

Carpinteria Groundwater Basin Groundwater Sustainability Plan Comments and Responses

Commenter	Section	Page/ Figure/ Table	Comment	Response
Dan Wilson (NOAA's NMFS)	General Comment	NA	<p>NOAA's National Marine Fisheries Service (NMFS) is the federal agency responsible for managing, conserving, and protecting living marine resources in inland, coastal, and offshore waters of the United States. We derive our mandates from numerous statutes, including the Federal Endangered Species Act (ESA). The purpose of the ESA is to conserve threatened and endangered species and their ecosystems.</p> <p>On October 6, 2023, the Carpinteria Basin Groundwater Sustainability Agency (hereafter, "GSA") released their draft Groundwater Sustainability Plan (draft GSP) for public review and comment (Carpinteria Groundwater Sustainability Agency 2023). The Carpinteria Creek and Rincon Creek watersheds, which fall within the boundary of the draft GSP, support federally endangered southern California (SC) steelhead (<i>Oncorhynchus mykiss</i>). Carpinteria Creek and Rincon Creek also contain SC steelhead designated critical habitat (Federal Register 2005), and Intrinsic Potential Habitat (Boughton and Goslin 2006) for the species (see enclosure), and are identified in NMFS' Southern California Steelhead Recovery Plan as high priority Core 1 recovery populations/watersheds (Federal Register 2005; NMFS 2012). (Arroyo Paredon has also been documented as supporting <i>O. mykiss</i>, and is identified as a Core 3 population/watershed in NMFS' Southern California Steelhead Recovery Plan [NMFS 2012, Table 2-1, p. 2-7, Table 7-1, p. 7-5]).</p> <p>NMFS (2012) identified groundwater extraction in both the Carpinteria Creek and Rincon Creek watersheds as a "Very High Threat" to the steelhead populations in these watersheds (NMFS 2012, Table 10-2, p. 10-10). To address this threat, NMFS (2012) identified two recovery actions for these watersheds: 1) conduct groundwater extraction analysis and assessment; and 2) develop and implement a groundwater monitoring and management program (NMFS 2012, Table 10-12, p. 10-44 – 10-45, Table 10-13, p. 10-49). NMFS' 2023 "Five-Year Review: Summary and Evaluation of Southern California Steelhead" identified groundwater extraction from Carpinteria Creek and Rincon Creek as a threat to these two steelhead populations (NMFS 2023, pp. 61, 65). NMFS 5-Year Review also specifically noted: "Significantly, the passage of the Sustainable Groundwater Management Act (SGMA) has provided a new regulatory mechanism for managing groundwater resources that have been identified as a major issue in the restoration of core recovery populations within the Southern California Steelhead DPS." (NMFS 2023, p. 115)</p> <p>Surface water and groundwater appear to be hydraulically linked in the Carpinteria groundwater basin, which includes Carpinteria Creek and Rincon Creek, and this linkage is critically important in creating seasonal habitat for steelhead. Where groundwater supplements streamflow, the influx of cold, clean water is critically important for maintaining water quality (e.g., temperature and dissolved oxygen) and flow volume. Pumping water from this aquifer- stream complex has the potential to affect endangered steelhead and its habitat by diminishing groundwater accretion to creeks overlying the Carpinteria groundwater basin, or accelerating surface water loss from these creeks. NMFS is concerned that groundwater extraction in the Carpinteria groundwater basin may be currently impacting steelhead instream habitat in this way.</p>	<p>The GSA thanks NMFS for their comments. We are aware of the historical presence of steelhead trout and other sensitive species in the basin creeks, and have added text to section 3.2.7 to reflect this.. Although data gaps exist, the best available data do not indicate that groundwater supplements streamflow in the Basin; this would imply gaining streams, where streamflow increases as the stream flows through the Basin due to aquifer discharge to the creeks.</p> <p>The GSP is a groundwater management plan. There are numerous factors that affect instream flow conditions, including rainfall in the contributing watershed, temperature, evapotranspiration, etc. It is not within the purview of this GSP to manage these contributing factors, or to mandate instream flow conditions. The purpose of the GSP is to propose a groundwater management framework that does not imp negatively impact flow conditions in a significant or unreasonable fashion.</p> <p>Responses to individual comments are included below.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Dan Wilson (NOAA's NMFS)	Section 3	NA	<p><u>Interconnected Surface Water</u>: The draft GSP appears to inappropriately conclude there is no interconnected surface water (ISW) within the Carpinteria groundwater basin. The conclusion appears based upon the argument “that in the Recharge Area, basin creeks are all losing creeks and represent principal sources of recharge to the basin”, which is inconsistent with the definition of ISW found within the SGMA regulations. SGMA regulations (23 CCR §§ 354.22, 354.26 (d), 354.28(a) and 354.28(e)) defines ISW 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.” Losing streams can meet the above definition, and appear to do so within the Carpinteria basin. For instance, the groundwater system water budget computed in Chapter 3 acknowledges streamflow percolation to the underlying aquifer occurs within the basin, and has occurred in all but three years during 36-year historical water budget period (Table 3-9). The current water budget (Table 3-13), based upon the water years 2012-2020, also notes significant streambed percolation, as does the narrative on page 3-139. Assuming a continuous saturated zone was present when streamflow percolated to groundwater, surface water and groundwater were at some point interconnected. If data exists that suggests a saturated zone between surface water and groundwater has never existed during the analyzed period of record, the GSP should present that data.</p> <p>The draft GSP does not identify minimum thresholds or measurable objectives for depletion of interconnected surface water. Absent a clear demonstration that interconnected surface water or undesirable results related to interconnected surface water depletion are not present or are unlikely to occur, the GSA must develop initial sustainable management criteria as required by SGMA regulations. (23 CCR §§ 354.26(d); also see “DWR Best Management Practices for the Sustainable Management of Groundwater: Sustainable Management Criteria (DRAFT), November 2017”, available at: https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents) NMFS recommends the GSA follow guidance from California Department of Fish and Wildlife (2019) and develop conservative streamflow depletion thresholds as a cautionary principle until the surface flow/groundwater dynamic in the Carpinteria basin is better studied and understood.</p>	<p>Text regarding this conclusion has been expanded in Section 3.2.6 to explain our reasoning more clearly. We reference DWR's classification identifying <i>gaining</i>, <i>losing</i>, and <i>disconnected</i> streams (Figure 3-43). It is not simply that the streams are losing streams, which we base our conclusion on, but the fact that even under the wettest conditions (as exemplified by spring 2005 water levels), there is still a significant observable distance between the channel bottom elevation (from DEM data) and the water table elevation. We maintain that the results of the analysis display that the distance between the channel bottom and the water table indicates the lack of a continuous saturated aquifer between the channel and the water table, and thus indicates a condition of disconnected streams (Figure 3-43c). A disconnected stream, by definition, has no interconnected surface water. Because this analysis indicates a hydraulic disconnection between the streams and the aquifer, we have not identified MTs or MOs for this sustainability indicator.</p> <p>A disconnected stream still percolates infiltrated water to recharge the aquifer during storm events. The inclusion in the water budget of recharge by stream percolation does not negate the conclusion of a disconnected stream.</p> <p>SGMA requires use of the best available data and science in analyses supporting the GSP. The DEM data has a high degree of confidence. The groundwater elevation contours are based on approximately 40 wells, including several located along basin creeks; although there is by necessity interpolation involved in generating these surfaces, there is still a high degree of confidence in this data. It is acknowledged that there is not much surface water streamflow data available in the basin. This is recognized as a data gap in section 6.14 and identified as an area where additional data could be helpful to basin management.