi-annual sampling was appropriate as it will capture seasonal highs and lows. If a need for more frequent monitoring is recognized, the monitoring frequency will be reevaluated as updates to the GSP occur.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
69	Tom Lippe	California Sportfishing Protection Alliance	The Plan does not satisfy GSP Rule 355.4(b)(1) because the Plan's description of the sustainability goal, undesirable results, minimum thresholds, measurable objectives, and interim milestones are not reasonable or supported by the best available information and best available science.	Sustainable Management Criteria	The GWA has determined that the plan is supported by the best available data and science with extensive input from stakeholders, GSAs, and agencies.
70	Tom Lippe	California Sportfishing Protection Alliance	The Plan does not satisfy GSP Rule 355.4(b)(3) because the sustainable management criteria and projects and management actions identified in the plan are not commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Plan.	Sustainable Management Criteria	The GWA has determined that the plan is supported by the best available data and science with extensive input from stakeholders, GSAs, and agencies.
71	Greg Kamman	California Sportfishing Protection Alliance	Section 2.1.9.2.2 of the GSP (page 2-49) is entitled, Regional Historic Groundwater Flow and Surface Water Interaction. There is no presentation or reference to historic groundwater interaction with surface water in this section of the GSP.	Basin Setting	Added text to Section 2.1.9.2.2 (Regional Historic Groundwater Flow and Surface Water Interaction) referring to where historic groundwater-surface water interaction is discussed: "Historical groundwater-surface water interaction in the context of the twenty years of the historical model (ESJWRM) is discussed in Section 2.2.6."
72	Greg Kamman	California Sportfishing Protection Alliance	Section 354.16 of the GSP Regulations stipulates that each plan describe current and historic groundwater conditions in the basin based on the best available information. With regard to Section 2.2.6 of the GSP.(Interconnected Surface Water Systems), **I would like you to be aware of a study completed by Kamman Hydrology & Engineering, Inc. in 2018 , which delineates subterranean streams and Potential Stream Depletion Areas (PSDA) along the Stanislaus River bordering the south side of the ESJGB. PSDA's are areas where groundwater pumping could potentially cause stream depletion.** This report and associated maps are attached for reference and integration into Section 2.2.6 of the GSP. Access KHE's 2018 report at this link: https://www.dropbox.com/s/zzqnn6ifsbahx5p/PSDA-mapping-Tech-Memorandum_v1%2Bquads.pdf?dl=0	Basin Setting	Thank you for providing the report. Interconnected surface water was discussed at the scale of the Eastern San Joaquin Subbasin in Section 2.2.6, though the figures show more individual stream results. Comment noted for follow up and comparison as analysis of stream-aquifer interaction continues in future GSP updates.
73	Greg Kamman	California Sportfishing Protection Alliance	One of the most important outcomes of the GSP is the determination of sustainable yield (sustainability goal) for the basin. Section 2.3.6 (pg. 2-133) of the GSP states that, "The sustainable conditions scenario is based on the projected conditions scenario modified by lowering groundwater production across the model domain." This section of the GSP then provides some qualitative statements about future supplies, demands and uncertainties in water budget assumptions and numerical modeling. Although the sustainable yield of the basin is determined to be 715,000 AF/yr +/- 10 percent, and a 78,000 AF/yr reduction in groundwater use is needed to achieve sustainability, there is no detailed explanation on how these numbers were determined. Per Section 354.24 of the GSP Regulations, "The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, etc." As written, the GSP does not provide the reader with a clear and detailed explanation on how the sustainable yield figure was derived and if climate change predictions were factored into the quantification. This omission makes it impossible to review and comment on the reliability of the sustainable yield or required reduction figures for the basin under existing or future conditions. Therefore, the draft GSP should be revised to include this information and recirculated for public comment.	Water Budget	1) The text in 2.3.6 (Sustainable Yield Estimate) includes a description of how sustainable yield was estimated using ESJWRM. The analysis of sustainable yield involved simulations on the projected conditions scenario lowering groundwater production across the model domain to achieve a long-term change in storage of, or very close to, zero. 2) The GWA Board determined the projected conditions scenario was most appropriate for analyzing sustainable yield in the GSP implementation time period beginning in 2040. Consistent with regulations, the 2070 climate change sensitivity analysis on the projected conditions scenario was used to better understand trends and inform planning. Therefore, the sustainable yield analysis did not include climate change. Comment noted for follow up in next round of model refinements and updates to analyses.
74	John Fio	EKI on behalf of Cosumnes Subbasin GSA Working Group	The northern boundary of the ESJ Subbasin is shared with the Cosumnes Subbasin, however, there seems to be very little information described in writing about subsurface conditions and groundwater flow conditions at that boundary. This appears to be a deficit in the HCM.	Basin Setting	The GWA determined that the HCM meets the requirements of the Water Code. Subsurface conditions are discussed for the entire Subbasin. Groundwater flow is discussed broadly in Section 2.1.9.2.2 (Regional Historical Groundwater Flow and Surface Water Interaction) with more discussion and figures in Section 2.2.1.2 (Current Groundwater Elevations).
75	John Fio	EKI on behalf of Cosumnes Subbasin GSA Working Group	Historical conditions indicate that, on average, net groundwater flow is from the Cosumnes Subbasin into the ESJ Subbasin at a rate of 14,000 acre-feet per year (AF/year). However, inflows from the Cosumnes Subbasin to the ESJ Subbasin increase to 23,000 AF/yr under current conditions (more than 60%) and will be 19,000 AF/yr under projected conditions (more than 30%). These changes in cross-boundary flows are potentially significant, and groundwater level monitoring and protective SMCs are needed near the subbasin boundary to ensure that: (1) undesirable results do not occur across the shared subbasin boundary , and (2) these projected increased levels of inflow to the ESJ subbasin from the Cosumnes Subbasin do not impact the ability of the Cosumnes Subbasin to achieve sustainability.	Sustainable Management Criteria	As the Cosumnes Subbasin is not designated as a critically overdrafted, groundwater basin, their GSP is on a slower timeline so analysis was not available for direct comparison during initial interbasin coordination discussions. ESJ Subbasin will continue to coordinate with Cosumnes Subbasin on boundary flows across Dry Creek as well as sustainable management criteria developed in the two subbasins as their GSP work progresses.
76	John Fio	EKI on behalf of Cosumnes Subbasin GSA Working Group	Tabulated water budget results like those in Table 2-15 need to be included for the climate change scenario results.	Climate Change	The current text, tables, and figures for climate change meet the requirements of the GSP. Future updates to the GSP may include more detailed analysis of climate change scenario results.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
77	John Fio	EKI on behalf of Cosumnes Subbasin GSA Working Group	The Minimum Thresholds(MT) for groundwater levels protect against Undesirable Results in the ESJ Subbasin and were specified for 19 wells based on minimum water levels measured in 1992 or 2015-2016, whichever are lowest, plus an operational buffer. These groundwater level MTs are utilized as proxy for groundwater storage, subsidence, and interconnected surface water sustainability indicators for the ESJ Subbasin. The MTs for the ESJ Subbasin should also ensure that they are not creating changes in groundwater inflow that could impede sustainability plans and implementation in the Cosumnes Subbasin. This includes groundwater level monitoring near the subbasin boundary and projected changes under historical, current, projected, and climate change.	Sustainable Management Criteria	As the Cosumnes Subbasin is not designated as a critically overdrafted, groundwater basin, their GSP is on a slower timeline so analysis was not available for direct comparison during initial interbasin coordination discussions. As described in Section 4.7 (Data Gaps) and shown in Figure 4-3, additional groundwater monitoring wells are planned for more groundwater monitoring along the boundary with Cosumnes Subbasin to support future GSP updates. ESJ Subbasin will continue to coordinate with Cosumnes Subbasin on boundary flows across Dry Creek as well as sustainable management criteria developed in the two subbasins as their GSP work progresses.
78	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Only a single sentence for the figure. Additional text should be added to explain the significance of the information.	Basin Setting	Added text to reference other sections for discussion of base of fresh water: "This feature also influences the location, depth, and thickness of the "base of the fresh water", as shown below in Figure 2 18. The base of fresh water is discussed further in Sections 2.1.7 and 2.1.8.2."
79	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Cross sections are too small, even printed on 11 x 17" paper, as the well labels are not legible. Scale of 0.36 to 0.45 inch per 1000 feet is not reasonable. The Stockton Fault is not depicted or located on Sections D-D' and E-E'. Page 2-38, first paragraph refers to "well screen interval (shown in red)." but the interval is not shown and likely could not be seen due to the small size of the cross section. Cross sections don't show the three zones within the principal aquifer, except by association with the formations. Model Section D-D' is equivalent to GSP Section C-C' and D-D' shows the Corcoran Clay. The Corcoran Clay is shown on southern end (7 miles) of Section E-E' but not at the southern end of Section D-D'. According to DWR (1981/2008), the top of the Corcoran Clay cannot be delineated to the east of Highway 99 at Manteca, but Section E-E' is located further east of Highway 99 and would not encounter the clay until several miles further south of the subbasin boundary. Moreover, the depth to the top might be 200 feet on the west side of Manteca, south of Highway 120, which is within the southernmost alignment of Section D-D'. The presence of the Corcoran Clay appears to be more related to the DWR model of the Central Valley than to well logs.	Basin Setting	The level of detail in the GSP is appropriate for a conceptual model of the Subbasin, and the number of cross-sections already exceeds SGMA requirements. Additionally, the well logs for wells shown in the cross-sections are public for detailed review. The representation of Corcoran Clay cross-sections is based on previous work from DWR and is consistent with the latest released version of C2VSim. The image resolution was increased to help with zooming in on small areas.
80	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Cross sections are too small, even printed on 11 x 17" paper, as the well labels are not legible. Scale of 0.36 to 0.45 inch per 1000 feet is not reasonable. The Stockton Fault is not depicted or located on Sections D-D' and E-E'. Page 2-38, first paragraph refers to "well screen interval (shown in red)." but the interval is not shown and likely could not be seen due to the small size of the cross section. Cross sections don't show the three zones within the principal aquifer, except by association with the formations. Model Section D-D' is equivalent to GSP Section C-C' and D-D' shows the Corcoran Clay. The Corcoran Clay is shown on southern end (7 miles) of Section E-E' but not at the southern end of Section D-D'. According to DWR (1981/2008), the top of the Corcoran Clay cannot be delineated to the east of Highway 99 at Manteca, but Section E-E' is located further east of Highway 99 and would not encounter the clay until several miles further south of the subbasin boundary. Moreover, the depth to the top might be 200 feet on the west side of Manteca, south of Highway 120, which is within the southernmost alignment of Section D-D'. The presence of the Corcoran Clay appears to be more related to the DWR model of the Central Valley than to well logs.	Basin Setting	The level of detail in the GSP is appropriate for a conceptual model of the Subbasin, and the number of cross-sections already exceeds SGMA requirements. Additionally, the well logs for wells shown in the cross-sections are public for detailed review. The representation of Corcoran Clay cross-sections is based on previous work from DWR and is consistent with the latest released version of C2VSim. The image resolution was increased to help with zooming in on small areas.
81	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Cross sections are too small, even printed on 11 x 17" paper, as the well labels are not legible. Scale of 0.36 to 0.45 inch per 1000 feet is not reasonable. The Stockton Fault is not depicted or located on Sections D-D' and E-E'. Page 2-38, first paragraph refers to "well screen interval (shown in red)." but the interval is not shown and likely could not be seen due to the small size of the cross section. Cross sections don't show the three zones within the principal aquifer, except by association with the formations. Model Section D-D' is equivalent to GSP Section C-C' and D-D' shows the Corcoran Clay. The Corcoran Clay is shown on southern end (7 miles) of Section E-E' but not at the southern end of Section D-D'. According to DWR (1981/2008), the top of the Corcoran Clay cannot be delineated to the east of Highway 99 at Manteca, but Section E-E' is located further east of Highway 99 and would not encounter the clay until several miles further south of the subbasin boundary. Moreover, the depth to the top might be 200 feet on the west side of Manteca, south of Highway 120, which is within the southernmost alignment of Section D-D'. The presence of the Corcoran Clay appears to be more related to the DWR model of the Central Valley than to well logs.	Basin Setting	The level of detail in the GSP is appropriate for a conceptual model of the Subbasin, and the number of cross-sections already exceeds SGMA requirements. Additionally, the well logs for wells shown in the cross-sections are public for detailed review. The representation of Corcoran Clay cross-sections is based on previous work from DWR and is consistent with the latest released version of C2VSim. The image resolution was increased to help with zooming in on small areas.