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Dan Wilson (NOAA's NMFS)		NA	<p><u>Characterization of Undesirable Results:</u> The draft GSP defines the undesirable result for depletion of interconnected surface water using the SGMA regulatory definition, i.e., “depletion of interconnected surface water that has significant and unreasonable adverse impacts on beneficial uses of surface water.” We recommend the GSA also define what adverse impacts are considered “significant and unreasonable” with regard to beneficial uses of surface water identified by the State Water Board (2019 Central Coast Basin Plan, found at https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/) (i.e., cold freshwater habitat; rare, threatened, or endangered species; migration of aquatic organisms; and spawning reproduction, and/or early development). Also, per SGMA regulation (23 CCR §§ 354.26 (a) and 354.26(b)), the draft GSP should describe the processes and criteria used to develop the ISW depletion undesirable result, the cause that would, or has led, to the undesirable result, and the criteria informing when and where the effects cause the undesirable result</p>	<p>Discussion of the analysis documented in Section 3.2.6 has been expanded from the original draft text to more clearly explain the methodology and conclusions. Because this analysis indicates a hydraulic disconnection between the streams and the aquifer, we have not defined MTs, MOs, or undesirable results for this sustainability indicator.</p>
Dan Wilson (NOAA's NMFS)		NA	<p><u>Future Studies and Monitoring:</u> We recommend the GSA identify ISW depletion as a data gap, and propose studies and monitoring that will improve understanding of groundwater/surface water dynamics and how pumping impacts surface water beneficial uses. The mechanism by which stream-dwelling organisms are impacted by groundwater pumping is habitat degradation caused by the draw-down of surface flows (Barlow and Leake 2012). The impacts can be both physical (e.g., pool volume shrinks as water surface elevation declines) and chemical (e.g., water quality can suffer as pools and riffles lose connectivity). Thus, the appropriate method to determine whether pumping is having “significant and unreasonable adverse impacts” on beneficial uses of surface water is to understand the level of impact (i.e., volume of streamflow depletion) and how habitat quality and functionality change because of that impact.</p>	<p>It is acknowledged that there are data gaps in surface water flows of Rincon Creek and Arroyo Paredon Creek. This has been discussed in Section 6.14 of the Plan. However, data used to determine that the groundwater is disconnected from the surface water included the HCM, historic water levels and ground surface elevations. The GSA has high confidence in each of these of these data sets</p>
Dan Wilson (NOAA's NMFS)	Sections 5 and 6	NA	<p><u>Steelhead as a Public Trust Resource:</u> When developing sustainable management criteria, and projects and management actions, the draft GSP appears to be missing adequate analysis and consideration of public trust resources, as required by the Public Trust Doctrine. A recent California Court of Appeal decision (Environmental Law Foundation v. State Water Resources Control Board (2018) 26 Cal.App.5th 844) held that the public trust doctrine must be considered—and public trust resources protected whenever feasible—in any decision governing groundwater withdrawals hydrologically connected to public trust surface waters. As noted above, SC steelhead, listed as endangered under the ESA, inhabit many of the navigable waterways (including Carpinteria Creek and Rincon Creek and tributaries) overlying the Carpinteria groundwater basin, and should be considered a public trust resource. The final GSP should adequately explain how proposed sustainable management criteria protect public trust resources like instream habitat utilized by endangered steelhead.</p>	<p>It is recognized that steelhead are an environmental public trust resource in the Basin. Text has been added to section 3.2.7 to document listed species in the Basin. Our analysis, as described in Section 3.2.6, indicates that the groundwater is not hydrologically connected to the surface water, due to the observed distance between channel bottom elevation and groundwater elevation during the wettest periods. Therefore, SMCs were not developed for the interconnected surface water sustainability indicator.</p>
Heather A. Pert (CDFW)	General Comment	NA	<p>The California Department of Fish and Wildlife (CDFW) is providing comments on the Carpinteria Groundwater Sustainability Agency's (CGSA) Draft Groundwater Sustainability Plan (Draft GSP). The Draft GSP on the Carpinteria groundwater basin (Basin) was prepared pursuant to the Sustainable Groundwater Management Act (SGMA). As trustee agency for the State's fish and wildlife resources, CDFW has jurisdiction over the conservation, protection, and management of fish, wildlife, native</p>	<p>The GSA thanks CDFW for their comments. We are aware of the historical presence of steelhead trout and other sensitive species in the basin creeks, and have added text to section 3.2.7 to reflect this. Individual comments are addressed below.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
			<p>plants, and the habitat necessary for biologically sustainable populations of such species (Fish & Game Code §§ 711.7 and 1802).</p> <p>Development and implementation of groundwater sustainability plans (GSPs) under SGMA represents a new era of California groundwater management. CDFW has an interest in the sustainable management of groundwater, as many sensitive ecosystems and species depend on groundwater and interconnected surface waters, including ecosystems on CDFW-owned and managed lands within SGMA-regulated basins.</p> <p>SGMA and its implementing regulations afford ecosystems and species-specific statutory and regulatory consideration, including the following as pertinent to GSPs:</p> <ul style="list-style-type: none"> • GSPs must identify and consider impacts to groundwater dependent ecosystems (GDEs) [23 CCR § 354.16(g) and Water Code § 10727.4(l)]; • Groundwater Sustainability Agencies must consider all beneficial uses and users of groundwater, including environmental users of groundwater [Water Code §10723.2 (e)]; • GSPs must identify and consider potential effects on all beneficial uses and users of groundwater [23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3)]; • GSPs must establish sustainable management criteria that avoid undesirable results within 20 years of the applicable statutory deadline, including depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water [23 CCR § 354.22 et seq. and Water Code §§ 10721(x)(6) and 10727.2(b)], and describe monitoring networks that can identify adverse impacts to beneficial uses of interconnected surface waters [23 CCR § 354.34(c)(6)(D)]; and, • GSPs must account for groundwater extraction for all water use sectors including managed wetlands, managed recharge, and native vegetation [23 CCR §§ 351(al) and 354.18(b)(3)]. <p>Furthermore, the Public Trust Doctrine imposes a related but distinct obligation to consider how groundwater management affects public trust resources, including navigable surface waters and fisheries. Groundwater hydrologically connected to surface waters are also subject to the Public Trust Doctrine to the extent that groundwater extractions or diversions affect or may affect public trust uses (<i>Environmental Law Foundation v. State Water Resources Control Board</i> (2018), 26 Cal. App. 5th 844; <i>National Audubon Society v. Superior Court</i> (1983), 33 Cal. 3d 419). Accordingly, groundwater plans should consider potential impacts to and appropriate protections for interconnected surface waters and their tributaries, and interconnected surface waters that support fisheries, including the level of groundwater contribution to those waters.</p> <p>In the context of SGMA statutes and regulations, and Public Trust Doctrine considerations, groundwater planning should carefully consider and protect environmental beneficial uses and users of groundwater, including fish and wildlife and their habitats, groundwater dependent ecosystems, and interconnected surface waters.</p>	

Commenter	Section	Page/ Figure/ Table	Comment	Response
Heather A. Pert (CDFW)	General Comment	NA	CDFW supports ecosystem preservation and enhancement in compliance with SGMA and its implementing regulations based on CDFW expertise and best available information and science. CDFW offers the following comments and recommendations below to assist CGSA in identifying and evaluating impacts on biological resources including GDEs within the adjacent groundwater basins. CDFW may provide additional suggestions for CGSA's consideration as the Draft GSP is revised.	Thank you for the comments. They are duly noted and maintained for the record. Individual comments on the GSP are addressed below.
Heather A. Pert (CDFW)	Section 1	11	<p>1. Comment #1: Interconnected Surface Water (Executive Summary 2.4 of Draft GSP) The Draft GSP states that there are no interconnected surface waters in the Basin.</p> <p>a. Issue: Page ES-11 of the Draft GSP states, “[i]t is concluded that there are no interconnected surface water systems in the Basin (see Section 3.2.7).”</p> <p>b. Concern: The Hydrogeologic Conceptual Model (HCM) used to determine that there are no interconnected surface waters is based on a Geotechnical Consultants, Inc. report (Draft GSP, pg. ES-5) from 1976. CDFW is concerned CGSA's reliance on a nearly 50-year-old report to determine the absence of interconnected surface waters within the Basin may be inadequate. The Draft GSP acknowledges that the HCM has data gaps regarding the structure and aquifer parameters of Storage Unit #2 (the Basin is separated into Storage Unit #1 and Storage Unit #2) and a historical lack of hydrogeologic investigation in the Ventura County portion of the Basin (Draft GSP, pg. 3-33).</p> <p>c. Recommendation: CDFW recommends the CGSA commence additional studies and propose a schedule for the next 5 years to fill in the data gaps associated with the HCM. Examples of informative studies that could be used include the installation and data analysis of monitoring wells near potential interconnected surface waters and pairing multiple-completion wells with additional streamflow gages. This will facilitate an improved understanding of surface water-groundwater interconnectivity and subsurface recharge channels. CDFW recommends CGSA determine their approach to resolve these data gaps, including a timeline to do so, in the GSP prior to its adoption. CDFW recommends that this data be used to supplement and/or update the HCM to evaluate if there are interconnected surface waters.</p>	<p>The GSA does not believe that the Geotechnical Consultants, Inc. report is flawed simply because it was produced in the 1970s. The hydrogeologic conditions that are documented in that report are comparable to conditions in the present day. Significant work has been done in 2022 to update the basin setting including the HCM using available new data.</p> <p>The desktop analysis presented in Section 3.2.6 uses DEM land surface data and groundwater elevation contours derived from over 30 wells across the Basin, including wells proximate to the basin creeks. This is the best available data available at present, and it is considered to have a high degree of confidence. This analysis indicates that the basin creeks are hydraulically disconnected from the groundwater in the aquifer (Figure 3-43 [Part C]), even during wet weather periods.</p> <p>it is acknowledged that there are data gaps in surface water flows of Rincon Creek and Arroyo Paredon Creek. This has been discussed in Section 6.14 of the Plan. However, data used to determine that the groundwater is disconnected from the surface water included the HCM, historic water levels and ground surface elevations. The GSA has high confidence in each of these of these data sets</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Heather A. Pert (CDFW)	Section 3	29	<p>2. Comment #2: Prepare Groundwater Dependent Ecosystem Assessment (Section 4 and Section 5 of Draft GSP) The Draft GSP does not include minimum thresholds, measurable objectives, or sustainable management criteria to protect GDEs.</p> <p>a. Issue: Page 5-29 of the Draft GSP states, “it is acknowledged that there are potential data gaps in the Carpinteria Basin with respect to groundwater dependent ecosystems (GDEs), which the GSA can continue to pursue. GDEs are affected by groundwater elevations in their vicinity. Two areas of potential GDEs were identified that may require additional investigation during the first 5-year SGMA implementation period.”</p> <p>b. Concern: CDFW is concerned with the Draft GSP’s disregard for the potential GDEs along the Arroyo Paredon Creek and Rincon Creek in the Basin and has not established interim minimum thresholds, measurable objectives, or sustainable management criteria to protect GDEs from undesirable results. These potential GDEs consist of mixed riparian and coastal oak woodland habitats. Mixed riparian habitat is considered highly valuable within the Basin because it provides habitat for many plant and wildlife species, filters pollutants, provides bed and bank stabilization/erosion control, and moderates hydrologic flows during the wet season. Coastal oak woodland habitat is also considered to be of high biological value for its varying degree of canopy coverage that provide complex understory environments of shrubs, grasses, and forbs that provide wildlife habitat. CDFW understands that there are data gaps that CGSA needs to pursue; however, the lack of establishing interim minimum thresholds may adversely impact GDEs during the first five years of the SGMA implementation period.</p> <p>c. Recommendation: CDFW highly recommends that the CGSA provide appropriate consideration to GDEs by developing minimum thresholds, measurable objectives, and sustainable management criteria to prevent undesirable results to GDEs. To fill in data gaps, CDFW recommends the installation of shallow groundwater monitoring wells near GDEs to ensure that groundwater use is not affecting soil saturation at the root depths of GDEs.</p>	<p>The GSA used NCCAG data for potential GDEs developed by The Nature Conservancy (TNC), along with groundwater elevation contours generated from historical data, as a basis for its analysis of potential GDEs. The use of a 30-foot depth to water criteria for screening out NCCAG polygons is a methodology that has been employed by other GSPs that have been accepted by DWR. This analysis, described in Section 3.2.7, screens out any of the NCCAG polygons in the confined area of the Basin because they are separated from the principal aquifer by the fine-grained sediments of the confining layer. Most of the NCCAG polygons in the recharge area had depth to water of greater than 30 feet indicated by the data, and so were screened out. This analysis identified four areas with potential GDEs identified (two along Arroyo Paredon, and two along Rincon Creek [Figures 3-52 and 3-53]), that are identified as requiring additional characterization during the initial 5-year SGMA implementation period.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Heather A. Pert (CDFW)	Section 1	11	<p>3. Comment #3: Terrestrial and Aquatic Special-Status Species Occurrence (Executive Summary-2.6 of Draft GSP) The Draft GSP does not document terrestrial and aquatic special status species occurrences within the Basin.</p> <p>a. Issue: Page ES-11 of the Draft GSP states, “GDEs are defined under SGMA as “ecological communities of species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface.”</p> <p>b. Concern: CDFW is concerned with the Draft GSP’s lack of documentation on terrestrial and aquatic species occurring in the Basin.</p> <p>The Basin has GDEs and habitat that supports the federal Endangered Species Act (FESA) listed and the California Endangered Species Act (CESA) candidate-listed southern California steelhead (<i>Oncorhynchus mykiss</i> or steelhead); California red-legged frog (<i>Rana draytonii</i>), which is listed as a threatened species under the FESA and is a California species of special concern (SSC); least Bell’s vireo (<i>Vireo belli pusillus</i>), which is listed as an endangered species under the FESA and CESA; and southwestern willow flycatcher (<i>Empidonax traillii extimus</i>), which is listed as an endangered species under the FESA and CESA. According to CDFW’s California Natural Diversity Database (CNDDDB; CDFW 2023), additional CDFW SSC’s occurring in the area include yellow warbler (<i>Setophaga petechia</i>), yellow-breasted chat (<i>Icteria virens</i>), Cooper’s hawk (<i>Accipiter cooperi</i>), arroyo chub (<i>Gila orcuttii</i>), southwestern pond turtle (<i>Actinemys pallida</i>) (On October 3, 2023, the U.S. Fish and Wildlife Service proposed to list southwestern pond turtle, a species from central and southern California and Baja California, Mexico, as threatened species under the FESA. If the proposal is finalized, it would add the southwestern pond turtle to the List of Endangered and Threatened Wildlife and extend the Act’s protections to the species.), and two-striped garter snake (<i>Thamnophis hammondi</i>). These species utilize habitats identified in the Draft GSP as known GDEs and potential GDEs.</p> <p>c. Recommendation: CDFW recommends the CGSA utilize the CNDDDB occurrence data and also add and address the following species in the Final GSP: steelhead, least Bell’s vireo, southwestern willow flycatcher, California red-legged frog, yellow warbler, yellow-breasted chat, Cooper’s hawk, arroyo chub, southwestern pond turtle, and two-striped garter snake.</p>	The GSA thanks CDFW for their comments. We are aware of the historical presence of steelhead trout and other sensitive species in the basin creeks, and have added text to Section 3.2.7 to reflect this. References have been added to the text to document the species listed in this comment.
Heather A. Pert (CDFW)	General Comment	NA	<p>4. Comment #4: Draft GSP vs. Final GSP Streamlining the comparison of the Draft GSP and Final GSP.</p> <p>a. Issue: CGSA may need to revise the GSP before it is finalized and adopted.</p> <p>b. Recommendation: CDFW recommends the CGSA provide a red-lined version of the Final GSP to understand the changes made between the Draft GSP and Final GSP. Alternatively, CDFW recommends the CGSA provide a summary of changes made and comments addressed by the CGSA in preparation of a Final GSP.</p>	A red-lined version of the final GSP will be made available upon request.