82	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	The eastern side of the sections show 1,500 feet and nearly 2,100 feet, respectively, of sedimentary formations without presenting an explanation. Section A-A' shows these formations thinning eastward on top of bedrock. Sections B-B' and C-C' suggest a substantial aquifer further east and the model sections show similar conditions. This thick eastern boundary is not discussed in the text and will produce a high-end bias for the estimate of groundwater storage which could lead to the false sense of sustainability.	Model Uncertainties	The current model thickness is consistent with the DWR's C2VSim model and is an area for enhancement in model refinements. New monitoring wells shown in Figure 4-3 in Section 4.71 (Plan to Fill Data Gaps) will help refine the model thickness through new information about the aquifer on the eastern side of the Subbasin. Comment noted for follow up in next round of model refinements and updates.
83	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	The eastern side of the sections show 1,500 feet and nearly 2,100 feet, respectively, of sedimentary formations without presenting an explanation. Section A-A' shows these formations thinning eastward on top of bedrock. Sections B-B' and C-C' suggest a substantial aquifer further east and the model sections show similar conditions. This thick eastern boundary is not discussed in the text and will produce a high-end bias for the estimate of groundwater storage which could lead to the false sense of sustainability.	Model Uncertainties	The current model thickness is consistent with the DWR's C2VSim model and is an area for enhancement in model refinements. New monitoring wells shown in Figure 4-3 in Section 4.71 (Plan to Fill Data Gaps) will help refine the model thickness through new information about the aquifer on the eastern side of the Subbasin. Comment noted for follow up in next round of model refinements and updates.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
84	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	What about the stratigraphy of the Shallow and Intermediate Zones? Why are is the stratigraphy of the deeper than Deep Zone referenced when few wells are deeper than 500 feet?	Basin Setting	The level of detail in the GSP is appropriate for a conceptual model of the Subbasin.
85	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	The focus of this paragraph is odd. The atmosphere is comprised of 78% nitrogen and the soils and underlying rock in the upland watersheds appears to absorb and store nitrogen. The real important issue is the occurrence of nitrate in the subbasin. How much nitrate occurs in the Mokelumne River (and other rivers) as that surface water enters the subbasin? Why is nitrate omitted from the list of anions in the next paragraph? Why wasn't a box-and-whisker diagram prepared for nitrate to show its variations between 2005 and 2017?	Basin Setting	Comment noted. Additional data on nitrate in the Subbasin is included in Section 2.2.4.2 (Nitrate). Nitrate was left off the list of water quality parameters in Section 2.1.9.2.3.1 (Geologic Formation Water Quality) as it is covered by separate monitoring and regulation programs.
86	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	The proportions of water in the budgets don't vary more than a few percentage point which is likely due to the long-term overlapping periods of data. See previous comments on the use of a 50-year period for current conditions. Totals for main categories of inflow and outflow don't match table totals (due to rounding [?]). Tables 2-13 and 2-14 may exhibit similar discrepancies.	Water Budget	Added a footnote to Tables 2-13, 2-14, 2-15, 2-16, and 2-17 clarifying that: "Summations in table may not match the numbers in the table. This is due to the rounding of model results."
87	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Section needs a figure for projected groundwater budget similar to the historical conditions of 1996 to 2015 (Figure 2-51) and for climate change (Figure 2-102). What about groundwater budget information for Wys 2016, 2017, and 2018?	Water Budget	The current text, tables, and figures for the water budget meet the requirements of the GSP. The current version of the model includes data through water year 2015 (September 2015). Future refinements to the model will include data updates to include 2016 through 2018.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
88	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Does this 50-year average approach really support operations within this sustainable yield within the 20-year planning and implementation horizon? The sustainable yield would appear to range from 643,000 AF/yr to 715,000 AF/yr to 787,000 AF/yr. Table 2-17 says the 50-year total groundwater supply is 801,000 AF/yr, which is 86,000 AF/yr greater than the sustainable yield. Text on page 2-148 also refers to 801,000 AF/yr as private groundwater production.	Water Budget	The sustainable yield scenario of the ESJWRM tests if a simulated demand reduction is sustainable over 50 years of varying hydrologic data. The 20-year implementation period was included to allow for changes to occur in the Subbasin before 2040 and for groundwater levels to continue to drop. The text in Section 2.3.6 (Sustainable Yield Estimate) was edited to clarify that demand reductions slowly ramp up over the 20-year period: "In order to account for the challenges of implementing the GSP, this Plan assumes future operations include a ramping up of demand reduction actions (e.g., projects that reduce groundwater pumping or increase recharge) for a 20-year period and groundwater levels will continue to decline until 2040."
89	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Does this 50-year average approach really support operations within this sustainable yield within the 20-year planning and implementation horizon? The sustainable yield would appear to range from 643,000 AF/yr to 715,000 AF/yr to 787,000 AF/yr. Table 2-17 says the 50-year total groundwater supply is 801,000 AF/yr, which is 86,000 AF/yr greater than the sustainable yield. Text on page 2-148 also refers to 801,000 AF/yr as private groundwater production.	Water Budget	The sustainable yield scenario of the ESJWRM tests if a simulated demand reduction is sustainable over 50 years of varying hydrologic data. The 20-year implementation period was included to allow for changes to occur in the Subbasin before 2040 and for groundwater levels to continue to drop. The text in Section 2.3.6 (Sustainable Yield Estimate) was edited to clarify that demand reductions slowly ramp up over the 20-year period: "In order to account for the challenges of implementing the GSP, this Plan assumes future operations include a ramping up of demand reduction actions (e.g., projects that reduce groundwater pumping or increase recharge) for a 20-year period and groundwater levels will continue to decline until 2040."
90	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Groundwater along the northern boundary are monitored by two shallow CASGEM wells (Wells 04N07E20H003 and 04N05E24J003) that are 3.3 to 4.2 miles south of the Cosumnes Subbasin. These wells are located ~8 miles apart along the 26-mile E-W subbasin boundary (excludes 4-mile N-S boundary with Amador County). Additional monitoring wells should be installed along to the boundary to cover the entire length, including deeper wells, to better define cross boundary flow, vertical gradients, and the surface water-groundwater interaction.	Monitoring Network	As described in Section 4.7 (Data Gaps) and shown in Figure 4-3, additional groundwater monitoring wells are planned for the Subbasin to fill recognized data gaps. Two of these wells are adjacent to Dry Creek and will provide data relevant to stream-aquifer interaction, as well as subsurface flows across the groundwater subbasin boundary shared with Cosumnes Subbasin. One of the wells, a deep nested well, was included in the TSS funding application and is located along the boundary shared with Cosumnes Subbasin (about midway along the portion of Dry Creek bordering the Subbasin). The second well along Dry Creek is shallow and will be funded by the GWA. Additional information will be provided by wells installed and maintained along the boundary by the GSAs within the Cosumnes Subbasin, which will also be incorporated into future GSP updates. The text in Section 4.7 (Data Gaps) was updated to reflect additional details about the proposed new monitoring wells and locations of the TSS wells.
91	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Section A-A' is located somewhat north of GSP Section A-A'. The GSP section shows the sedimentary formations thinning eastward on top of bedrock. Whereas, the model section shows over 1000 feet of sediments along the eastern boundary of the model. This extra thickness in the model provides additional groundwater storage which could contribute to a false sense of sustainability.	Model Uncertainties	Sustainability is measured through field monitoring and comparison with minimum thresholds, allowing for identification of sustainable conditions. The current model thickness is consistent with the DWR's C2VSim model and is an area for enhancement in model refinements. New monitoring wells shown in Figure 4-3 in Section 4.71 (Plan to Fill Data Gaps) will help refine the model thickness through new information about the aquifer on the eastern side of the Subbasin. Comment noted for follow up in next round of model refinements and updates.
92	Stockton East Water District	Stockton East Water District GSA	Data on private pumping is available from Stockton East Water District, was provided to the consultant, and is more accurate that that calculated by the consumptive use methodology.	Water Budget	Comment noted for follow up in next round of model refinements. Added text to Section 2.3.4.1 to clarify that private groundwater pumping was estimated the same way across the subbasin for consistency: "Data on private pumping was not available on a consistent basis across the model, so private pumping was estimated as that which would be required to meet agricultural and rural residential water needs as calculated by the ESJWRM model based on consumptive use methodology (Refer to the ESJWRM documentation for details)."

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93	Stockton East Water District	Stockton East Water District GSA	Data on private pumping is available from Stockton East Water District, was provided to the consultant, and is more accurate that that calculated by the consumptive use methodology.	Water Budget	Comment noted for follow up in next round of model refinements. Added text to Section 2.3.4.2 to clarify that private groundwater pumping was estimated the same way across the subbasin for consistency: "As private groundwater pumping was estimated by ESJWRM in the historical calibration, there is no local estimate of current private groundwater pumping available on a consistent basis across the model."
94	Stockton East Water District	Stockton East Water District GSA	Data on private pumping is available from Stockton East Water District, was provided to the consultant, and is more accurate that that calculated by the consumptive use methodology.	Water Budget	Comment noted for follow up in next round of model refinements. Added text to Section 2.3.4.2 to clarify that private groundwater pumping was estimated the same way across the subbasin for consistency: "As private groundwater pumping was estimated by ESJWRM in the historical calibration, there is no local estimate of projected private groundwater pumping available on a consistent basis across the model."
95	Barbara Barrigan-Parrilla	Restore the Delta	Restore the Delta is by and large disappointed with the Draft GSP's climate change analysis. The Draft GSP provides no broad overview of what effects climate change is likely to have on Subbasin groundwater resources. There is not even a summary of the California Fourth Climate Change Assessment commentary on what effects are expected in California as we step-by-step enter that climate future. Instead, the Draft GSP presents only a turgid, technical description of its use of DWR climate-change models and the results of those models. This should have been limited to an appendix, and the results simply summarized in the Draft GSP. Instead, the modeling results are presented with little context. The state has presented a comprehensive, region-by-region analysis of climate change effects, and the Draft GSP needs to apply it—both to educate the Subbasin publics (including disadvantaged communities) and to place DWR-based climate change analytic results in context. As drafted, the climate change analysis has been done; GSA staff can check the box for providing a minimally adequate GSP to the state. The water users of the Subbasin deserve more, however. They deserve a Final GSP that tells them what the analysis means for the future of Subbasin groundwater resources and communities, and how it plays out relative to each of the sustainability indicators the Draft GSP puts forward.	Climate Change	The GWA has noted the resource provided and has determined that it is not necessary to include a summary of the California Fourth Climate Change Assessment. The climate change analysis meets the requirements of the GSP. Climate change will continue to be evaluated with every update to the GSP.
96	Barbara Barrigan-Parrilla	Restore the Delta	We ask a similar question as above of the GWA: if a toxic plume suddenly spikes at three or more of the ten water quality monitoring wells, is the Draft GSP to be interpreted as meaning that the GWA would wait up to two years before taking any kind of action to protect public health and safety and address the contamination? Why does this indicator even have a time/duration threshold before enabling the GWA to identify, prevent, or mitigate an undesirable result? As with the cost discussion, what actions does the GWA commit to in order to stem the breaching of the minimum water quality thresholds it has put forward? Would it really allow saltwater intrusion, for example, to proceed for two years before acting to push back the isohaline toward the Delta? That would cost a lot more in water injections and scarce dollars, for example, than if authority for action contained in the Draft GSP allowed more prompt assessment and prevention of saltwater intrusion. [SEE MORE SPECIFCS IN COMMENT LETTER]	Sustainable Management Criteria	Sustainable management criteria and the choosing of minimum thresholds are meant to be representative of not only one point in time, but of long-term conditions in the Subbasin. By looking at two consecutive years, rather than a single year, we can remove short-term/outlier measurements and determine if conditions are reflective of longer-term trends. Furthermore, the nature of the definition of undesirable results do not preclude early action if deemed warranted by the GSAs.
97	Barbara Barrigan-Parrilla	Restore the Delta	The remaining three indicators in the Draft GSP address sea water intrusion, land subsidence, and depletion of interconnected surface water. Restore the Delta feels that these three indicators in the Draft GSP would all benefit from similar critical review and treatment (including redefinition to include existing undesirable baseline conditions) that we have outlined above for the first three indicators; indeed, our specific comments on reconnecting losing streams to groundwater systems apply to Section 3.2.6 on depletion of interconnected surface water, including our comments about the relationships of disadvantaged communities to these natural hydrologic systems.	Sustainable Management Criteria	The GWA supports the sustainable management criteria as written. The purpose of the criteria is to identify what is significant and unreasonable with a focus on long-term conditions in the Subbasin. The GSAs of the GWA can decide to take action at any point when established thresholds are violated.

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98	Jane Wagner-Tyack	Communication Consultant	"Pre-Modesto formations" are mentioned here, but I didn't see those defined earlier, and the Geologic Time Scale in Figure 2-5 appears not to be designed to include them. They are referenced again in Section 2.1.4.5.1. "During the Pleistocene Epoch when the Modesto and Riverbank formations were deposited..." Can you provide a second Time Scale showing more detail for the Pleistocene?	Basin Setting	The pre-Modesto formation is earlier in the Pliocene era, as seen in Table 2-2. The geologic time scale in Figure 2-5 is sufficient for the purposes of the discussion in the GSP.
99	Brandon Nakagawa	SSJGSA	SJc also has a monitoring protocol and safety manual which could be referenced in the GSP and also update at a later date possibly to include data handling and database management..	Monitoring Network	Comment noted. The current monitoring protocols meet the requirements of SGMA.
100	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The draft GSP has significant and critical gaps in understanding of conditions, which contributes to inadequate modeling. The data gaps identified in the draft GSP include the following: —Water quality of principal aquifers —Aquifer characteristics —Groundwater Level Data —Groundwater Quality Data —Subsurface Conditions This extensive list of missing data indicates that the technical fundamentals of the subbasin's hydrologic and water quality are absent, that the ongoing lack of data collection and analysis is problematic, and calls into question the basis for establishing reliable and defensible thresholds.	Model Uncertainties	The HCM data gaps identified in the GSP are areas where sufficient data was either unavailable or nonexistent at the time the GSP was put together and the model was calibrated. The model will continue to be refined with every update to the GSP and as data becomes available to fill in any data gaps.
101	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	To rectify data gaps, a concerted program to resolve data gaps should be developed, funded and implemented. Further, these data gaps preclude the ability to track consistency with the GSP, and ultimately to ensure sustainability. furthermore, there are significant defects in the GSPs proposed monitoring approach.	Monitoring Network	The GWA is committed to resolving the data gaps identified during the GSP development process. The Prop 68 funds are designed to help address identified data gaps and the current application focuses on groundwater flow in the northwestern portion of the Subbasin with plans for additional monitoring wells in that area. As discussed in Section 7.6.4 (Monitoring Network Description), a program may be developed for the GSP update to help fill new or remaining data gaps.
102	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	Sampling frequency was reduced to 2 events a year for 'representative' monitoring wells. This seems far too infrequent, given the DWR documented 'critically over-drafted' basin condition, existing cones of depression, and the limited number of monitoring wells proposed . (Discussed at July 10, 2019 GWA Board Meeting.) DWR has identified that the well sampling frequency should be based on groundwater conditions and hydrogeologic understanding. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-2-Monitoring-Networks-and-Identification-of-Data-Gaps.pdf	Monitoring Network	Frequency of groundwater level monitoring is cited in the Draft Monitoring Networks and Identification of Data Gaps Best Management Practice. While semi-annual monitoring is required for groundwater levels, DWR guidance recommends monthly sampling of groundwater levels for the Subbasin based on aquifer type, volume of long-term aquifer withdrawals, and recharge potential. The GWA Board determined semi-annual sampling was appropriate as it will capture seasonal highs and lows and that additional monitoring would not necessarily provide additional information on trends. If a need for more frequent monitoring is recognized, the monitoring frequency will be reevaluated as updates to the GSP occur.
103	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The draft GSP approach in number, location and frequency of sampling of wells appears to be inconsistent with the DWR BMPs. Generally, there are too few wells, and they are spatially dispersed outside of the cone(s) of depression over a very large subbasin, and limited sampling frequency will make it difficult to track the sustainability criteria and associated thresholds, the effectiveness of the GSP, and to begin to detect impacts to Groundwater Dependent Ecosystems (GDEs).	Monitoring Network	The GWA Board supports the inclusion of the monitoring network as presented and approved it in July 2019. If a need for more detail is recognized, the monitoring network will be reevaluated as updates to the GSP occur. Data gaps are discussed in Section 4.7 (Data Gaps) and include a plan for the drilling of up to 12 additional monitoring wells to help resolve identified gaps in well locations. Frequency of groundwater level monitoring is cited in the Draft Monitoring Networks and Identification of Data Gaps Best Management Practice. While semi-annual monitoring is required for groundwater levels, DWR guidance recommends monthly sampling of groundwater levels for the Subbasin based on aquifer type, volume of long-term aquifer withdrawals, and recharge potential. The GWA Board determined semi-annual sampling was appropriate as it will capture seasonal highs and lows and that additional monitoring would not necessarily provide additional information on trends.
104	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	Only one large cone of depression, an area of significantly reduced water table elevation, is identified in the GSP. This singular feature differs from previous analyses in the Cosumnes and South American subbasins; and, the degree of resolution of the data presented makes it difficult to tell if there are one or more distinct cones in the central part of the subbasin, but in any case the model shows depletion along Staten Island.	Basin Setting	Added text to Section 2.2.1.2 (Current Groundwater Conditions) referencing the localized depression forming across the Cosumnes-Eastern San Joaquin Subbasin boundary and clarifying that the central depression in the Subbasin is most significant to achieving sustainability in the Subbasin: "A localized depression area is shown expanding from Cosumnes Subbasin across Dry Creek to Eastern San Joaquin Subbasin in Fourth Quarter 2017. However, from the perspective of the entire Eastern San Joaquin Subbasin, the central pumping depression east of the City of Stockton is most significant to achieving sustainability in the Subbasin."

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105	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The model(s) appear to show groundwater elevation declines in the Delta, including Staten Island. These data need further investigation since that condition seems unlikely and not supported by DWR and other groundwater elevation analyses. ESJ consultants were asked to explain why there were so many apparent discontinuities from the adjacent subbasin documented depressions, and the apparent errors in reporting of groundwater elevations in the Delta. For example, there are inexplicably irregular patterns of groundwater elevations shown for the Delta. The response was that the model itself had some challenges in development and that stakeholders could ignore those results. There is apparently limited quality control in the modeling effort, and erroneous results were not identified in the draft GSP. To the extent the GSP continues to rely on this modeling, it should identify where and how the data is not considered accurate. Or, if there are significant caveats, how and where those apply.	Model Uncertainties	Groundwater conditions in the Delta area are not depressed and are not contributing to the overall groundwater issues in the Subbasin. During the development of the model there was not sufficient data in terms of groundwater usage and/or long-term trends in groundwater levels that would support detailed calibration of the model in the Delta area. Therefore, in consultation with the stakeholders representing the Delta area, the level of effort in calibrating the model for that area was minimized and more effort was put into the calibration of the central portion of the Subbasin. Depending on the quality of additional data that could become available, further refinements in calibration could be performed during the next round of model refinements.
106	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	Similarly, Interconnected Surface Waters (ISW) analysis in the draft GSP shows portions the sloughs as being variously 'always losing' and 'always gaining' around the perimeter of Staten Island. Yet, these gaining sections (all at or below sea level) are further identified 'disconnected' from the groundwater system. When asked about this obvious error in groundwater depletion modeling below sea level for several streams and Delta sloughs, the staff response was that it appears to be a modeling calibration error. It seems unlikely that these data were reviewed before publication. If they were reviewed, it would be expected that the text of the draft GSP would explain why it was incorrect or uncertain and how that was being resolved. This discrepancy raises concerns about the quality and the reliability of the GDE and ISW analyses.	Model Uncertainties	Figures 3-64 and 3-65 were reviewed for consistency based on comments received. Language in Section 2.2.6 (Interconnected Surface Water Systems) was updated to describe gaining and losing streams as "gaining most of the time" and "losing most of the time" and Figure 2-65 was updated accordingly. Figure 2-66 was updated to display stream nodes gaining most of the time as interconnected and the language was updated to "interconnected greater than 75% of the time" and "interconnected less than 75% of the time." A sentence was added discussing stream nodes in the Delta area being represented as disconnected in the historical simulation: "The Delta areas are not known to be ever less interconnected as shown in select areas in Figure 2-66. This is not representative of actual conditions in the Subbasin and instead is due to uncertainties in the modeling of that area."
107	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The well network and associated chloride concentrations used in the analysis do not adequately represent Delta locations or the potential for associated sea/brackish water intrusion into shallow groundwater. Significantly more wells at various depths are required to show current conditions, and to detect future impacts within the Delta.	Monitoring Network	Data gaps are discussed in Section 4.7 (Data Gaps) and include a plan for the drilling of up to 12 additional monitoring wells to help resolve identified gaps. Two of these wells are shallow and planned for locations along San Joaquin River in the Delta and, if constructed, would provide more data on both water quality and groundwater levels in the Delta.
108	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	Given the limited number of monitoring wells over a vast area, this standard is inadequate for the detection of a groundwater impact. The standard would require the source of the exceedance to be known, and that source to be the 'result of groundwater management activities'; that there is a monitoring well in proximity, that the exceedance in detected in the twice a year sampling; that two additional wells are located in the proximity and have similar detections with similar identified causes; and, moreover that those detections happen over two years. Those conditions are obviously unlikely to ever be met; the proposed well monitoring network appears to be so dispersed to ensure that exceedances could only be met at one well at the most.	Monitoring Network	The GWA Board supports the inclusion of the monitoring network as presented and approved it in July 2019. If a need for more frequent monitoring or more monitoring wells is recognized, the monitoring program and groundwater quality sustainable management criteria will be reevaluated as updates to the GSP occur. The broad monitoring network for groundwater quality will also be evaluated to test for the extent of exceedances and will help indicate if the monitoring program should be reexamined in future updates to the GSP.
109	Chris Thomas cthomas@thefreshwatertrust.org /northerndeltagsa@gmail.com	Northern Delta Sustainability Agency/NDGSA Associate Member Staten Island-Conservation Farms and Ranches	The draft GSP is lacking in available data and an adequate proposed monitoring approach. The draft GSP should be modified and updated to include reasonable, scientifically supported thresholds, better track sustainability, and meet SGMA statutory requirements. The draft GSP should also be updated to clarify where the data and the visualizations are not accurate and what process will be applied to improve them.	Monitoring Network	The GWA recognizes a number of data gap areas related to GDEs, interconnected surface waters, and overall monitoring network coverage, as discussed in Section 4.7 (Data Gaps). The plan is supported by the best available data and science and meets the requirements of SGMA. The GWA Board supports the inclusion of the monitoring network as presented and approved it in July 2019.
110	Jane Wagner-Tyack	Communication Consultant	Include more information about public water systems. [SEE MORE SPECIFICS IN COMMENT LETTER]	Basin Setting	1) An appendix has been added to the GSP which documents the 432 community water systems that received hard copy outreach materials throughout the GSP development process. The appendix is referenced in Section 1.3.4.4 (Stakeholder Database); this section was also updated to list the dates that outreach materials were mailed to community water systems. An analysis was performed to map community water systems that are DAC or SDAC areas, and the results of this analysis are presented in the added appendix. 2) Section 1.3.1 (Beneficial Uses and Users in the Subbasin) was updated to include community water systems and reference the added appendix. Additionally, the bullet reference public water systems was changed to reference Figure 1-13 rather than Section 1.1.4.3.