Heather A. Pert (CDFW)	Section 3	NA	<p>5. Comment #5: Cannabis Cultivation Accounting for current and future cannabis cultivation water uses within the Carpinteria River Basin.</p>	No specific analysis targeting cannabis cultivation is included in the GSP. Cannabis water use is included in projected water use for agriculture in future water budget analysis and groundwater

Commenter	Section	Page/ Figure/ Table	Comment	Response
			<p>a. Issue: The Draft GSP does not evaluate potential groundwater effects from cannabis cultivation for current and future groundwater management trends. Without this evaluation, the effects of this water intensive crop may be overlooked throughout Carpinteria River Valley.</p> <p>b. Concern: CDFW has identified Carpinteria River Valley as a priority watershed for cannabis permitting, enforcement, and compliance. The majority of cannabis projects within this area are clustered in the Santa Monica Creek and Carpinteria Creek HUC 12 watersheds. This includes steelhead streams Arroyo Paredon, Carpinteria, and Gobernador creeks (NMFS 2013). Since the implementation of legal cannabis cultivation, CDFW has received 45 applications within the Carpinteria River Valley, specifically in the HUC 12 watersheds listed above. Cannabis cultivation is a water intensive crop that can have a significant impact on environmental beneficial users of groundwater. Cannabis groundwater wells provide water for the irrigation of water-intensive cannabis cultivation (assuming six gallons of water per day per plant; Bauer et al. 2015). Some of the cannabis grows can range from 1- 8 acres, with multiple licenses on a property (resulting in several acres of cultivation). CDFW is concerned that by not accounting for existing cannabis use, which is water intensive and likely to increase overtime, the GSP may underestimate groundwater demand in the Carpinteria River Valley.</p> <p>Groundwater and interconnected surface water depletion are a major concern for fish and wildlife beneficial users in the Carpinteria River Valley. Designating Carpinteria Valley as a medium priority cannabis watershed requires groundwater to be monitored and sustainably managed for the benefit of all beneficial users, including groundwater dependent vegetated communities and interconnected surface waters that are necessary to support riparian and aquatic habitat and the sensitive species therein (e.g., steelhead). Decreased stream flow may contribute to direct mortality if fish eggs are exposed, covered with silt, or left without sufficient oxygenated water. Water degraded in temperature or chemical composition can displace or limit fish populations. Additionally, phreatophytic vegetation is a critical contributor to nesting and foraging habitat for a wide range of species and can be sensitive by depth to groundwater threshold impacts. This sensitivity to groundwater level thresholds means that localized pumping and recharge actions altering groundwater levels can impact the health and extent of phreatophyte vegetation. Both decreasing (drying out) or increasing (drowning) groundwater elevation has the potential to stress phreatophytes depending on the plant species, groundwater elevation, and duration (e.g., short term wetness/dryness versus prolonged wetness/dryness) (Froend and Sommer 2015; Naumburg et al. 2005).</p> <p>Accounting for current and future cannabis cultivation within the Carpinteria River Basin is also particularly critical to the survival and recovery of steelhead.</p> <p>c. Recommendation: CDFW recommends CGSA review existing information on cannabis cultivation within Carpinteria River Valley and recommends it be factored into the Final GSP when evaluating groundwater management in current and future trends.</p>	<p>model runs. Details regarding assumptions made for projected agricultural use are included in Section 3.3 and Appendix F.</p> <p>Cannabis in Carpinteria is exclusively grown in green houses. An Acreage cap of 186 acres has been set by the County of Santa Barbara. Approximately 29 acres remains unutilized of the cap.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Heather A. Pert (CDFW)	General Comment	NA	<p>In conclusion, the Draft GSP does not comply with all aspects of SGMA statute and regulations, and CDFW deems the Draft GSP inadequate to protect fish and wildlife beneficial users of groundwater for the following reasons:</p> <ol style="list-style-type: none"> 1. The Draft GSP does not identify reasonable measures and schedules to eliminate data gaps. [CCR § 355.4(b)(2)] (See Comments # 1, 2, 3, and 5); 2. The sustainable management criteria and projects and management actions are not commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Draft GSP. [CCR § 355.4(b)(3)] (See Comments # 1, 2, 3, and 5); and, 3. The interests of the beneficial uses that are potentially affected by the use of groundwater in the Basin, have not been considered. [CCR § 355.4(b)(4)] (See Comments # 1, 2, and 3). 	<ol style="list-style-type: none"> 1. Data gaps are identified in Section 6.14. A management action is presented to undertake actions to reduce data gaps. A specific work plan for this action is not presented as part of the GSP, but is expected to be produced in the initial 5-year SGMA implementation period. 2. The GSA used the best available data on the physical characteristics of the Basin, and data and methodology endorsed by The Nature Conservancy for analysis regarding GDEs. As additional or better data become available, the GSA is committed to using it. 3. The GSA believes that beneficial uses and users of groundwater have been considered, and are documented in section 5 of the GSP for each sustainability indicator.
Nate Irwin (Santa Barbara Channelkeeper)	General Comment	NA	<p>Thank you for this opportunity to comment on the draft Carpinteria Groundwater Sustainability Plan.</p> <p>Santa Barbara Channelkeeper is a 501c3 environmental non-profit organization dedicated to protecting and restoring the Santa Barbara Channel and its watersheds through science-based advocacy, education, field work and enforcement. We work from the Gaviota Coast to the Ventura River, and out to the Channel Islands. The Carpinteria Groundwater Sustainability Plan (CGSP) strives to allow for the Carpinteria Basin to achieve sustainability within 20 years of plan adoption.</p> <p>We are excited to see the positive effects that will come from the city of Carpinteria investing in the Carpinteria Advanced Purification Project, and applaud the effort the city is making to develop a plan to sustainably manage groundwater in the Carpinteria Basin. After a brief initial review of the plan, we believed it was important to highlight two areas we identified: the conclusion of no interconnected surface waters and degraded water quality in the basin. We respectfully submit the following comments and recommend that these issues are re-evaluated because of their importance in sustainably managing groundwater in the Carpinteria Basin.</p>	<p>Thank you for the general comments. They are duly noted and maintained for the record. Individual comments on the GSP are addressed below.</p>
Nate Irwin (Santa Barbara Channelkeeper)			<p>Interconnected Surface Waters</p> <p>We believe that there are interconnected surface waters in the Carpinteria Groundwater Basin. Protecting the species and ecosystems that rely on these interconnected surface waters is imperative to the overall health of the basin. The CGSP highlights that “no interconnected surface water systems have been identified within the Basin. Therefore, no monitoring network for this sustainability indicator has been established at this time.” Several creeks in the Carpinteria Basin are experiencing the undesirable result (under the definition provided in § 10721(x) of SGMA) of depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. Rincon Creek, Carpinteria Creek, Franklin Creek and Santa Monica Creek are examples of this undesirable result occurring through groundwater extraction.</p> <p>According to the City of Carpinteria Creeks Preservation Program, creeks in Carpinteria have been substantially degraded by the “(a)lteration of natural hydrologic and geomorphologic processes due to withdrawals and inputs of surface and ground</p>	<p>In Section 3.2.6, the GSA presents analysis using the best available data that indicate that the creeks in the Basin are hydraulically disconnected from the underlying aquifer; i.e., there is no continuous zone of saturation between the surface water and the water table, even under wet year conditions.</p> <p>The GSA is aware that some creeks in the Basin have been “degraded,” this is assumed to be a reference to the concrete lining of Santa Monica and Franklin Creeks. This project was implemented in the 1980s for the purposes of flood control and benefit of local property owners. The potential de-lining of these creeks is presented as a potential recharge enhancement project (Section 6.8). An engineering feasibility and ranking study is recommended as a management action in the early part of the initial 5-year implementation period (Section 6.15).</p> <p>It is documented in Figure 3-44 that groundwater elevations in the primary aquifer are higher than the channel elevation in the confined area of the basin in Santa Monica Creek and Franklin Creek. However, in the Confined Zone of the Basin, the principal aquifer is separated from the creek channels by the fine-grained sediments of the confining layer. The confining layer is not used for any significant groundwater production, and is not considered a primary aquifer. Since there is no pumping in the confining layer, it is not considered manageable under SGMA.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