111	Kevin Thomas	CA Department of Fish and Wildlife	Projected water budget assumptions may risk overestimating surface water availability and sustainable yield by not relying on best available information [23 COR § 354.18(e)]. a. Issue: Projected surface water budget assumptions may risk overestimating water availability. Overestimation of water availability can result in the overallocation of both surface and groundwater water resources, unnecessarily jeopardizing environmental beneficial users. Two water budget assumptions that do not rely on best available information and that underscore current sustainable yield estimations are as follows: 1) the climate change analysis predicting a net depletion of aquifer storage is not reflected in the projected water budget or estimated sustainable yield, rather it is presented as a separate analysis; and 2) projected surface water deliveries need to be updated to reflect any new regulatory reductions of surface water deliveries such as those that may be codified in the State Water Resources Control Board Water Quality Control Plan for the Bay Delta: San Joaquin River Flows and Southern Delta Water Quality. b. Recommendation: Amend the water budget and sustainable yield: 1) apply climate change estimates to the projected water budget and scale the sustainable yield accordingly; and 2) adjust surface water delivery estimates to reflect any new regulatory compliance.	Water Budget	1) Consistent with regulations, the 2070 climate change sensitivity analysis on the projected conditions scenario was used to better understand trends and inform planning. Due to the uncertainty around climate projections in the 2070 timeframe, the GWA Board determined the projected conditions scenario was most appropriate for analyzing sustainable yield in the GSP implementation time period beginning in 2040. Therefore, the sustainable yield analysis did not include climate change. Comment noted for follow up in next round of model refinements and updates to analyses. 2) Added text to Section 2.3.5 (Water Budget Estimates) clarifying that climate change was a separate scenario: "Hydrology under climate change projections was evaluated in a separate ESJWRM scenario and results are discussed separately in Section 2.3.7.4." 3) Added text to Section 2.3.6 (Sustainable Yield Estimate) clarifying that climate change was not part of the analysis: "The sustainable conditions scenario, building off the project conditions scenario, does not include climate change discussed in Section 2.3.7. Due to the uncertainty around climate projections in the 2070 timeframe, the GWA Board determined the projected conditions scenario was most appropriate for analyzing sustainable yield in the GSP implementation time period beginning in 2040." 4) The SWRCB did adopt the water quality control plan for the Bay-Delta, which has an impact on the Subbasin and will be addressed in future updates to the GSP. Given the timeframe of the GSP being adopted, it was not possible to include the new regulations in the analysis in this GSP and they will be included in future iterations.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
112	Kevin Thomas	CA Department of Fish and Wildlife	Number and distribution of groundwater monitoring wells are insufficient for analysis. a. Issue: The current monitoring network lacks a sufficient number and representative distribution of shallow groundwater monitoring wells to monitor impacts to environmental beneficial uses and users of groundwater and interconnected surface waters [23 CCR § 354.34(2)], Few wells are near interconnected surface waters or concentrations of] GDEs; and therefore, there are few data points on shallow groundwater level trends. These data are critical to understanding groundwater management impacts on fish and wildlife beneficial uses and users of groundwater, including GDEs and interconnected surface water habitats, that are impacted disproportionately by shallow groundwater trends. b. Recommendation: Install additional shallow groundwater monitoring wells near GDEs and interconnected surface waters, potentially pairing multiple-completion wells with streamflow gauges for improved understanding of surface water-groundwater interconnectivity.	Monitoring Network	Data gaps are discussed in Section 4.7 (Data Gaps) and include identified gaps in the monitoring and analysis of interconnected surface waters and GDEs. The GSP includes a plan for the drilling of up to 12 proposed wells to help resolve identified gaps and enhance future analysis of interconnected surface waters and GDEs. These proposed wells would all measure for both groundwater quality and groundwater levels and include 2 deep, nested wells funded under the TSS application and up to 10 shallow wells drilled by the GWA. If a need for more detail is recognized, the monitoring network will be reevaluated as updates to the GSP occur. Frequency of groundwater level monitoring is cited in the Draft Monitoring Networks and Identification of Data Gaps Best Management Practice. While semi-annual monitoring is required for groundwater levels, DWR guidance recommends monthly sampling of groundwater levels for the Subbasin based on aquifer type, volume of long-term aquifer withdrawals, and recharge potential. The GWA Board determined semi-annual sampling was appropriate as it will capture seasonal highs and lows and that additional monitoring would not necessarily provide additional information on trends.
113		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The GSP identifies that information on domestic well construction including screen interval depths, are not available. However, the GSP does not identify a plan to fill this data gap, even though this information is critical to the GSA's establishment of their water level MTs. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	Though the GWA is not currently planning to collect construction information about domestic wells, any information that is shared or becomes publicly available will be reviewed for use in updates to the GSP.
114		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Providing maps of the monitoring network overlaid with location of DACs, GDEs, and any other sensitive beneficial users will allow the reader to evaluate the adequacy of the network to monitor conditions near these beneficial users. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	The plan is supported by the best available data and science and meets the requirements of SGMA. The GWA Board supports the inclusion of the monitoring network as presented and approved it in July 2019.
115		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	It is not clear how climate change is anticipated to change the demands of domestic users and small public water systems or how these demands were accounted for in the projected water budget. [SEE MORE SPECIFICS IN COMMENT LETTER]	Climate Change	There was no specific analysis done on the impact of climate change on domestic users and small public water systems apart from the simulation of both in the climate change model scenario as a part of the broader urban classification including all cities, private domestic users, and public water systems. Climate change will continue to be evaluated with every update to the GSP. Comment noted for follow up in next round of model refinements and updates to analyses.
116		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Please include an explanation of the approach to determining the amount of riparian ET demand met by streamflow vs. groundwater evapotranspiration. [SEE MORE SPECIFICS IN COMMENT LETTER]	Water Budget	Riparian evapotranspiration is included in the water budget (part of "Refuge, Native, and Riparian Evapotranspiration" in Table 2-14) and simulated in the model. Both streamflow and groundwater can contribute to meeting riparian evapotranspiration demand and the amount of demand met by each component is estimated directly by the model. "Riparian Intake from Streams" in Tables 2-13 and 2-14 includes all surface water and groundwater contributing to riparian demand through stream-aquifer interaction. The ESJWRM model does not have the level of detail to determine how much groundwater is consumed by riparian demand.
117		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Groundwater outflow to ET does not appear to be identified as a groundwater budget component. In addition, the ET demand of natural vegetation does not appear to be considered in water supply and demand calculations. Since wetlands, GDEs and riparian vegetation are recognized as beneficial users of groundwater in the Subbasin, it is appropriate to include them in these calculations. [SEE MORE SPECIFICS IN COMMENT LETTER]	Water Budget	1) Groundwater outflow to evapotranspiration is not directly included as a water budget component and is simulated indirectly in ESJWRM through stream-aquifer interaction and seepage of pumped groundwater. 2) Wetlands, GDEs, riparian vegetation, and native (or natural) vegetation are recognized as beneficial users and are included in the water budget, though not separated out and are part of "Refuge, Native, and Riparian Evapotranspiration". There is not enough information at this time to determine how much groundwater is consumed by each of these demands. 3) This GSP recognized GDEs as a data gap in both the determination of GDEs in the Subbasin as well as the simulation of GDEs in the model. In the model, GDEs are broadly assumed to be represented as native vegetation as they are not specifically included in land use surveys. This representation removes the realistic variation of rooting depths across GDEs and we will consider the specific simulation of GDEs in future updates to the model. Comment noted for follow up in next round of model refinements and updates.
118		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The GSP clearly identifies plans to address data gaps in the monitoring network near streams, but does not clearly identify whether data gaps exist near DACs/drinking water users. A map illustrating the location of current and proposed monitoring well locations and depths relative to domestic and small public water systems wells and depths would allow the reader to assess the adequacy of the proposed network for monitoring impacts to these beneficial users. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	The GWA Board supports the inclusion of the monitoring network as presented and approved it in July 2019. Data gaps are discussed in Section 4.7 (Data Gaps) and include identified gaps in the monitoring and analysis of interconnected surface waters and GDEs. The GSP includes a plan for the drilling of up to 12 proposed wells to help resolve identified gaps and enhance future analysis of interconnected surface waters and GDEs. These proposed wells would all measure for both groundwater quality and groundwater levels and include 2 deep, nested wells funded under the TSS application and up to 10 shallow wells drilled by the GWA. The plan meets the requirements of SGMA and does not require an additional figure at this time.
119		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Very few of the remaining monitoring wells are located near potential ISWs and GDEs. Specific monitoring of GDEs and ISWs should be described to further evaluate, monitor, manage and protect these areas. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	The GWA Board determined the monitoring network is consistent with SGMA regulations. If a need for more detail recognized, the monitoring network will be reevaluated as updates to the GSP occur. Data gaps are discussed in Section 4.7 (Data Gaps) and include identified gaps in the monitoring and analysis of interconnected surface waters and GDEs. The GSP includes a plan for the drilling of up to 12 proposed wells to help resolve identified gaps and enhance future analysis of interconnected surface waters and GDEs. These proposed wells would all measure for both groundwater quality and groundwater levels and include 2 deep, nested wells funded under the TSS application and up to 10 shallow wells drilled by the GWA.
120		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	It is not possible to determine whether the proposed monitoring, minimum thresholds and measurable objectives are sufficiently protective to ensure significant and unreasonable impacts to GDEs and ISWs will be prevented. The GDE Pulse interactive mapping application14 provides an example of a linkage between groundwater level data and GDE health that could be used to incorporate remote sensing into an efficient and incisive monitoring program. Please provide an explanation how groundwater levels will specifically be used to assess adverse impacts to GDEs and ISWs, and identify any data gaps and how they will be addressed. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	The GWA Board determined the monitoring network is consistent with SGMA regulations. If a need for more detail recognized, the monitoring network will be reevaluated as updates to the GSP occur. Data gaps are discussed in Section 4.7 (Data Gaps) and include identified gaps in the monitoring and analysis of interconnected surface waters and GDEs. The GSP includes a plan for the drilling of up to 12 proposed wells to help resolve identified gaps and enhance future analysis of interconnected surface waters and GDEs. These proposed wells would all measure for both groundwater quality and groundwater levels and include 2 deep, nested wells funded under the TSS application and up to 10 shallow wells drilled by the GWA. GDE Pulse will be evaluated for use in the next round of GSP updates.
121		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Monitoring well locations should be prioritized near high value or sensitive resources (GDEs) that are vulnerable to significant and unreasonable impacts, such as near the protected lands identified in our comments on Section 1.3.1 or the GDEs identified in the Subbasin. In addition to the major streams and rivers in the subbasin, impacts to smaller creeks and wetland areas should be considered, as these may be the most vulnerable resources. Please discuss the results of a resource assessment or consultations with resource managers that demonstrates a sufficient number of wells is proposed to address data gaps near GDEs and ISWs, and that they are being sited where they will provide the most benefit. Alternatively, please outline the process by which this will be accomplished. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	The GWA Board determined the monitoring network is consistent with SGMA regulations. If a need for more detail recognized, the monitoring network will be reevaluated as updates to the GSP occur. Data gaps are discussed in Section 4.7 (Data Gaps) and include identified gaps in the monitoring and analysis of interconnected surface waters and GDEs. The GSP includes a plan for the drilling of up to 12 proposed wells to help resolve identified gaps and enhance future analysis of interconnected surface waters and GDEs. These proposed wells would all measure for both groundwater quality and groundwater levels and include 2 deep, nested wells funded under the TSS application and up to 10 shallow wells drilled by the GWA.
122		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Section 5.3 Table 5.3 indicates that data regarding streamflow and GDEs is not currently included in the proposed Data Management System. Please discuss which monitoring data for "related surface conditions" will be gathered and incorporated in the DMS to assess potential significant and unreasonable impacts to environmental beneficial uses and users. [SEE MORE SPECIFICS IN COMMENT LETTER]	DMS	Surface water data, including streamflow and water quality, is readily and publicly available online and has not be separately added to the DMS, though the system is set up to store streamflow and many other different types of data. Streamflow and surface water gage data was used both to build and calibrate the model, as well as in various analyses for the GSP. All groundwater level monitoring data will be evaluated for analysis of groundwater-surface water interaction and other surface conditions. As GDEs are a recognized data gap in the GSP, additional data may be collected that will be considered for addition to the DMS.
123		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	In Section 7.3.1, please clarify the potential use of imagery as a monitoring tool, and expand it to monitoring surface indicators of ISW and GDE ecosystem health. [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	While there are currently no specific plans regarding the use of imagery is a monitoring tool, any publicly available tools will be evaluated for use in updates to the GSP.
124		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	In Section 7.3.2.2, please specifically address ecosystem health of GDEs and ISWs as a surface indicator to subsurface conditions. This can be done using GDEPulse, remote sensing, imagery or other feasible methods [SEE MORE SPECIFICS IN COMMENT LETTER]	Monitoring Network	While there are currently no specific plans regarding the use of imagery is a monitoring tool, any publicly available tools will be evaluated for use in updates to the GSP.
125		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Based on the presented information, domestic well uses are considered under URs and for the development of water level MOS and MTs, but DAC members are not explicitly considered. More detail and specifics regarding DAC members, including those that rely on smaller community drinking water systems, not only domestic wells, is necessary to demonstrate that these beneficial users were adequately considered. [SEE MORE SPECIFICS IN COMMENT LETTER]	Sustainable Management Criteria	Groundwater level minimum thresholds considered domestic wells in the analysis to determine the thresholds with the intent of being protective of 90% of domestic wells. In the Subbasin, 22 percent of domestic wells are located within DACs. An appendix has been added to the GSP which documents the 432 community water systems that received hard copy outreach materials throughout the GSP development process. The appendix is referenced in Section 1.3.4.4 (Stakeholder Database); this section was also updated to list the dates that outreach materials were mailed to community water systems. An analysis was performed to map community water systems that are DAC or SDAC areas, and the results of this analysis are presented in the added appendix.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
126		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The draft GSP estimates conditions using 2070 climate forecast. Based on this, the draft GSP estimates that "Under climate change conditions, the depletion in aquifer storage is expected to increase by about 68 percent to an average annual storage change of 57,000 AF/year, from 34,000 AF/year in the projected conditions scenario" (Section 2.3.7.4). However, the results of the climate change scenario modeling were not used as the basis for development of Project and Management Actions. Therefore, while climate change is evaluated in terms of future water budget conditions, the draft GSP does not actually include a substantive plan to address the increased deficit anticipated to result from climate change.	Climate Change	Consistent with regulations, the 2070 climate change sensitivity analysis on the projected conditions scenario was used to better understand trends and inform planning. Due to the uncertainty around climate projections in the 2070 timeframe, the GWA Board determined the projected conditions scenario was most appropriate for analyzing sustainable yield in the GSP implementation time period beginning in 2040. Therefore, climate change was not included in the sustainable yield analysis or the estimated amount of direct or in lieu recharge and/or reduction in pumping needed for the Subbasin to reach sustainability. Climate change will continue to be evaluated with every update to the GSP and estimates of projects and management actions will continue to evolve with refinements to the model. Comment noted for follow up in next round of model refinements and updates to analyses.
127		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The following figures are included in the joint comments document: Figure 1 - Representative Monitoring Network for GW Levels Relative to Domestic Wells, DACs, and Community Water Systems Figure 2 - Water Level MTs and Domestic Wells Figure 3 - Representative Monitoring Network for Water Quality Relative to Domestic Wells, DACs, and Community Water Systems {SEE MORE SPECIFICS IN COMMENT LETTER}	Monitoring Network	No specific comment to respond to.
128	Sandi Matsumoto	The Nature Conservancy	Per the GSP Regulations (23 CCR §354.34 (a) and (b)), monitoring must address trends in groundwater *and related surface conditions* (emphasis added). In order for this section to provide the appropriate context and help assure integration of GSP implementation with other ongoing regulatory programs, this section should describe the following: o Monitoring activities and responsibilities by State, Federal and local agencies and jurisdictions related to aquatic resources and GDEs that could be affected by groundwater withdrawals should be discussed. Section 1.2.2.6 states that there are no agencies that do monitoring specific to surface-groundwater interconnection. While this may be technically correct insofar as it relates to hydrogeologic monitoring, it ignores ongoing monitoring programs related to the state of aquatic resources and GDEs that could be affected by groundwater withdrawals, and that are a direct indicator of potential undesirable results. For example, there are likely ongoing monitoring programs associated with the protected lands listed in our comments to Section 1.3.1, and other open space or preserve areas that may be monitored by public, private or nonprofit entities. A discussion of monitoring programs related to GDEs and ISWs should be included. o The lack of existing hydrologic monitoring of surface-groundwater interconnection is a significant data gap as it relates to classification and management of GDEs and should be identified as such and further discussed and addressed in the appropriate subsequent sections of the GSP. o Monitoring activities and responsibilities related to instream flow and water quality requirements under applicable Federal Energy Regulatory Commission licenses, Biological Opinions and other regulations or programs are relevant and should be identified. Please include a discussion of water flow and quality monitoring requirements pertinent to ISWs.	Monitoring Network	1) The GSP monitoring network section meets the requirements of SGMA regulations. Publicly available data through other monitoring programs was reviewed for the GSP and will be utilized in future updates. 2) Section 4.7 (Data Gaps) was updated to specifically include interconnected surface water as a data gap. Many of the 12 proposed monitoring wells discussed in Section 4.7 are specifically located near streams with the intent of enhancing the monitoring and analysis of interconnected surface water.
129	Sandi Matsumoto	The Nature Conservancy	Please clearly state whether localized perched aquifers are present in the basin. Include example near-surface cross section details that depict the conceptual understanding of shallow groundwater and stream interactions at different locations, including perched and regional aquifers.	Basin Setting	The level of detail in the GSP is appropriate for a conceptual model of the Subbasin.
130	Sandi Matsumoto	The Nature Conservancy	The Bottom of the Basin Boundary was defined by the base of freshwater, which was mapped 45 years ago and pumping since then has very likely resulted in shift in the isohaline contouring in the basin. Defining the bottom of the Subbasin based on geochemical properties is a suitable approach for defining the base of freshwater, however, as noted on page 9 of DWR's Hydrogeologic Conceptual Model BMP (https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_HCM_Final_2016-12-23.pdf) "the definable bottom of the basin should be at least as deep as the deepest groundwater extractions". Thus, groundwater extraction well depth data should also be included in the determination of the basin bottom. This will prevent the possibility of extractors with wells deeper than the basin boundary from claiming exemption of SGMA due to their well residing outside the vertical extent of the basin boundary. Also, pumping saline groundwater and desalinating it will become increasingly economical under SGMA due to pumping restrictions in the basin.	Basin Setting	The location and depth of the base of freshwater was confirmed by the values presented in the California Department of Conversation DOGGR wells. Comment noted for follow up in next round of GSP refinements and updates.
131	Sandi Matsumoto	The Nature Conservancy	The following items related to GDEs, wetlands and riparian areas should be clarified or considered: o"Riparian intake from streams" is identified as a stream system water budget component and is defined as the portion of riparian evapotranspiration (ET) met by streamflows. Please include an explanation of the approach to determining the amount of riparian ET demand met by streamflow vs. groundwater evapotranspiration. oGroundwater outflow to ET does not appear to be identified as a groundwater budget component (for example see Figure 2-74, p. 2-125). In addition, the ET demand of natural vegetation does not appear to be considered in water supply and demand calculations (for example see Table 2-16, p. 2-126). Since GDEs (including wetlands, riparian vegetation, phreatophytes and other communities) are recognized as beneficial users of groundwater in the Subbasin, it is appropriate to include them in these calculations.	Water Budget	1) Riparian evapotranspiration is included in the water budget (part of "Refuge, Native, and Riparian Evapotranspiration" in Table 2-14) and simulated in the model. Both streamflow and groundwater can contribute to meeting riparian evapotranspiration demand and the amount of demand met by each component is estimated directly by the model. "Riparian Intake from Streams" in Tables 2-13 and 2-14 includes all surface water and groundwater contributing to riparian demand through stream-aquifer interaction. The ESJWRM model does not have the level of detail to determine how much groundwater is consumed by riparian demand. 2) Groundwater outflow to evapotranspiration is not directly included as a water budget component and is simulated indirectly in ESJWRM through stream-aquifer interaction and seepage of pumped groundwater. 3) Wetlands, GDEs, riparian vegetation, and native (or natural) vegetation are recognized as beneficial users and are included in the water budget, though not separated out and are part of "Refuge, Native, and Riparian Evapotranspiration". There is not enough information at this time to determine how much groundwater is consumed by each of these demands. 4) This GSP recognized GDEs as a data gap in both the determination of GDEs in the Subbasin as well as the simulation of GDEs in the model. In the model, GDEs are broadly assumed to be represented as native vegetation as they are not specifically included in land use surveys. This representation removes the realistic variation of rooting depths across GDEs and we will consider the specific simulation of GDEs in future updates to the model. Comment noted for follow up in next round of model refinements and updates.
132	Sandi Matsumoto	The Nature Conservancy	Twelve new monitoring wells are proposed to measure groundwater levels and quality in critical areas where data are sparse. These include increased coverage near streams, Subbasin boundaries, and in the central area of groundwater depression. We have the following comments. oLocations should be prioritized near high value or sensitive resources that are vulnerable to significant and unreasonable impacts, such as near the protected lands identified in our comments on Section 1.3.1 or the GDEs identified in the Subbasin. In addition to the major streams and rivers in the subbasin, impacts to smaller creeks and wetland areas should be considered, as these may be the most vulnerable resources. Please discuss the results of a resource assessment or consultations with resource managers that demonstrates a sufficient number of wells is proposed to address data gaps near GDEs and ISWs, and that they are being sited where they will provide the most benefit. Alternatively, please outline the process by which this will be accomplished. oAs discussed in our comments above, please address how the need to link and correlate groundwater level declines to biological responses, and significant and adverse impacts to GDEs and ISWs will be addressed. oWell sites near ISWs should be selected at varying distances from streams and completed as vertically-nested clusters to capture the lateral and vertical gradients between the pumped depths in the aquifer system and the shallow groundwater aquifers that are in communication with ISWs or GDEs. There is a need to enhance monitoring of stream flow and vertical groundwater gradients by installing more stream gauges and clustered/nested wells near streams, rivers or wetlands. Ideally, co-locating stream gauges with clustered wells would enhance understanding about where ISWs exist in the basin and whether pumping is causing depletions of surface water or impacts on beneficial users of surface water and groundwater. oAddressing data gaps is typically iterative and it is not reasonable to expect it will be a one-time process. Please describe the process by which data gaps will be identified and addressed on an ongoing basis.	Monitoring Network	1) Comment noted for consideration as proposed monitoring well locations are finalized and future updates to the monitoring network is considered. Interconnected surface water was a major consideration in the placement of the proposed wells and almost all of the locations are very close to either major or minor streams. The two wells included in the TSS application are both deep, nested wells located near streams (Dry Creek and Calaveras River) and are anticipated to be drilled within a year. 2) The impact of groundwater level declines to beneficial users, as well as the effect of interconnected surface water and GDEs, will be considered in updates to the GSP and in the annual reports. 3) Comment noted for consideration as proposed monitoring well locations are finalized and future updates to the monitoring network (including evaluating the need for the installation of stream gauges) is considered. 4) The GWA is committed to resolving the data gaps identified during the GSP development process. As discussed in Section 7.6.4 (Monitoring Network Description), a program may be developed for the GSP update to help fill any new or remaining data gaps. Data gaps will be continually reevaluated and addressed in updates to the GSP and in annual reports.
133	Sandi Matsumoto	The Nature Conservancy	Table 5.3 indicates that data regarding streamflow and GDEs is not currently included in the proposed Data Management System. Per the GSP Regulations (23 CCR §354.34 (a) and (b)), monitoring must address trends in groundwater and related surface conditions (emphasis added). You cannot manage what you do not measure. Please discuss which monitoring data for "related surface conditions" will be gathered and incorporated in the DMS to assess potential significant and unreasonable impacts to environmental beneficial uses and users.	DMS	Surface water data, including streamflow and water quality, is readily and publicly available online and has not be separately added to the DMS, though the system is set up to store streamflow and many other different types of data. Streamflow and surface water gage data was used both to build and calibrate the model, as well as in various analyses for the GSP. All groundwater level monitoring data will be evaluated for analysis of groundwater-surface water interaction and other surface conditions. As GDEs are a recognized data gap in the GSP, additional data may be collected that will be considered for addition to the DMS.
134	Sandi Matsumoto	The Nature Conservancy	This section lists the key components involved in implementation of the monitoring network. Groundwater levels and monitoring will occur semi-annually, but no other information is given. Section 6.3 states that "additional management activities are discussed in Chapter 7: Plan Implementation", and would include monitoring groundwater use through use of satellite imagery. However, Chapter 7 does not discuss using imagery or any remote sensing, which is a great tool for monitoring ecosystem health of GDEs and ISWs. Please clarify the potential use of imagery as a monitoring tool, and expand it to monitoring surface indicators of ISW and GDE ecosystem health.	Monitoring Network	While there are currently no specific plans regarding the use of imagery is a monitoring tool, any publicly available tools will be evaluated for use in updates to the GSP. The text in Section 6.3 was edited to remove a mention of satellite imagery.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
135	Sandi Matsumoto	The Nature Conservancy	This section describes what current groundwater conditions and monitoring results will be included in the annual monitoring report. Please specifically address ecosystem health of GDEs and ISWs as a surface indictor to subsurface conditions. This can be done using GDE Pulse, remote sensing, imagery or other feasible methods.	Monitoring Network	While there are currently no specific plans regarding the use of imagery is a monitoring tool, any publicly available tools, including GDE Pulse, will be evaluated for use in updates to the GSP.
136	Laura Folglia, Katrina Arredondo, Olin Applegate	Larry Walker Associates	Letter Comment 6: Thus, while DWR has listed the ESJ Subbasin as critically overdrafted, the ESJ GSP appears to claim that the Subbasin has a nearly balanced water budget and there are minimal problems with groundwater overdraft. [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Storage	See Master Response 4 - GW Storage.
137	Laura Folglia, Katrina Arredondo, Olin Applegate	Larry Walker Associates	Letter Comment 9: The ESJ GSP should expand Project 8 to include additional water transfers within the Subbasin for recharge. [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	See Master Response 5 - Projects.
138	Laura Folglia, Katrina Arredondo, Olin Applegate	Larry Walker Associates	Letter Comment 10: The GSP should also promote smaller recharge projects whereby water users may divert surplus surface water supplies for recharge on their own lands. [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	1) GSP projects have been proposed by individual GSAs and will be implemented at the GSA level. Although the GWA does not have authority to direct project design or implementation, the GWA's role will be to oversee essential project coordination by identifying where projects would be beneficial, synthesize how GSAs are doing projects, and make sure that GSA projects are getting the Subbasin to sustainability. 2) Flood-Managed Aquifer Recharge (Flood-MAR) opportunities will be considered through ongoing coordination with existing agencies. Flood-MAR is an integrated and voluntary resource management strategy that uses flood water resulting from, or in anticipation of, rainfall or snow melt for managed aquifer recharge (MAR) on agricultural lands and working landscapes, including but not limited to refuges, floodplains, and flood bypasses. Flood-MAR can be implemented at multiple scales, from individual landowners diverting flood water with existing infrastructure, to using extensive detention/recharge areas and modernizing flood management infrastructure/operations (Source: https://water.ca.gov/Programs/All-Programs/Flood-MAR). 3) See also: Master Response 5 - Projects.