			<p>waters.” (City of Carpinteria creeks preservation program final document volume One. (2005) Available at: https://carpinteriaca.gov/wp-content/uploads/2020/03/cd_creeks-report.pdf (Accessed: 31 October 2023). (“City of Carpinteria, (2005)”). This document also emphasizes the fact that local creeks are intimately linked to groundwater, most importantly surface water flows from local creeks as an important source of groundwater recharge, most notably during high creek flows. (City of Carpinteria, (2005))</p> <p>According to the CGSP, water elevations were higher than the creek bottom elevations along Santa Monica and Franklin Creeks within the confined area during the spring of “wet year 2005.” This signifies that these creeks are interconnected to groundwater during wet years, leading to streamflow depletion when pumping is occurring near these streams. Well pumping along creeks creates what is called a “cone of depression” in the water levels around a well. (Barlow, M., and Leake, A. Streamflow depletion by wells—Understanding and managing the effects of groundwater pumping on streamflow. U.S. Geological Survey Circular, 1376, 84 p. Available at: http://pubs.usgs.gov/circ/1376/(2012). (“Barlow, (2012)”) This area of depression pulls water from streams into the cone, reducing streamflow. (Barlow, (2012)) Santa Monica and Franklin Creeks are below groundwater during wet years, and water captured through pumping consists of two possible sources—a reduction in the natural discharge (or outflow) rate of groundwater from the aquifer or an increase in the natural or artificial recharge (or inflow) rate to the aquifer. (<i>Id.</i>) The water that would normally support ecosystems downstream is instead captured in the cone of depression of the well, reducing streamflow. The Carpinteria Salt Marsh relies on flows from Franklin and Santa Monica Creek, primarily during high flow periods. (Carpinteria Salt Marsh Preserve (no date) - University of California Natural Reserve System. Available at: https://carpinteria.ucnrs.org/agenciesandgroups.html (Accessed: 01 November 2023)).</p> <p>Groundwater pumping should be monitored and addressed under the CGSP to ensure interconnected surface waters can support ecosystems like the Carpinteria Salt Marsh, and species, such as the endangered Southern California steelhead.</p> <p>NOAA’s Southern California Steelhead Recovery Plan (SCSRP) points to groundwater extraction and small surface diversions significantly altering flow regimes along the Conception Coast, “particularly in the lower stream reaches, and thus adversely affect(ing) both upstream and downstream fish passage and spawning and rearing opportunities.”⁷ A Critical Recovery Action for Carpinteria and Rincon Creek under the SCSR is to “(h)alt the unnatural dry-season reduction in the amount and extent of surface water to restore natural or pre-impact over-summering habitat characteristics and condition for steelhead.”⁸ The SCSR advises that Rincon and Carpinteria Creek should conduct a groundwater extraction assessment and analysis, and develop and implement a groundwater monitoring and management program. (<i>Id.</i>)</p>	<p>Groundwater pumping will be documented annually in the SGMA-required annual reports.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Nate Irwin (Santa Barbara Channelkeeper)			<p>Degraded Water Quality -</p> <p>Degraded water quality is an issue that should be addressed as a Tier 1 priority in the CGSP. There are increasing levels of TDS, chloride and Nitrate in many of the basin’s monitoring wells. Franklin Creek, Rincon Creek and Carpinteria Creek are on the State Water Boards TDML list.¹⁰ These trends are highlighting an increase in important health indicators, making water quality a sustainability issue that must be addressed by the GSA. According to the State Water Resources Control Board, the state drinking water standard for Nitrate is below 45 mg/L, specifically designed to protect infants,¹¹ and the Contaminant Level (MCL) for chloride is below 250 mg/L.¹² According to the CGSP, wells 19E1, 19K5, 19M1, 22R4 27E1, 28H1, 34B4, and 22R4 are all showing increasing trends in concentration of these contaminants. Franklin Creek is on the Central Coast Water Boards impaired waters list due to excessive levels of nitrate and phosphorus.¹³ This is due to fertilizer application, runoff from agricultural lands and urban lands, as well as base flow of nitrate impacted groundwater into streams within the Franklin Creek watershed.¹⁴ These water quality impairments are issues that need to be addressed and re-examined as tier 1 priorities.</p>	<p>All primary and secondary MCLs, including for nitrate, TDS, and chloride, are met for water delivered by CVWD for potable supply within their service area.</p> <p>Surface water quality in the creeks may be impacted by runoff from agricultural lands. Addressing this circumstance is beyond the mandate of SGMA or the scope of this GSP. This issue likely falls under the jurisdiction of the Regional Water Quality Control Board.</p>
Curtis Cloud Thornton	Executive Summary	1	<p>I strongly disagree with the statements of the district representatives that reclaimed water from the sanitation department will be —pure—. It is a foolish statement. Water is dynamic and pure is an impossible label for water. Spending tens of thousands of dollars on your information campaign offering propaganda is probably why no one is interested. It seems to me that the project is about to reach the fifty million dollar mark. I regret not speaking up about this sooner. As purely a layman with forty years experience as a researcher for Driscoll's and horticulturalist using water to produce hundreds of different varieties of fields and greenhouse flowers from San Diego country to San Mateo county I've relied on and had experience with almost a hundred sources of water in the state. From creek water in Pescadero and the discharged water from Newbury park in Santa Rosa creek to hydroponic rose growing operations in Watsonville to the well water from several locations in Salinas to Driscoll's research facilities with three sources of water including water from the Oxnard sanitation facility. I ran the Colorama Nursery on Via Real from 2001 to 2016 using exclusively Carpinteria district water. The water PH, frequently 8, and constantly high was toxic for some crops and reclaimed water has notoriously high PH. Now I'm only pointing out the harm from plants not my or others kidney stones that are caused by hard water. The public should be made aware of the facts about the high PH and the toxic concentrations of boron in the reclaimed water since reverse osmosis does not remove it. Also the amount of hormones and pharmaceuticals from human waste that will be pumped into our drinking water and the possible harm to mental health and early child development. I appreciate the opportunity to address this issue with my community and hope you're open to an honest evaluation of the negative aspects of this project and its effects on our most valuable resource. Curtis Cloud Thornton</p>	<p>The CAPP is proceeding in compliance with all applicable legislation and permitting considerations. However, the specifics of the implementation of the CAPP are beyond the scope of this GSP.</p>
Curtis Thornton (Children’s Environmental Health Network)	Section 6	9	<p>https://www.nrdc.org/sites/default/files/2023-05/pfas-mcl-affordability-letter-20230528.pdf</p> <p>https://www.nrdc.org/sites/default/files/2023-05/pfas-mcl-affordability-letter-20230528.pdf</p>	<p>Thank you for the reference. The GSA is aware of the ongoing regulatory actions regarding PFAS. These investigations are occurring under the authority of the RWQCB.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Curtis Thornton (Children's Environmental Health Network)	General Comment	9	https://www.nrdc.org/sites/default/files/2023-06/nrdc-pfda-iris-review-comments-20230609.pdf https://www.nrdc.org/sites/default/files/2023-06/nrdc-pfda-iris-review-comments-20230609.pdf	References noted.
Curtis Thornton (Children's Environmental Health Network)	General Comment	9	https://www.researchgate.net/publication/368054703_PHARMACEUTICALS_IN_WATER_CYCLE_A_REVIEW_ON_RISK_ASSESSMENT_AND_WASTEWATER_AND_SLUDGE_TREATMENT https://www.researchgate.net/publication/368054703_PHARMACEUTICALS_IN_WATER_CYCLE_A_REVIEW_ON_RISK_ASSESSMENT_AND_WASTEWATER_AND_SLUDGE_TREATMENT https://www.researchgate.net/publication/368054703_PHARMACEUTICALS_IN_WATER_CYCLE_A_REVIEW_ON_RISK_ASSESSMENT_AND_WASTEWATER_AND_SLUDGE_TREATMENT https://www.researchgate.net/publication/370079113_Water_Contamination_by_Estrogenic_Compounds_Review_Policy_Gaps_and_Recommendations_for_US_Federal_Regulation https://www.researchgate.net/publication/370079113_Water_Contamination_by_Estrogenic_Compounds_Review_Policy_Gaps_and_Recommendations_for_US_Federal_Regulation	References noted.
Suzette Chafey	General Comment	1	Trusting City of Carpinteria to do the logical, reasonable, affordable and sustainable plan to protect and support the community and agriculture.	Thank you for the comments. They are duly noted and maintained for the record. Individual comments on the GSP are addressed below.
Kim Jones (land owner)	Section 7	1	The current method of funding based on acreage with no regard to water usage, is not fair. The need for this plan is because we are using more water than the basin can sustainably provide. While the plan has language about having an equitable method of funding, it is not required and there is no reason to believe that the current funding method will change without expensive legal action by citizens to demand a fair and equitable funding method.	The methods that the GSA will use to generate fees in the future for ongoing GSA activities through the 20-year SGMA implementation period have not yet been determined. It is anticipated that these methods will be finalized in the first 1 to 2 years of the initial 5-year SGMA implementation period.
Pete and Chuck Dal Pozzo (Dal Pozzo Ranch LLC)	Section 7	9	Section 7.8 of the Draft Groundwater Sustainability Plan states that the fee program is likely to be based on non-metered (estimated) pumping.; However, there should be an option for those stakeholders who would rather report their pumping using well meters instead of an estimated pumping amount; This option would give those stakeholders who desire to use meters a far more accurate way of reporting their pumping. It would also give the Carpinteria GSA and the Carpinteria Groundwater Basin a head start on all the benefits of well metering as described in sections 6.10.1 and 6.10.2.	The GSA will consider using metered data for those private pumpers who wish to install and utilize meters for their wells. Other indirect methods will also be considered.

Commenter	Section	Page/ Figure/ Table	Comment	Response
Alison Johnson	Section 5	8	Concerns and questions: Are all property owners aware and/or duly informed what a water use budget may do the their property value? Potential home buyers considering Carpinteria may be told, Oh, you don't want to buy in Carp! The Water District controls your water use. You do not! This will translate into fewer home sales, less property taxes and therefore less money for our city.Do you (as a panel, with the most knowledge)present our dire situation directly to the City Council and potentially make serious warnings/recommendations to the Council to halt any future developments until this budget is one-hundred percent fully understood by all the residents and businesses already established here in Carpinteria? You represent this town with your 'future' mastery of groundwater use implications. No new developments should be considered until any and all implications of the water budget is completely understood by everyone here. Wouldn't it be wise, as "ground water guardians"; to recommend installing open pavers at the train station Parking Lot #3 to help capture precious ground water? (The ballot to rezone the lot had seriously confusing wording and the votes cast most likely misread them. The numbers were very close). Pro-active actions, like a moratorium on future development, installing open pavers, etc. are what we need to do now for the enduring future of this extraordinary small and special city.	The District uses both delivered surface water from the State Water Project and the Cachuma Project, in addition to groundwater, to provide supply to its service area. CVWD has determined it has sufficient water supplies in its 2020 Urban Water Management Plan. Projects and management actions discussed in Section 6 of the GSP are intended to avoid undesirable results in the future. Conservation and efficiency programs are discussed as a management action in Section 6.12. Discussions of specific local zoning ordinances are not within the scope of this GSP.
Bill Harz	Section 3	0	Not considered that we live in a active seismic area. last Fridays 4.0 earthquake reminded me of a hydrology article I read a number of years ago concerning the Ventura's ground water basin. It mentioned after the 1872 lone pine earthquake that a number of water wells in the Oxnard plain went artisan, one well shot out cobbles the size of hens eggs. This I believe represented that the shaking from almost 100 miles away caused a loss of storage capacity in the aquifer. I mention this as an additional need to be conservative in calculating safe yields in our aquifer.	It is understood that seismic activity may affect water levels in wells, but the effects are generally temporary, and water levels commonly return to static conditions after the earthquake event.
Noah Boland (Heal the Ocean)	General Comment	359	I found some typos throughout the text. It is noted that prior to 2019 seawater intrusion had not historically been detected in existing wells in the basin; however, before 2019 there were no monitoring wells along the coast were designed detected seawater intrusion. The CVWD El Caro Well, which pumps all three Basin aquifer zones, is located about two miles east of the Sentinel Wells.	This comment correctly notes that there were no sentinel wells along the coast prior to 2019. However, the statement that no seawater intrusion has been observed historically (in wells existing at the time) is accurate. Expansion of the Sentinel Monitoring Well network is recommended as a Tier 1 project. These will provide a notification before seawater advances to active private wells or municipal wells.
Alan Soicher	Section 6	27	Recommend to develop and start implementing a Groundwater Recharge Plan as a Tier 1 action (first five years) in the Carpinteria Basin. This would involve expanding significantly on the “desktop level feasibility analysis and ranking study” described under Section 6.7 Recharge Enhancement Projects. The Groundwater Recharge Plan would include a thorough identification of all possible recharge enhancements in the basin, identification of the potential impacts of those enhancements, engineering feasibility analysis, cost-benefit analysis, and identification of funding mechanisms and partnerships needed for implementation. The planning effort would be followed by initiation of high priority actions identified in the Groundwater Recharge Plan during the first five years of GSP implementation. Please see article in November 2, 2023 Coastal View News (page 5) for more information on this topic, and please include the text of the article by reference in this comment.	The first step in assessing the potential success of recharge projects is an engineering desktop study evaluating project feasibility, likely costs, benefits, and potential constraints to implementation. Such a study is recommended to be conducted as a management action during the initial 5-year SGMA implementation period (Section 6.15). Land availability for recharge basins, real estate costs, source water availability, and potential impacts to neighboring residential areas can be assessed in a desktop study, prior to proceeding with project implementation. In the view of the GSA and Technical Advisory Committee, assigning these projects to Tier 1 status is premature without such a feasibility study.

Commenter	Section	Page/ Figure/ Table	Comment	Response
Alan Soicher	Section 3	67	Recommend to re-evaluate the applicability of the methodology used in Section 3.2.6 for assessing interconnected surface water systems, and to update the methodology as needed to address the hydrogeomorphic conditions and processes specific to the Carpinteria Basin. Section 4.4.6 (page 4-34) notes that characterization of interconnected surface water systems may be a data gap in the Carpinteria GSP. The re-evaluation of the applicability of the methodology may lead to establishment of criteria in Section 5.10 for interconnected surface water, and is likely to have implications for Section 3.2.7 regarding Groundwater Dependent Ecosystems (GDE).	Text regarding this conclusion has been expanded in Section 3.2.6 to explain our reasoning more clearly. We reference DWR's classification identifying <i>gaining</i> , <i>losing</i> , and <i>disconnected</i> streams (Figure 3-43). It is not simply that the streams are losing streams, which we base our conclusion on, but the fact that even under the wettest conditions (as exemplified by spring 2005 water levels), there is still a significant observable distance between the channel bottom elevation (from DEM data) and the water table elevation. We maintain that the results of the analysis display that the distance between the channel bottom and the water table indicates the lack of a continuous saturated aquifer between the channel and the water table, and thus indicates a condition of disconnected streams (Figure 3-43c). A disconnected stream, by definition, has no interconnected surface water. Because this analysis indicates a hydraulic disconnection between the streams and the aquifer, we have not identified MTs or MOs for this sustainability indicator. Lack of surface water flow data in the basin is identified as a data gap in Section 6.14.
Paul Kops	Section 7	9	It's unconstitutional to charge any of the fees mentioned in Section 7.8 groundwater extraction charges, monthly fixed charges and variable pumping fees, assessments/parcel taxes, and parcel fees. There are many water well owners who are not big Marijuana farms. Those big farms are solely responsible for the excessive extraction of groundwater. But the GSA wants to penalize the little guy, the small independent farmer. It's not fair at all. Anyone with a legal well already paid the fees and taxes to have it tested, built, and registered. It's unlawful only to charge water well owners, too, as these fees would not specifically benefit any well owners. Sustainably would benefit all residents of Carpinteria, so if there are any fees, then every resident should have to pay. And if everyone is paying, then it's a tax, which would require a majority vote on the ballots to pass. And we all already pay the Carpinteria GSA special property tax, so how much more funding do you need? I believe it would be an outrageous overreach of the local government to force these few small individuals to pay for something that doesn't directly benefit them. The rules of Prop 13, 218, and 26 clearly explain how none of these funding sources mentioned above are illegal.	<p>The SGMA legislation empowers GSAs to assess fees for ongoing management and SGMA project implementation costs and maintenance. The specific methods and mechanisms for assessing future GSA fees have not been determined. Public input will be solicited and considered, and GSA legal counsel will provide advice to ascertain that all GSA administration is in compliance with state law and local regulations.</p> <p>GSA fees apply to all users of groundwater including the Carpinteria Valley Water District. These fees are paid by the rate payers of Carpinteria.</p>
Jim Bailard	General Comment		Enclosed are my comments on the draft GSP. My comments include three sections: a) general thoughts and comments relating to broad issues and specific sections of the report, b) general conclusions and recommendations stemming from a), and finally c) brief comments and typos related to specific pages of the report. The report represents a substantial effort on the part of the Agency and its contractors and will provide a guide for moving forward in the management of the valley's groundwater. It was a pleasure serving as a member of the Advisory Committee.	Comments received and responses are provided below.

Commenter	Section	Page/ Figure/ Table	Comment	Response
Jim Bailard	Section 3		<ol style="list-style-type: none"> 1. Modeling and measurements indicate that the groundwater supply has been out of balance for several decades with a significant deficit between water extraction and re-supply. 2. The State's recommended groundwater model may be too simplistic to adequately incorporate predicted climate change effects. The perturbed precipitation input data methodology is unable to include the "flashiness" of future rainfall patterns with shorter, more intense rainfall events and longer periods of intense drought. A probabilistic model (e.g., Monte Carlo Simulation) might be more useful in answering questions about future groundwater supplies and guiding future management actions. 3. Model predictions of future groundwater supplies may be overly optimistic. In spite of clear evidence of a long-term deficit in groundwater supplies, model predictions show a surplus of water at the end of the simulation period even when mitigating actions are not included. This result seems unlikely. 4. Private pumping volumes are not well known in spite of being an important component of the groundwater budget. The installation of meters on all active would provide this valuable and needed data. 5. Groundwater modeling suggests that seawater intrusion has been a problem in the basin for decades. Recent measurements show brackish water in the lowest aquifer zone near the coast. The intrusion process is poorly understood. Additional geological measurements are needed coupled with the development of a 3-D, variable density, groundwater model. 6. Basin groundwater levels are currently depressed leaving little buffer against ongoing/future periods of drought. 	<ol style="list-style-type: none"> 1. It is noted that the water budget results indicate a historical deficit between recharge and discharge, which has been exacerbated by the recent drought. 2. The GSA consultants followed DWR guidance in modeling potential projected impacts of climate change on the hydrology of the central coast. Flashiness is represented in a non-linear perturbation to the historical hydrologic record, but it does not allow for the creation of rain events where none exist in the hydrologic record, or the elimination of rain events that occurred. Monte Carlo modeling analysis may be considered in future modeling analysis sponsored by the GSA. 3. The methodology for estimating future pumping is documented in Appendix F and utilizes assumptions consistent with District planning documents, including the general plan, the water resources plan, and the urban water management plan, 4. Metering will be considered for active wells in the Basin. Other methods of estimation will also be considered. 5. There is no modeling evidence suggesting decades of seawater intrusion. Increased chlorides in the Sentinel well data is only observed over the past 3 to 4 years. A density-dependent flow model will be considered during ongoing assessment of the conditions along the coast in the Basin. 6. Basin groundwater conditions are observed to be lowered in response to the recent drought. Groundwater responds to weather patterns much more slowly than surface water, and will continue to be monitored during the 20-year SGMA implementation period. This GSP is intended to provide a platform to maintain the knowledge base of hydrologic conditions in the Basin, and to provide the framework to establish adaptive management of groundwater in the Basin through annual reports, projects, and management actions.