139	Mary Elizabeth	Sierra Club, Delta-Sierra Group	Letter Comment 7: Without restricting the installation of wells within areas of influence that intersect surface waterways, further depletion of interconnected surface waters will continue. [SEE MORE SPECIFICS IN COMMENT LETTER]	Well Permitting	Well permitting requirements for San Joaquin, Calaveras, and Stanislaus counties are identified in Section 1.2.3.4 (Well Permitting) of the Draft GSP. An additional subsection has been added to include Sacramento County well permitting requirements. GSAs do not have well permitting authority, unless as authorized by the respective county. SGMA does not provide a GSA with the authority to issue or regulate permits for the construction, modification, or abandonment of groundwater wells, but maintains the authority for well permitting activities with the county. (Water Code, § 10726.4(b).) A GSA may request the county provide the GSA with notice of any permit applications (10726.4(b)) and a GSA may impose spacing requirements on new well construction (10726.4(a)(1)). The GWA will continue to coordinate with its member GSAs that are well permitting agencies. Language has been added to Section 4.7.1 (Plan to Fill Data Gaps) referencing applicable Calaveras County, Stanislaus County, and San Joaquin County monitoring well drilling standards.
140	Mary Elizabeth	Sierra Club, Delta-Sierra Group	Letter Comment 15: If the 68 percent is applied to 78,000 AF/year, deficient an additional 53,000 AF/year will be needed and the planned projects projected to achieve sustainability included in the GSP will be insufficient. [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	Consistent with regulations, the 2070 climate change sensitivity analysis on the projected conditions scenario was used to better understand trends and inform planning. Due to the uncertainty around climate projections in the 2070 timeframe, the GWA Board determined the projected conditions scenario was most appropriate for analyzing sustainable yield in the GSP implementation time period beginning in 2040. Therefore, climate change was not included in the sustainable yield analysis or the estimated amount of direct or in lieu recharge and/or reduction in pumping needed for the Subbasin to reach sustainability. Climate change will continue to be evaluated with every update to the GSP and estimates of projects and management actions will continue to evolve with refinements to the model. Comment noted for follow up in next round of model refinements and updates to analyses.
141	Tom Lippe	California Sportfishing Protection Alliance	The Plan does not satisfy GSP Rule 355.4(b)(5) because the Plan does not contain or present substantial evidence to conclude that the projects and management actions identified to achieve sustainable yield are effective or feasible or not likely to prevent undesirable results or to ensure that the basin is operated within its sustainable yield.	Projects and Management Actions	See Master Response 5 - Projects.
142	Greg Kamman	California Sportfishing Protection Alliance	Because the Subbasin is in overdraft, the GSP has identified 23 projects to reduce overdraft conditions and meet long-term water demands and sustainability goals. There are some projects focused on conservation and reuse of reclaimed water, but the majority simply reduce local groundwater demand by providing access to surface water supplies. These projects are limited in geographic area and are intended to provide local solutions. However, from the perspective of a full basin water budget, shifting the reliance from groundwater to surface water supplies may not generate the full benefits anticipated as provided in the project descriptions. This is because diverting and reducing stream flows will lead to reductions in groundwater recharge in other areas within or beyond the basin, via reduced water available for stream infiltration or other uses of stream diversions that contribute to recharge. **As required in Section 354.44 of the Regulations, the GSP does not provide a full and comprehensive quantification of demand reduction in response to project implementation – this would require deriving a basin-scale water budget accounting that incorporates project actions.** This analysis would also inform the evaluation, as required under Section 355.4 of the GSP Regulations, of Plan/project feasibility and undesirable results (e.g., ecological impacts) associated with increased diversion and use of surface water supplies. **Stated another way, I'm concerned that the GSP has not demonstrated that the Project Actions will be effective in achieving stated reductions in groundwater use and avoiding undesirable results.** For example, Project 2, the SEWD Surface Water Implementation Expansion Project (SEWD), would require landowners adjacent to surface water conveyance systems (rivers or pipelines) to utilize surface water as part of the SGMA implementation. This would increase surface water usage by about 18,000 to 20,000 AF/year with in-lieu groundwater recharge benefits. This project relies on water from New Hogan Reservoir (Calaveras River water) and New Melones Reservoir (Stanislaus River water). Although the project could reduce groundwater use, there is no analysis provided on how the project would affect surface and ground water resources downstream of the two reservoirs. If this project reduced downstream flows, it could result in depleted surface water supplies, reduced groundwater recharge from the rivers as well as adverse impacts to riparian vegetation and environmental surface water beneficial users. **Similarly, I'm concerned about the assumed feasibility of some projects achieving the desired goal. For example, the groundwater recharge Projects 11 and 12 are anticipated to each recharge 8,000 AF/yr through the construction and operation of independent 10-acre recharge ponds.** This equates to recharging 800 feet of water at each pond site between December 1 and June 30th of each year or 3.78 feet daily for the 212 day period. I am skeptical about achieving this level of recharge given the uncertainties in water availability during dry years, operations that would be required to maintain ponding of sufficient depth and duration, and maintaining basin infiltration rates given the likely accumulation of fine grained material that reduces basin permeability. This example demonstrates how the GSP fails to demonstrate how these project can be accomplished in a successful manner under a variety of rainfall and runoff conditions.	Projects and Management Actions	See Master Response 5 - Projects. The ESJWRM will be updated to incorporate and evaluate GSP projects in future model refinement efforts.
143	Linda Dorn dornl@saccounty.net 916-874-1085	Sacramento County Groundwater Sustainability Agency (GSA) - Cosumnes Subbasin	As an adjacent basin please add Sacramento County well permitting. For well standards visit: http://www.emd.saccounty.net/EC/Pages/Wells.aspx	Well Permitting	A new subsection has been added to the GSP under section 1.2.3.4 (Well Permitting) to add Sacramento well permitting information in response to this comment.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
144	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	DWR has classified the ESJ Subbasin as overdrafted. The text does not provide a direct rebuttal to this classification or address the contributions of groundwater from the adjacent subbasins which should be an undesirable result of overpumping.	Groundwater Storage	See Master Response 4 - GW Storage.
145	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	The text does not address the contributions of groundwater from the adjacent subbasins which should be an undesirable result of overpumping. How much groundwater would move into the ESJ Subbasin from adjacent subbasins if the storage were reduced by 1.2 million acre-feet (MAF) to down to 30 MAF?	Groundwater Storage	See Master Response 4 - GW Storage.
146	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	The text fails to acknowledge the continuous GPS station (P309 - Linden) in the subbasin and the 5 other stations in adjacent subbasins, which be used to interpolate subsidence within the subbasin. Additional GSP stations could be installed in the subbasin.	Subsidence	The Draft GSP has been updated to reference the P309 - Linden continuous GPS station in Section 1.2.2.4 (Land Subsidence Monitoring): "Additionally, subsidence monitoring performed using continuous GSP stations is reported by UNAVCO (formerly University NAVSTAR Consortium), including reporting for station P309, located in Linden, CA." The GWA supports the use of existing monitoring stations and InSAR data currently referenced in the Draft GSP for the evaluation of subsidence, and believe the conditions of the subbasin do warrant the creation of new subsidence stations at this time.

Comment #	Commenter	Commenter Organization	Comment	Category	Proposed Response to Comment
147	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	$0.8M to $2.0M is quite excessive, as if the GSP will be done over. Annual reports will provide a significant foundation for the 5-year evaluation and the cost might be only $200K to $300K - hopefully a lot less. Other costs should be reviewed closely to ensure reasonableness.	Plan Implementation	The cost estimates for implementation actions are conservative planning-level estimates that will be refined once additional specifics have been determined. The ESJ GWA Plan Implementation Ad-Hoc Committee has been convened for this purpose and is meeting on an approximately weekly basis to actively identify next steps and form recommendations that will allow for refinement in GSP implementation cost estimates.
148	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	$0.8M to $2.0M is quite excessive, as if the GSP will be done over. Annual reports will provide a significant foundation for the 5-year evaluation and the cost might be only $200K to $300K - hopefully a lot less. Other costs should be reviewed closely to ensure reasonableness.	Plan Implementation	The cost estimates for implementation actions are conservative planning-level estimates that will be refined once additional specifics have been determined. The ESJ GWA Plan Implementation Ad-Hoc Committee has been convened for this purpose and is meeting on an approximately weekly basis to actively identify next steps and form recommendations that will allow for refinement in GSP implementation cost estimates.
149	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Won't the field crew and their equipment be used for sampling ($57K to $60K) and sampling costs are really laboratory costs ($24K to $30K)? Will CASGEM continue to exist after full implementation of SGMA?	Plan Implementation	Section 7.3.1 (Monitoring) has been updated to change the line item previous identified "Sampling costs" to "Laboratory costs". The form that the future CASGEM program will take after SGMA implementation is unknown at this time.
150	Rodney Fricke	GEI on behalf of Sacramento County GSA - Cosumnes Subbasin	Some costs need a closer look, especially the 5-year updates.	Plan Implementation	The cost estimates for implementation actions are conservative planning-level estimates that will be refined once additional specifics have been determined. The ESJ GWA Plan Implementation Ad-Hoc Committee has been convened for this purpose and is meeting on an approximately weekly basis to actively identify next steps and form recommendations that will allow for refinement in GSP implementation cost estimates.
151	David Simpson	NSJWCD	Woodbridge ID and recharge projects within the District need to be included in the Final GSP.	Projects and Management Actions	Woodbridge Irrigation District (WID) was part of the GWA when projects were solicited, and WID did not propose any GSP projects at that time. WID's existing projects are captured in the Water Budget.
152	David Simpson	NSJWCD	The GSP should contain a statement of concern relating to SWRCB plans to reduce flows available for use by 40-60%. The GSP references climate change yet a far greater threat to sustainability in the basin is the reallocation of surface water flows currently being undertaken by the SWRCB. The Draft GSP assumes constant or increased availability of surface water yet the SWRCB has threatened to take 40-60% of the currently available flow in several key rivers. With reduced availability of surface water for existing uses and groundwater recharge, there is little to no hope of achieving groundwater sustainability without massive new infrastructure, draconian pumping restriction and increased regulation.	Plan Implementation	1) The GWA acknowledges that there are many factors that could affect the availability of surface water and that has to be evaluated by GSAs in the implementation of projects. The process of GSAs providing biannual reports to the GWA will allow for the GWA to update the Plan and adjust the implementation course as needed based on conditions. (Pending Board direction) The GSP allows project implementation to be updated as needed, and it is currently too speculative to say what the impact will be from the proposed SWRCB regulation, as the SWRCB has not yet determined how the regulation will be been implemented. 2) A data gaps and uncertainties subsection was added to Chapter 7 (Plan Implementation) that includes the information above - Section 7.4.5 (Data Gaps and Uncertainties): "The GWA acknowledges that there are many factors that could affect the availability of surface water, including the SWRCB plans to reduce flows available for use by 40-60% as part of the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan Update). Such regulations will need to be evaluated by GSAs in the implementation of projects. The process of GSAs providing biannual reports will allow for the GWA to update the Plan and adjust the implementation course as needed based on conditions. The GSP allows project implementation to be updated as needed, and it is currently too speculative to say what the impact will be from the Bay-Delta Plan Update regulation, as the SWRCB has not yet determined how the regulation will be been implemented."
153	Barbara Barrigan-Parrilla	Restore the Delta	Restore the Delta observes in Table 2-17 (p. 2-133) of the Draft GSP Chapter 2 finds that in wet years groundwater storage is projected to increase by an annual average of 52 TAF; 23 TAF in above normal years; and decrease by 7 TAF in below normal years, 44 TAF in dry years, and 39 TAF in critically dry years. Overall, over the 50-year planning horizon of the Draft GSP, groundwater storage in the Subbasin is projected to decrease an average of 34 TAF. Over 50 years, this is a cumulative loss of stored freshwater of about 1.7 MAF. This is a much smaller amount than other groundwater sustainability agencies are contemplating elsewhere in California, but it still represents a cumulative loss to storage in our Subbasin. This is about 3.2 percent of the total subsurface freshwater storage of 53 MAF cited elsewhere in the Draft GSP.	Groundwater Storage	See Master Response 4 - GW Storage.

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154	Barbara Barrigan-Parrilla	Restore the Delta	If neighboring subbasins do less to recharge their underground supplies hypothetically it would mean that the GWA would have to do more, and vice-versa, to avoid undesirable results. Restore the Delta urges the GWA to recognize this interrelationship more explicitly and to adopt a policy of encouraging neighbors to do their fair share of net recharge (combining "additional recharge or pumping reduction") activities as they implement their GSPs.	Plan Implementation	As neighboring plans are developed, the GWA will be reviewing and providing input. The GWA will review and will provide comment on neighboring Subbasins' GSPs if their plans adversely affect our ability to achieve sustainability.