Jim Bailard	Section 4		<ol style="list-style-type: none"> 1. Evidence of seawater intrusion indicates the need for continued/additional monitoring actions. Depressed groundwater levels are the underlying cause of the intrusion. A water injection barrier will likely be needed to counteract this problem but is not considered an immediate priority in the report. The report calls for additional monitoring coupled with future modeling, design and construction of the barrier if warranted. This slow-go approach seems risky. 2. A 3-D seawater intrusion model (e.g., SEAWAT) would be helpful in guiding future monitoring efforts and assessing the need and timing for a water injection barrier. 	<ol style="list-style-type: none"> 1. Additional monitoring is recommended as a Tier 1 project. The possibility of needing a seawater intrusion barrier project is recognized, but additional data is needed along the coast before any serious design considerations can be commenced. 2. A density-dependent flow model may be sponsored by the GSA in the future.
Jim Bailard	Section 5		<ol style="list-style-type: none"> 1. The report is inconsistent in its discussion of groundwater supply imbalance and seawater intrusion. In Section 5, these items are treated as issues of potential concern that may become more serious in the future. Later, in Section 6, both issues are treated as significant ongoing problems that require mitigation actions. Model results and monitoring data support the later position. 2. A probabilistic groundwater model might help the district identify better management plans and actions for the basin. The current model produces single, deterministic outcomes that leave the district with limited information relating to MO's, MT's and required management actions. A more useful product would be probabilities of various negative conditions occurring in the future in response to various projects and management actions. The idea would be to select an acceptable low probability value and take action to achieve that goal. Obviously, this approach cannot be pursued at this time, but the district might encourage the State Department of Water Resources to develop such a model for future use. 	<ol style="list-style-type: none"> 1. Unlike other coastal basins that have observed seawater intrusion for decades (e.g., Salinas, Oxnard), the observation of data that indicate seawater intrusion are, at this writing, confined to a single well and have been observed for approximately the past 3 years. Expansion of the sentinel well monitoring network is prioritized as a Tier 1 project to gather additional data along the coast. 2. Multiple probabilistic model runs were not scoped for this version of the GSP but will be considered for future analysis.

Commenter	Section	Page/ Figure/ Table	Comment	Response
Jim Bailard	Section 6		<ol style="list-style-type: none"> 1. The text states that the Carpinteria GSA may choose to collaborate with other land use and regulatory agencies on future matters involving water supplies. It would seem that a more proactive stance is warranted since these issues go to the heart of the district's mission. 2. The CAPP is clearly needed at this time. It will help restore depleted groundwater supplies by increasing the rate of basin replenishment. 3. Monitoring and modeling suggest the water injection barrier project may be needed in the near future yet it is listed as a Tier 2 priority that may never be needed. It will be great if such an optimistic outcome takes place but it seems unlikely. Perhaps a combination of CAPP, shifting of CVWD pumping sites and reduction in private well pumping will do the trick. Given present uncertainties, it would seem prudent to begin making preparations for a barrier project. 4. Proposed management actions make no mention of increasing near-term groundwater levels as a buffer against future droughts. Such action would seem warranted given the present uncertainty of future rainfall patterns. 5. Proposed management actions do not prioritize the development of a 3-D model for seawater intrusion. This seems short-sighted given that such a model could be used to guide deployment of additional monitoring wells, refinement of the chlorinity iso-contour MT, and assessment of the need and timing for the water injection barrier project. 	<ol style="list-style-type: none"> 1. The text is intended to indicate the GSA's willingness to collaborate with other agencies, if all participants are in agreement. 2. The CAPP is proceeding and is prioritized as a Tier 1 project to be implemented in the initial 5-year SGMA implementation period. It is currently anticipated to be operational by 2026. 3. A seawater intrusion barrier project is assigned to Tier 2 status to allow for the expansion of the sentinel well monitoring network expansion to collect needed data. Sentinel well expansion may be viewed as preparatory for a barrier project if needed. Proceeding to implementation of a barrier project without collecting additional data would be premature. 4. Most if not all of the projects and management actions have the primary or ancillary goal of preventing the unreasonable decline of groundwater levels and reduction of groundwater in storage. 5. The management actions in Section 6.12 identify groundwater model updates, including development of a density-dependent flow model to simulate seawater intrusion, and incorporation of an interactive stream package to calculate surface water/groundwater interaction based on flow and aquifer conditions rather than direct definition of stream percolation.
Jim Bailard	Section 7		<ol style="list-style-type: none"> 1. The discussion of private property water rights is confusing. The report calls for a hands-off approach, but leaves a lot of questions unanswered. For example, do private well owners have the right to pump as much groundwater as they choose in spite of negative consequences to the basin? If that's the case, how can the GSA manage groundwater supplies in a sustainable manner? If pumping limits must be set, how would this be done? Lots of unanswered questions. 	<p>SGMA addresses the sustainability of a groundwater basin, which can include reductions in pumping for all if necessary. "Water rights" addresses which users have the rights and what percentage of available groundwater each user has rights to. Under SGMA, the approach would be to work together to establish a fair division of available resources if necessary and include projects and management actions to get to and maintain sustainability. Under the "water rights" rubric division of groundwater resources would be handled in a legal forum, such as a court of law.</p>

Commenter	Section	Page/ Figure/ Table	Comment	Response
Jim Bailard	General Comments	NA	<p>A. The GSA should require water meters be installed on all active wells.</p> <p>B. Predictions of future groundwater supplies should be viewed with caution due to limitations in the current groundwater model. Conservative management of groundwater supplies are warranted until better information is available.</p> <p>C. The report should use a more consistent approach in its discussion of water supply imbalance and seawater intrusion. These issues should be presented as significant problems that need mitigation in the near term, not as issues that may become serious in the future.</p> <p>D. The GSA should urge the California Department of Water Resources to develop a better groundwater model (perhaps probability-based) for use in GSP updates.</p> <p>E. The CAPP project should be completed as quickly as possible.</p> <p>F. The GSA should consider increasing near-term groundwater supplies as a hedge against ongoing/future droughts.</p> <p>G. The development of a 3-D seawater intrusion model should be prioritized as a near-term task.</p> <p>H. Priority should be given to pre-project tasks for a water injection barrier project allowing timely implementation if needed.</p> <p>I. Clarity should be sought in determining the GSA's ability to manage future groundwater extraction by private land owners.</p> <p>J. The GSA should consider taking a more proactive approach in influencing local land use decisions as they relate to water supply issues.</p>	<p>A. Metering is one option being considered to better measure private pumping in the Basin, as described in Section 6.10.</p> <p>B. It is the intent of SGMA to foster sustainable groundwater management over the 20-year planning horizon.</p> <p>C. Both of these issues are identified as significant management issues to be monitored and addressed during the SGMA implementation period. It is unclear at this point to what extent these issues were exacerbated by the recent drought, and to what extent they will continue into the future. Groundwater systems respond slowly to changing conditions, and the SGMA annual reports will document conditions, projects, and management actions on an annual basis during the 20-year planning horizon.</p> <p>D. It is the responsibility of the GSA to maintain and update the basin groundwater model, and appropriate revisions are expected in the future.</p> <p>E. The CAPP is scheduled for completion by 2026.</p> <p>F. Many of the projects and management actions, including water banking, ASR, and recharge projects, are intended to increase local supplies.</p> <p>G. A 3-D density-dependent flow model will be considered in the future. It would be most effective to consider this after completion of the Sentinel Well Network Expansion, when additional data along the coast is available.</p> <p>H. The Sentinel Well Network Expansion project is prioritized as a Tier 1 project. This is essentially a pre-project task required before consideration of a barrier project.</p> <p>I. This is a legal and policy consideration that will be considered during the implementation period.</p> <p>J. Comment noted. The GSA will strive for the most efficient management of the groundwater basin in concert with other local agencies.</p>
Jim Bailard	Section 1	NA	Add a subsection near the front of the report listing definitions for all acronyms.	A list of Abbreviations and Acronyms is included at the beginning of the Plan. It is a standard list following accepted document production that provides the abbreviations and acronyms used and their definitions. Abbreviations and acronyms are defined in the Executive Summary and then in the report as a whole on first use and sometimes again. While a glossary with extended definitions for common terms is not provided for the Plan and will not be created, the "Definitions" section at the beginning of the Plan provides full definitions from the California Water Code and the CCR for many terms used in the Plan.