155	Barbara Barrigan-Parrilla	Restore the Delta	We recommend also that the Final GSP incorporate reviews of what neighboring GSAs and their GSPs are contemplating in this regard so that readers of the GWA's GSP understand what this "neighborhood baseline" consists of when it comes to assessing undesirable results indicators and evaluating the success or failure of neighbors' implementation projects.	Interbasin Coordination	As the neighboring groundwater subbasins are not designated as critically overdrafted, their GSPs are on a later timeline, so analyses are not available for direct comparison. The GWA will continue to coordinate with neighboring basins as more information is available.
156	Barbara Barrigan-Parrilla	Restore the Delta	Disadvantaged communities are forced to live with existing disadvantaged streams—losing streams. The Draft GSP appears to do little to rectify these existing undesirable conditions—undesirable at least from the standpoint of the disadvantaged communities forced to live without healthy riverine ecosystems and recreational and angling beneficial uses of them in their midst.	Interconnected Surface Water	The GWA acknowledges conditions of overdraft and in response has identified projects that will recharge and/or offset up to 78,000 AFY to meet the Subbasin's sustainable yield. As groundwater levels stabilize, the gradient pulling water from losing streams will decrease when compared to conditions without such actions. The GWA has not identified losing streams as a significant and unreasonable negative impact. See Master Response 2 - ISW.
157	Barbara Barrigan-Parrilla	Restore the Delta	This particular indicator lacks any recognition of the differential impact of falling groundwater elevations on disadvantaged communities relative to other groundwater pumpers like cities and agricultural enterprises. While the plan identifies disadvantaged communities (which we note above), it does not correlate explicitly the degree to which disadvantaged communities in the Subbasin are predominantly reliant on municipal/public or private water systems, or whether they are predominantly reliant on private wells. The Draft GSP provides no policies or program recommendations and needs that would address the question: if these conditions develop where disadvantaged residents lose their pumped groundwater supplies, what steps will the GWA take to mitigate such events and recover the utility of their public/private systems or wells? The Draft GSP would, it appears, wait until impacts on disadvantaged and other communities occur before any actions to prevent such occurrences would be taken. [SEE MORE SPECIFICS IN COMMENT LETTER]	Groundwater Levels	The GWA supports using the minimum thresholds, measurable objectives, and interim milestones for the chronic lowering of groundwater levels sustainability indicator as written. SGMA does not require zero impact, and the GWA has determined that it is not considered "significant and unreasonable" for wells belonging to the shallowest 10 percent of domestic wells to be dewatered, as the wells that are likely to be dewatered are those that are 50 years or older, have reached the end of their usable life, and would need to be replaced anyway. Data collected on Stanislaus County rural domestic wells that were dewatered in years 2014-2016, showed that the average depth of wells reported as dewatered was 91 ft bgs, and that 60 percent were shallower than 100 ft bgs. Additionally, the average well age for wells reported as dewatered was 55 years, and 52 percent were older than 50 years old. There are various well impact mitigation programs in place, therefore there were no changes were made to the Draft GSP.
158	Barbara Barrigan-Parrilla	Restore the Delta	The Draft GSP recognizes just "increase in pumping costs due to greater lift" as an undesirable result relating to lowered groundwater elevations. The Draft GSP fails to provide any cost threshold beyond which point the GWA would presumably act on this triggered indicator. What level of cost increase is reasonable due to greater lift needs? Do public and private well systems need to be treated differently from a cost standpoint than single private wells? Will increased costs for wells operated by members of disadvantaged communities be treated the same or differently than other systems? Restore the Delta recommends that they should be treated differently so that ability to pay is taken into account. Just as important, what remedial action does the GWA commit to in order to stem impacts to disadvantaged community groundwater users when pumping costs rise? In short, whose groundwater pumping costs are going to be the GWA's yardstick for determining undesirable results, and what actions will the GWA commit to in redressing undesirable results? [SEE MORE SPECIFICS IN COMMENT LETTER]	Plan Implementation	Given the high number of variables involved, a cost threshold for was not developed for increases in pumping costs due to greater lift as part of the Chronic Lowering of Groundwater Levels sustainability indicator undesirable result. The GWA will continue to coordinate with its GSA members that are well permitting agencies.
159	Barbara Barrigan-Parrilla	Restore the Delta	The Draft GSP confidently states that "there is a large volume (approximately 53 million acre-feet [MAF] of freshwater in storage" in the Subbasin, and there appears to be very little fluctuation historically in this volume on a percentage basis. The Draft GSP states that "it is roughly estimated that groundwater demand for beneficial use occurs within the top 23 MAF of the Subbasin." (p. 3-10) No geographic description of where this 23 MAF occurs is provided. The "threshold" for undesirable result in the Draft GSP on the storage indicator then becomes "when storage is insufficient to satisfy beneficial uses within the Subbasin. Therefore, undesirable results would occur if groundwater storage were reduced to less than 30 MAF." (Ibid.) Here the Draft GSP fails to connect the already existing undesirable results noted above with this level of groundwater storage in the Subbasin (that is, the cone of depression with the presence of losing streams immediately overlying them, for example, and their occurrence immediately beneath and down-gradient of disadvantaged communities in the Subbasin). The Draft GSP takes current groundwater storage at 53 MAF as an acceptable baseline when it actually represents a storage level that is undesirable given existing surface and subsurface conditions. Restore the Delta urges the GWA to rethink, redefine, and redraft this particular indicator discussion so that existing undesirable conditions can experience recovery and restoration to sustainable conditions as the GSP planning and implementation horizon plays out.	Groundwater Storage	See Master Response 4 - GW Storage. The cone of depression is evaluated and discussed in the Section 2.2 (Current and Historical Groundwater Conditions) of the Draft GSP. Groundwater storage is evaluated at a subbasin scale.
160	Jane Wagner-Tyack	Communication Consultant	PLEASE PROVIDE A MAP SHOWING THE LOCATIONS OF THE PROJECTS.	Projects and Management Actions	A map of project locations has been added to Section 6.1.2 (Projects).
161	Brandon Nakagawa	SSJGSA	It is estimated that overlying pumpers have limited access equating to approximately the shallowest 23 MAF of groundwater storage in the Subbasin; therefore an undesirable result would occur if groundwater storage levels were depleted by 23 MAF.	Groundwater Storage	Language updated in the GSP to indicate 23MAF reduction as definition of undesirable result for the Reduction in Groundwater Storage sustainability indicator, rather than the subbasin having reached 30MAF remaining.

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162	Brandon Nakagawa	SSJGSA	Reference also Calaveras, Stanislaus and San Joaquin Counties applicable monitoring well drilling standards.	Well Permitting	Language has been added to Section 4.7.1 (Plan to Fill Data Gaps) referencing applicable Calaveras County, Stanislaus County, and San Joaquin County monitoring well drilling standards.
163	Brandon Nakagawa	SSJGSA	Some costs appear low. Discussions are ongoing as to governance, costs, and accountability measures. Costs should be re-estimated higher to avoid sticker shock later during implementation.	Projects and Management Actions	The cost estimates for implementation actions are conservative planning-level estimates that will be refined once additional specifics have been determined. The ESJ GWA Plan Implementation Ad-Hoc Committee has been convened for this purpose and is meeting on an approximately weekly basis to actively identify next steps and form recommendations that will allow for refinement in GSP implementation cost estimates.
164	Brandon Nakagawa	SSJGSA	Suggest lumping the study in with Model Refinements in section 7.4.2. Also suggest study could be expanded to include other rivers.	Projects and Management Actions	The Mokelumne River Loss Project description text has been moved to Chapter 6 (Projects and Management Actions) based on direction from the GWA Board provided at the September 11, 2019 Board meeting. At this time, no projects have been proposed to study other rivers in the Subbasin. However, further model refinement efforts will verify and validate model calibration at points across the subbasin.
165	Bill Mattos	California Poultry Federation	CFP commends the Draft GSP for emphasizing projects to augment yield and increase recharge.	Projects and Management Actions	See Master Response 5 - Projects.
166	Martin Harris	Terra Land Group, LLC	TLG believes that channel flow deficiencies and back-water effects in and along the South Delta need to be fully considered and mitigated as part of any GSP to be considered. [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
167	Martin Harris	Terra Land Group, LLC	The uncertainties as detailed on pages 2-134 and 2-151 of the GSP appear to be especially important when considering Section 6.2.6.6 of the GSP describes project #23 (SSJID Storm Water Reuse) which may find it difficult to drain any and all potential storm water drainage flows to be created along and through the South San Joaquin Irrigation District ("SSJID") distribution system to the San Joaquin River via the French Camp Outlet Canal. (See page 6-32 of the GSP). TLG also believes that SSJID drainage into the San Joaquin River may also prove problematic at other San Joaquin River outlet locations currently being considered. [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
168	Martin Harris	Terra Land Group, LLC	What drainage and backwater effects may be created in conjunction with GSP Projects #19, 22, and 23? …. TLG believes that this can only be accomplished by putting an end to the continuing delays and immediately performing a full and comprehensive environmental review. This should be performed in conjunction with an updated general plan and related environmental justice element that fully considers and mitigates for the growing storm water, waste water, potable water, irrigation water, transportation, and transit needs affecting the areas in and along the South Delta. [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
169	Martin Harris	Terra Land Group, LLC	How will what appears to be a very real potential for unresolved and continuing sedimentation and climate change issues in and along the South Delta be considered and allowed for in the final Mossdale Tract Drainage Plan? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
170	Martin Harris	Terra Land Group, LLC	How can local, regional, state, and federal authorities work closer together to create an updated water plan that provides water deliveries at the local, regional, and state level while protecting the urban and rural areas along the South Delta from any increases to flood water, storm water, waste water, and other hydrology-related impacts that may be created? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.

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171	Martin Harris	Terra Land Group, LLC	What effect will the Daniels Street extension have on stormwater drainage flows currently being drained in and along the French Camp Outlet Canal? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
172	Martin Harris	Terra Land Group, LLC	What effect will the proposed formation of the San Joaquin County Flood Control & Water Conservation District ("SJCFCWCD") Zone 9 Flood Conveyance and Levee Maintenance Benefit Assessment District (and related projects) have on changing drainage patterns and associated outfall locations currently existing and relied upon by the South San Joaquin Irrigation District and its members? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
173	Martin Harris	Terra Land Group, LLC	What effect will filing and/or extending an Exclusive Negotiating Agreement for the Recycled Water Project have on sustaining total potable and irrigation water (ie. groundwater and surface water) volumes available to the urban and rural areas in and around Lathrop and Manteca? [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	SGMA looks at the basin-scale. Project impacts will be evaluated; it is the GSA's responsibility to meet project-level environmental regulations. CEQA compliance will be done at the GSA level.
174	Martin Harris	Terra Land Group, LLC	What short term and/or long range changes to flood water, storm water, waste water, potable and irrigation water delivery, and other hydrology related drainage and conveyance patterns may be irreversibly altered due to approval of the proposed Raymus Expressway roadway alignment as detailed in the 5/22/19 Manteca General Plan Land Use Alternative Maps "A" or "B"? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
175	Martin Harris	Terra Land Group, LLC	Will drainage impacts in and along the South Delta be reduced or adversely affected due to any future improvements to be considered in association with the Upper Jones Tract (RD 2039)/Lower Jones Tract (RD 2038) consolidation? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
176	Martin Harris	Terra Land Group, LLC	Are local authorities aware that SSJID Drain #11, in its present form, has deviated from a course that appears to be called for in Enclosure 16? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
177	Martin Harris	Terra Land Group, LLC	Will any and all flow impedances and back water effects be considered as part of any drainage analysis to be performed? (See Enclosures 14 & 15) [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
178	Martin Harris	Terra Land Group, LLC	For what purpose are San Joaquin County land use and/or zoning reclassifications in and along the South Delta being considered? (See Enclosure 17) [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	Some of the more specific processes can be addressed through land use decision making processes. There is a SGMA requirement to coordinate in land use policy development, and GSAs will comply with the requirement to coordinate with land use development partners.
179	Martin Harris	Terra Land Group, LLC	If the French Camp Outlet Canal (FCOC) is abandoned or no longer able to accept drainage flows from the developing areas of Zone 34, where will Zone 34 storm water be drained to? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
180	Martin Harris	Terra Land Group, LLC	What effect will any public facility/infrastructure rehabilitation or improvement projects in and along Little Johns Creek have on the continued operation of the FCOC as well as other upstream and downstream areas to be affected? [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	SGMA looks at the basin-scale. Project impacts will be evaluated; it is the GSA's responsibility to meet project-level environmental regulations. CEQA compliance will be done at the GSA level.
181	Martin Harris	Terra Land Group, LLC	Are the effects of climate change and unresolved sedimentation issues along the South Delta being fully considered while making the assumption that the water surface elevation in the San Joaquin River at the railroad bridge crossing near the Oakwood Lake Water District storm drain outfall is: (a) 20.6 feet for a 10-year event; (b) 28.0 feet for a 100-year event; (c) 29.0 feet for a 200-year event. [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	SGMA looks at the basin-scale. Project impacts will be evaluated; it is the GSA's responsibility to meet project-level environmental regulations. CEQA compliance will be done at the GSA level.
182	Martin Harris	Terra Land Group, LLC	In the event of a right bank San Joaquin River or Stanislaus River levee breach, how will flood waters be drained from the urbanizing and non-urbanizing areas south of Manteca? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.

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183	Martin Harris	Terra Land Group, LLC	When considering the magnitude of 100-year, 200-year, or other periodic levels of flood events that are expected to occur, isn't it likely that water elevations (NAV D88 datum) on the land side (east of the San Joaquin River in the areas south of Manteca) could exceed the 29'-0" elevation as forecasted in the Request for Proposal? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
184	Martin Harris	Terra Land Group, LLC	What facilities and other actions are planned to safeguard and protect our local urban and rural communities against the unplanned release of right bank San Joaquin River levee breach flood waters that historically accumulate and rise in height against the South Manteca portion of the RD 17 dryland cross levee? [SEE MORE SPECIFICS IN COMMENT LETTER]	Flood Risk	There are several ongoing efforts in the Subbasin for stormwater and flood work, including through regional flood control agencies as well as planning and implementation activities. The San Joaquin Area Flood Control Agency (SJAFCA) covers San Joaquin County with the exception of a few select city areas and aims to address flood protection in the area it covers. Projects SJAFCA has worked on include flood walls, levees, detention basins, and other flood control improvements. SB 985 (Water Code section 10563, subdivision (c)(1)), requires a Storm Water Resource Plan as a condition of receiving funds for storm water and dry weather runoff capture projects from any bond approved by voters after January 2014. SWRPs are intended to develop multiple benefit projects for upcoming funding opportunities. SWRP projects can include benefits such as improved storm drainage, reduced impervious surfaces, flood protection, etc. Areas in the Subbasin have developed stormwater managment plans and programs, including the City of Stockton and City of Manteca.
185	Jane Wagner-Tyack	Communication Consultant	Propose a Subbasin-wide well permitting standard that will address sustainability goals, or provide a justification for not doing so. [SEE MORE SPECIFICS IN COMMENT LETTER]	Well Permitting	Well permitting requirements for San Joaquin, Calaveras, and Stanislaus counties are identified in Section 1.2.3.4 (Well Permitting) of the Draft GSP. An additional subsection has been added to include Sacramento County well permitting requirements. GSAs do not have well permitting authority, unless as authorized by the respective county. SGMA does not provide a GSA with the authority to issue or regulate permits for the construction, modification, or abandonment of groundwater wells, but maintains the authority for well permitting activities with the county. (Water Code, § 10726.4(b).) A GSA may request the county provide the GSA with notice of any permit applications (10726.4(b)) and a GSA may impose spacing requirements on new well construction (10726.4(a)(1)). The GWA will continue to coordinate with its member GSAs that are well permitting agencies. Language has been added to Section 4.7.1 (Plan to Fill Data Gaps) referencing applicable Calaveras County, Stanislaus County, and San Joaquin County monitoring well drilling standards.
186	Kevin Thomas	CA Department of Fish and Wildlife	Demand reduction management actions lack emphasis and specificity critical to ESJ Subbasin sustainability goal achievement. a. Issue: The GSP project and management actions focus on supply augmentation, with only three projects intended to conserve groundwater through metering and systems optimization. Though the GSP reserves the flexibility to implement demand-side management In the future (GSP pp 6-1), there are no specifics as to how the ESJGA would implement demand management. This lack of specificity on how demand will be managedmay lead to deprioritization or delayed implementation of demand management actions, which can undermine a basin's ability to achieve sustainability goals. Considering the ESJ Subbasins' current unsustainable rate of groundwater consumption and considering the cost and timing challenges associated with supply augmentation projects, a balanced portfolio approach to achieve groundwater sustainability should Include demand-management strategies. b. Recommendation: Add specific measures for initiating demand reduction on an earlier timeline in the ESJ Subbasin to account for groundwater pumping lag Impacts, supply-augmentation project implementation challenges, and a scaled ramping-down of groundwater use that is a necessary ingredient in San Joaquin Valley long-tenn groundwater sustainability. Be specific about triggers, timing, and expected outcomes of demand-management actions.	Projects and Management Actions	See Master Response 5 - Projects.
187		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The likely benefits and impacts to DAC members by the proposed projects and management actions are not clearly identified in the GSP. A discussion should be added for each project or management action to clearly identify the benefits to DAC drinking water users and potential impacts to the water supply. For all potential impacts, the project/management action should include a clear plan to monitor for, prevent, and/or mitigate against such impacts. [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	Comment noted. The GWA has a twenty year planning timeframe to bring the projects online, and will continue to evaluate project benefits, impacts, and costs. DAC benefits and impacts will be addressed at the GSA level by the project proponents, as determined to be appropriate by the project proponents. SGMA looks at the basin-scale. Project impacts will be evaluated; it is the GSA's responsibility to meet project-level environmental regulations. CEQA compliance will be done at the GSA level.
188		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	Potential impacts of projects and management actions on groundwater levels near surface water bodies should be evaluated as part of the GSP. [SEE MORE SPECIFICS IN COMMENT LETTER]	Projects and Management Actions	Comment noted. The GWA has a twenty year planning timeframe to bring the projects online, and will continue to evaluate project benefits, impacts, and costs. SGMA looks at the basin-scale. Project impacts will be evaluated; it is the GSA's responsibility to meet project-level environmental regulations. CEQA compliance will be done at the GSA level.
189		Joint Comments: TNC, Audubon, CWA, CWF, American Rivers, Union of Concerned Scientists	The proposed projects and management actions include twenty separate direct and in-lieu recharge projects. Recharge projects have the potential to mobilize contaminants, including by mobilizing surface and shallow soil contaminants through percolation, spreading existing contaminant plumes by altering the groundwater flow gradient, and mobilizing naturally occurring compounds through changes in geochemistry due to the introduction of a different water type, among other mechanisms. As recommended in the 2019 Stanford A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act, "In addition to complying with any regulatory requirements, GSAs undertaking recharge or other active management actions should consider developing a sufficient understanding of the interactions between subsurface geology, geochemistry and GSP projects in their basin. The development of sufficient monitoring networks, capable of detecting changes in groundwater quality conditions related to active management, will be critical to understanding these interactions."7 Therefore, the GSP should explicitly describe how such risks will be evaluated and monitored as a part of each identified project.	Projects and Management Actions	1) CEQA compliance will be conducted at the GSA level. Language was added to Section 2.2.4.4 (Point Sources) stating that new projects undertaken by GSAs as part of GSP implementation will evaluate contaminant plume movement in a CEQA document, and management through existing regulatory agencies was highlighted. 2) Recharge projects were preliminarily screened for the potential to contribution to the migration of a potential contaminant plume during the GSP project proposal process. Projects with the potential to contribute to the migration of a potential contaminant plume were eliminated from consideration and removed from the GSP list of projects. (See GSP Section 6.2.1 (Project Identification).
190	Sandi Matsumoto	The Nature Conservancy	This section should include a discussion of the following: o Future well permitting must be coordinated with the GSP to assure achievement of the Plan's sustainability goals. o The State Third Appellate District recently found that Counties have a responsibility to consider the potential impacts of groundwater withdrawals on public trust resources when permitting new wells near streams with public trust uses (ELF v. SWRCB and Siskiyou County, No. C083239). The need for well permitting programs to comply with this requirement should be stated. o Section 2.3.3.3 discusses potential exemptions from the Stanislaus County Groundwater Ordinance but does not mention the fact that applicants who are not exempt are required to provide substantial evidence that their proposed extraction will not result in undesirable results, including significant and unreasonable impacts to GDEs and surface waters.	Well Permitting	1) Well permitting requirements for San Joaquin, Calaveras, and Stanislaus counties are identified in Section 1.2.3.4 (Well Permitting) of the Draft GSP. An additional subsection has been added to include Sacramento County well permitting requirements. GSAs do not have well permitting authority, unless as authorized by the respective county. SGMA does not provide a GSA with the authority to issue or regulate permits for the construction, modification, or abandonment of groundwater wells, but maintains the authority for well permitting activities with the county. (Water Code, § 10726.4(b).) A GSA may request the county provide the GSA with notice of any permit applications (10726.4(b)) and a GSA may impose spacing requirements on new well construction (10726.4(a)(1)). The GWA will continue to coordinate with its member GSAs that are well permitting agencies. Language has been added to Section 4.7.1 (Plan to Fill Data Gaps) referencing applicable Calaveras County, Stanislaus County, and San Joaquin County monitoring well drilling standards. 2) Section 1.2.3.4.3 (Well Permitting, Stanislaus County) has been updated to include language on procedures for applicants not exempt from the Stanislaus County Groundwater Ordinance.
191	Sandi Matsumoto	The Nature Conservancy	The Subbasin includes many GDEs and ISWs which represent beneficial uses and users of groundwater, and which include potentially sensitive resources and protected lands. Environmental resource protection needs should be considered in establishing project priorities. In addition, consistent with existing grant and funding guidelines for SGMA-related work, priority should be given to multi-benefit projects that can address water quantity as well as providing environmental benefits or benefits to disadvantaged communities. Please include environmental benefits and multiple benefits as criteria for assessing project priorities.	Projects and Management Actions	See Master Response 5 - Projects. Multi-benefit projects will be pursued when feasible.

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192	Sandi Matsumoto	The Nature Conservancy	oFor the projects already identified, please consider stating how ISWs and GDEs will benefit or be protected, or what other environmental benefits will accrue. oIf ISWs will not be adequately protected by those listed, please include and describe additional management actions and projects targeted for protecting ISWs. oRecharge ponds, reservoirs and facilities for managed stormwater recharge can be designed to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. In some cases, such facilities have been incorporated into local HCPs, more fully recognizing the value of the habitat that they provide and the species they support. For projects that will be constructing recharge ponds, please consider identifying if there will be habitat value incorporated into the design and how the recharge ponds will be managed to benefit environmental users. oSpecific examples of how project descriptions may be refined to incorporate environmental benefits include the following: •Project 21: Winery Recycled Water will recycle winery wastewater and reuse it for irrigation and in-lieu recharge, or the water will be put into ponds. Please consider identifying what proportion of water will be put into ponds for direct recharge that could also provide a benefit for wildlife and aquatic species. •Project 23: SSJID Stormwater Reuse will capture stormwater for reuse and recharge. Project 18: Farmington Dam Repurpose Project proposes to more than double storage in Farmington Basin for water supply. Please consider assessing ways in which these projects could also provide enhanced wildlife and aquatic species benefits. •For examples of case studies on how to incorporate environmental benefits into groundwater projects, please visit our website: https://groundwaterresourcehub.org/case-studies/recharge-case-studies/	Projects and Management Actions	1) GSP projects have been proposed by individual GSAs and will be implemented at the GSA level. Although the GWA does not have authority to direct project design or implementation, the GWA's role will be to oversee essential project coordination by identifying where projects would be beneficial, synthesize how GSAs are doing projects, and make sure that GSA projects are getting the Subbasin to sustainability. Multi-benefit projects will be pursued when feasible. 2) Flood-Managed Aquifer Recharge (Flood-MAR) is an integrated and voluntary resource management strategy that uses flood water resulting from, or in anticipation of, rainfall or snow melt for managed aquifer recharge (MAR) on agricultural lands and working landscapes, including but not limited to refuges, floodplains, and flood bypasses. Flood-MAR can be implemented at multiple scales, from individual landowners diverting flood water with existing infrastructure, to using extensive detention/recharge areas and modernizing flood management infrastructure/operations (Source: https://water.ca.gov/Programs/All-Programs/Flood-MAR). 3) See also: Master Response 5 - Projects.
193	Sandi Matsumoto	The Nature Conservancy	This section lists only administrative actions the GSA will undertake to implement the GSP, and does not identify the management actions to be taken if to assure SGMA compliance if monitoring data indicate that measurable objectives or interim milestones are not being achieved. An adaptive management approach, where monitoring data are used to assess results and inform refinement of the management approach is typically specified. Please identify what management actions will be taken if monitoring data indicate that Measurable Objectives or Interim Milestones are not being achieved, or undesirable results are imminent.	Projects and Management Actions	See Master Response 5 - Projects.