Jim Bailard	Section 3	Page 3-9 - Figure 3-4	Should there be a key for the various soil types? All Figures: Pages with figures need page numbers added.	A legend has been included for the various geologic formations presented in the figure. Page numbers are added to figures for the final GSP.
Jim Bailard	Section 3	Page 3-100- pt Paragraph	Second sentence should say"..... two single wet years in 2017 and 2019." Page 3-117 - Last Paragraph: Perhaps State Water Project should be spelled out instead of SWP?	Text revised.
Jim Bailard	Section 3	Page 3-127 - Last Paragraph	The last sentence says"... with the ocean is believed to be occurring, ..". This should be changed to "... with the ocean is occurring, ...".	Text is revised.
Jim Bailard	Section 4	Page 4-4 -1st Paragraph	RMS & SGMA should be spelled out/defined. Page 4-9- pt Paragraph: TDS should be spelled out/defined.	The definition for RMS has been added to Section 4 where it is first used. The definition for SGMA has been added to Section 4 where it is first used. TDS is defined in Section 4.3.1, so no change made.

Commenter	Section	Page/ Figure/ Table	Comment	Response
Jim Bailard	Section 4	Page 4-11- pt Paragraph	BMP's should be spelled out/defined. Also, well density information should use consistent units - i.e., either #wells/sq-mile or #wells/100 sq-mile, not both.	The definition of BMP has been added to Section 4.4. The first units is expressed as documented in the original reference, which references pumping volume. The second units is more appropriate for a basin of area 12.7 square miles.
Jim Bailard	Section 4	Page 4-11- 2nd Paragraph	AB 3030 GMP should be spelled out/defined.	The definition for AB has been added to Section 4.3.1. GMP is already defined in Section 4.3.1, so no change made.
Jim Bailard	Section 4	Page 4-17 - 2nd Paragraph	East and west are reversed. MGD lies along the Basin's western boundary and Ventura County along its east boundary.	Corrected.
Jim Bailard	Section 4	Page 4-19 - Last Paragraph	It might be useful to mention what the specific data gaps are along the east and west boundaries. Also, how will these data gaps be addressed?	Text revised.
Jim Bailard	Section 4	Page 4-20 - 2nd Paragraph	The text speaks of a potential for seawater intrusion. In fact, Chapter 3 indicates that intrusion is already happening and has been for decades. Should the Chapter 4 text be changed to reflect this fact?	There is no evidence that seawater intrusion has been occurring for decades in the Carpinteria Basin. To date evidence has been observed in one well. Text is left as originally written.
Jim Bailard	Section 4	Page 4-33 - Middle of the Page	The text speaks of low groundwater conditions during the 1950's and early 1990's. Current conditions in many areas are also bad. Should this be stated?	A reference to the recent drought period is added.
Jim Bailard	Section 5	Page 5-2, Section 5.2	This subsection dealing with the definition of acronyms is extremely useful and should be replicated in other chapters. Acronyms should be defined whenever they are first encountered. It might be more efficient to provide a separate section at the front of the report defining all acronyms used in the report.	A list of Abbreviations and Acronyms is included at the beginning of the Plan. It is a standard list following accepted document production that provides the abbreviations and acronyms used and their definitions. Abbreviations and acronyms are defined in the Executive Summary and then in the report as a whole on first use and sometimes again. While a glossary with extended definitions for common terms is not provided for the Plan and will not be created, the "Definitions" section at the beginning of the Plan provides full definitions from the California Water Code and the CCR for many terms used in the Plan.
Jim Bailard	Section 5	Page 5-13, Figures 5-1 thru 5-8	An argument could be made that starting the timeline at 1940 gives an optimistic impression that groundwater supplies are doing pretty well. The 1940's and early 50's were a time when groundwater was the principal source of irrigation water for the valley. Once the Cachuma Reservoir came online in the mid-1950's, water supplies became more plentiful and groundwater levels rebounded reaching a maximum around 1985. After that, conditions changed and groundwater levels began to drop (ignoring ups and downs caused by wet and dry years) reflecting an imbalance between basin re-charge and pumped extraction. By contrast, if the timeline were changed to 1985 (i.e., the start of the historical precipitation model period), it would give a perhaps more realistic picture of current conditions.	The graphs start in the 1940s because that is the beginning of the period of record for water level data in some of the wells. It is recognized that land and water use conditions have changed over time.

Commenter	Section	Page/ Figure/ Table	Comment	Response
Jim Bailard	Section 5	Page 5-23, 151 Paragraph	This is another illustration of overly optimistic predictions. The text states that no undesirable effects occurred during the current drought period hence MT's can safely be set at the lowest levels observed during this time period. In fact, current water levels appear to cause ongoing seawater intrusion and there exists little room for continued drought. The CAPP project will greatly help to mitigate the current over-draft situation. Additional priority should be given to increasing groundwater levels in the short/medium term.	Undesirable results for the chronic lowering of groundwater levels are defined in Section 5.5.1 as those that impact the ability to provide potable water supply, or that indicate insufficient supply for agricultural operations as reported during interviews with agricultural representatives in the Basin. These conditions were not reported during the recent drought. Seawater Intrusion undesirable results are defined as impacting currently active wells, which has not been observed. However, seawater intrusion is repeatedly identified as a significant issue to be addressed in ongoing groundwater management in the Basin.
Jim Bailard	Section 5	Pages- 32, Middle of Page	Another example of rosy thinking. The text implies that groundwater levels could decline if increased pumping puts the basin out of balance. In fact, the basin water supply has been out of balance for the past 35 years. There are other places in the chapter where this comment applies.	Comment noted.
Jim Bailard	Section 5	Page 5-39, Bottom of Page	This paragraph does a much better job discussing the current seawater intrusion situation, describing it as an ongoing process that will require further monitoring and management action.	Seawater intrusion is recognized in the GSP as a significant issue to be monitored and addressed in the basin management, including a Tier 1 project for sentinel well network expansion.
Jim Bailard	Section 5	Page 5-45, Lower Page	Change, "An estimate of 0.15 used ..." to "An estimate of 0.15 was used ...". Page 5-48, Bottom of Page: Additional ERT surveys may have been mentioned in Chapter 4. If so, should they be mentioned here for consistency?	Calculations are generally referenced in the present tense. The ERT surveys are informative, but do not directly apply to the measurement of minimum thresholds, which this paragraph discusses.
Jim Bailard	Section 6	Page 6-2, Middle of Page	Land use decisions can have a significant impact on overall water use, including groundwater supplies. Shouldn't the GSA or CVWD take a more active position in providing input and feedback relating to water supplies?	The GSA intends to work with other agencies working toward groundwater sustainability.
Jim Bailard	Section 6	Page 6-14, Figure 6-2	The note in the top right corner of this figure doesn't show up properly in the digital document. I assume it will be corrected in the final printed report.	The legend for Figure 6-2 has been moved to the blank space.
Jim Bailard	Section 6	Page 6-15, Middle of Page	iso-contour is misspelled.	Isocontour (without a hyphen) is used in the rest of the Plan and is accepted use (see quote from SWCA in Section 5.7.2). No change made.
Jim Bailard	Section 6	Page 6-31, Middle of Page	The Intertie Project is mentioned in the text as being Tier 1 but it doesn't show up in the earlier list.	The text describing this project is revised from the Public Draft. The public draft included both the infrastructure intertie project and the potential water banking agreements in the same section, which was confusing. These are now addressed as separate projects in Section 6.5 and Section 6.9.
Jim Bailard	Section 6	Page 6-31, Middle of Page	Is the term "wheel" a specialized water resources word? Would "direct" be a better word?	"Water wheeling" is casual industry parlance. Text revised.
Jim Bailard	Section 7	Page 7-1, First Paragraph	The text refers to the Groundwater Sustainability Plan as the "Plan". Other sections refer to it as the GSP. Best to choose one or the other and be consistent.	GSP and Plan are used throughout the document and are both acceptable as definitions for Groundwater Sustainability Plan. A definition for GSP has been added to the Acronym list and GSP is now defined on first use in the text. Text has been added to the acronym list under the entries "GSP" and "Plan" to clarify this.